**CITY OF STORM LAKE**
**REGULAR COUNCIL MEETING, CITY HALL COUNCIL CHAMBERS**
**MARCH 19, 2018**
**5:00 PM**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**AGENDA**

1. Hear the Public
2. Consent Agenda
   A. **Resolution No. 72-R-2017-2018 Approving the Consent Agenda**
   B. **Buy Local Information**
   C. **Resolution No. 72-R-2017-2018 Authorizing Requests Associated with the 2018 BVU Fiesta Latina Event**
   D. **Resolution No. 72-R-2017-2018 Authorizing a Series of Requests by Storm Lake United Related to Community Events Throughout 2018**
3. **Ordinance No. 05-O-2017-2018 Amending The City Code By Updating The Referenced Electrical Codes and Standards To The Most Recent Edition - 3rd Reading**
4. **Resolution No. 73-R-2017-2018 Approving Electronic Bidding Procedures And Preliminary Official Statement for $3.35M GO Notes**
5. Resolution No. 74-R-2017-2018 Approving Electronic Bidding Procedures And Preliminary Official Statement for $2.05M GO Refunding Notes
6. **Motion to Approve and Submit Transportation Alternative Project Application For North Central Shared Use Path and Approve Resolution No. 75-R-2017-2018**
7. **Motion to Approve Northwest Iowa Planning and Development Commission Agreement**
8. **Setting Public Hearing for Plans, Specifications, Form of Contract and Engineer's Estimate for Airport Rehabilitation Apron and Connector Taxiway Project**
9. **Motion to Set Public Hearing for United Community Health Center Community Development Block Grant Application**
10. **Motion To Approve And Submit Map 21 Application For Richland Street From Industry Street To Radio Road**
11. Adjourn

***Meeting Protocol***

If you wish to speak today, please:

1. To speak on an agenda item please approach the podium when that agenda item is called and upon recognition by the Mayor identify yourself by stating your name and address.

2. If your issue is not a topic on the agenda please approach the podium under the "Hear the Public" agenda item and upon recognition by the Mayor identify yourself by stating your name and address.
3. Please keep your remarks to three (3) minutes or less.
4. If you require accommodation for this meeting including but not limited to translation services, hearing assistance, or accessibility please contact the City Clerk at least four (4) hours prior to the start of the meeting.

**If you have concerns about any of the items on the consent agenda, they may be separated from the consent agenda and voted on individually.*
***Ordinances may be read at three consecutive meetings or readings may be waived and ordinances may be passed at only one or two meetings.*

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# Staff Summary

**3/19/2018**
**Agenda Item # A.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Mayra Martinez, City Clerk

**SUBJECT:** **Resolution No. 72-R-2017-2018 Approving the Consent Agenda**

**BACKGROUND:** The Consent Agenda Includes:

- List of bills for approval
- King's Pointe and Sunrise Pointe disbursements for approval
- Approve the March 5, 2018 City Council Minutes
- Approve renewal liquor license for Sichanh Liquor Store ( 812 Flindt ), King's Pointe and Sunrise Pointe Golf Course (contingent of dram shop submittal)
- Approve requests in connection with the 2018 Fiesta Latina Events for April 14, 2018 (see staff summary)
- Approve series of request associated with the 2018 Storm Lake Community Events requested by Storm Lake United (see staff summary)

**FISCAL IMPACT:** The City will pay the following expenditures:

- List of Bills - $213,370.10
- King's Pointe & Sunrise Pointe Golf Course Bills - $65,669.20

The City will receive the following revenues:

- Liquor license renewal - $1,890.00

**RECOMMENDATION:** Approve Resolution No. 72-R-2017-2018 adopting the Consent Agenda

**ATTACHMENTS:**

| Description | Type |
|---|---|
| Resolution No. 72-R-2017-2018 | Resolution |
| Minutes - March 5, 2018 | Minutes |
| List of Bills | List of Bills |
| King's Pointe and Golf Course - List of Bills | List of Bills |
| Sichanh Liquor Store Application | Application |
| Sichanh Liquor Store Report | Backup Material |

| | |
|---|---|
| 🗋 King's Pointe Application | Application |
| 🗋 King's Pointe Report | Backup Material |
| 🗋 Sunrise Pointe Golf Course | Application |
| 🗋 Sunrise Pointe Golf Course Report | Backup Material |

RESOLUTION NO. 72-R-2017-2018

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA:

To approve the Consent Agenda which includes the list of bills, King's Pointe and Sunrise Pointe disbursements and to prorate to the appropriate funds

To further approve the minute as presented to the Council for the regular City Council meeting March 5, 2018.

To further approve renewal liquor license for Sichanh Liquor Store (812 Flindt ), King's Pointe and Sunrise Pointe Golf Course (contingent of dram shop submittal)

To further approve requests in connection with the 2018 Fiesta Latina Events for April 14, 2018 as follows:

- Use of Chautauqua Park on 4-14-2018 for the Fiesta Latina Event
- Noise Variance for the venue between the hours of 12:00pm & 7:00pm for outdoor amplified entertainment
- Permission for food vendors within the venue
- Permission for inflatables & other attractions within the venue
- Closing of Chautauqua Park Drive from Hudson Street west to Lakeshore Drive to enhance security for the event's venue.

To further approve series of request associated with the 2018 Storm Lake Community Events requested by Storm Lake United as follows:

**Taste of Storm Lake**

- Permission to use the Chautauqua Park Shelter House each Thursday from 6/7 until 9/13 for the weekly event
- A Noise Variance for the venue on each Thursday from 4:00pm until 8:00pm

**Farmers Market**

- Authorization for sidewalk sale of farmer raised goods on the east side of Erie Street from East 5th north to East 6th and the north side of East 5th immediately east of Erie Street
- Farmers Market to be set up on Saturdays from 6/2 until 10/13 from 7:00am until1:00pm and on Thursdays during the same period from 3:00pm until 6:30pm
- Noise Variance for the market venue during the same dates and times as listed above

**Lake Fest**

- Use of Awaysis and Sunrise Parks on 6/22 through 6/24 for the events (including the Great Lawn) from 8:00am until 12:00am on 6/22, 7:00am until 1:00am on 6/23 and 12:00am until 5:00pm on 6/24 for set up, the event(s) and clean up
- Noise Variances from 12:00pm until 12:00am on 6/22 & 12:00pm until 1:00am on 6/23 for the venue
- Closure of the west Awaysis Parking Lot on 6/23 from 6:00am until 1:00pm to facilitate entertainer, public safety and support vehicles
- Appropriate support from the Parks and Public Safety Department throughout the weekend
- Permission for food & merchandise vending within the venue
- Permission for alcohol sales within the venue on Saturday 12:00pm until 12:00am under the umbrella of the Kings Pointe liquor license
- Permissions for committee personnel to use ATV's in the venue throughout the weekend for logistics and clean up
- Permission to fence off the great lawn to create the entertainment venue
- Permission for port-a-pots to be placed inside of the venue for the event

**Ridiculous Days**

- Permission for sidewalk sales in the downtown central business district from 7:00am on 7/19 until 5:00pm on 7/21
- Permission for food vending on sidewalks in the central business district on 7/19 from 8:00am until 8:00pm
- Noise Variance for the central business district on 7/19 from 3:00pm until 8:00pm

**Wood, Wine & Blues**

- Permission to use Sunset Park from 9:00am on 8/17 until 5:00pm on 8/19 for the event venue
- Permission to use the Band Shell in Sunset Park on 8/18 from 10:00am until 5:00pm
- Noise Variance for the venue on 8/17 from 12p-9p, 8/18 from 11a-7p, 8/19 from 10a-5p
- Permission for chainsaw sculpting within the venue for the weekend
- Permission for Storm Lake United, vendors and sculptors to sell merchandise within the venue during the event
- Permission for food vending within the venue
- Appropriate access to electrical service in the park

- Appropriate support from the Parks and Public Safety Departments throughout the event

**Chills and Thrills**

- Permission for student and community organizations to set up tables on the sidewalks in the central business district from 9a-12p on 10-27-2018
- Noise Variance for the central business district for the event from 9a-12p

**Miracle of Main Street**

- Noise Variance in the central business district on 12/6 from 5p-9p
  Permit for a 6p parade
- Permission to briefly close the 200 block of East 5th Street following the parade for the Christmas Tree lighting

PASSED AND APPROVED this 19$^{th}$ day of March, 2018

____________________________________
Michael Porsch, City Manager

ATTEST:

__________________________________
Mayra A. Martine, City Clerk

**REGULAR COUNCIL MEETING, CITY OF STORM LAKE, IOWA, CITY HALL, MARCH 19, 2018 5:00 P.M.**

Present: Mayor Michael Porsch, Council Members Jose Ibarra, Tyson Rice, Dan Smith, and Bruce Engelmann .Absent: Bruce Carlson
Staff present: City Manager Keri Navratil, Assistant City Manager David Derragon, City Attorney Phil Havens, Public Safety Director Mark Prosser, Fire Chief Mike Jones, Building Official Scott Olesen, Wastewater Treatment Plan Superintendent Mark Streed, Wastewater Assistant Superintendent Daniel Ramos, Finance Director Brian Oakleaf, Finance Office Assistant Jean Cashman, and City Clerk Mayra Martinez

Mayor Porsch called the meeting to order at 5:00pm.

**Hear the Public –** none

**Consent Agenda –** Moved by Council Member Smith to approve the consent agenda which includes the list of bills check # 57690 through # 57803 excluding check #057731, 057729, and 57795, and ACH batch # 2018.03.05 – 501, King's Pointe and Sunrise Pointe disbursements, March 19, 2018 minutes, renewal liquor license for Mo's Tap, easement agreement with Storm Lake Foundation and noise variance for Buena Vista University 2018 Fiesta Latina for Tuesday, May 1, 2018 from 8:30 am until 5:00 pm. Seconded by Council Member Engelmann. Vote: All ayes with Council Member Carlson absent. Motion carried.

**Community Education Update –** Joe Kucera updated the City Council with the various programs Community Education holds throughout the year.

**Electrical Code Update** – Moved by Council Rice to approve 2nd reading of Ordinance No. 05-O-2017-2018 amending the City Code by updating the Referenced Electrical Codes and Standards to the most recent Edition. Seconded by Council Member Ibarra. Vote: All ayes with Council Member Carlson absent. Motion carried.

**Capital Loan –** Mayor Porsch opened the public hearing on the authorization of a loan agreement and the issuance of notes to evidence the obligation of the City thereunder stating that this was the time and place for any comments. Hearing no comments Mayor Porsch then closed the public hearing.

Moved by Council Engelmann to adopt Resolution No. 66-R-2017-2018 instituting proceedings to take additional action on not to exceed $4,700,000 General Refunding Capital Loan Notes. Seconded by Council Member Smith. Vote: All ayes with Council Member Carlson absent. Motion carried.

Resolution No. 66-R-2017-2018

RESOLUTION INSTITUTING PROCEEDINGS TO TAKE ADDITIONAL ACTION FOR THE ISSUANCE OF NOT TO EXCEED $4,700,000 GENERAL OBLIGATION CAPITAL LOAN NOTES

WHEREAS, pursuant to notice published as required by law, the City Council has held a public meeting and hearing upon the proposal to institute proceedings for the authorization of a Loan Agreement and the issuance of not to exceed $4,700,000 General Obligation Capital Loan Notes, for essential corporate purposes, in order to provide funds to pay the costs of refunding or refinancing certain outstanding indebtedness of the City, including General Obligation Capital Loan Notes, Taxable Series 2010, dated February 1, 2010; and General Obligation Annual Appropriation Urban Renewal Bonds, Series 2011, dated July 1, 2011, and has considered the extent of objections received from residents or property owners as to the proposed issuance of Notes; and following action is now considered to be in the best interests of the City and residents thereof.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA:

Section 1. That this Council does hereby institute proceedings and take additional action for the authorization and issuance in the manner required by law of not to exceed $4,700,000 General Obligation Capital Loan Notes, for the foregoing essential corporate purposes.

PASSED AND APPROVED this 5th day of March, 2018.

______________________________________

Michael Porsch, Mayor

ATTEST:

______________________________________

Mayra A. Martinez, City Clerk

**FY 18/19 –** Mayor Porsch opened the public hearing on FY2018-2019 Budget stating that this was the time and place for any comments. Hearing no comment Mayor then closed the public hearing.

Moved by Council Member Smith to adopt Resolution No. 67-R-2017-2018 adopting the FY 2018-2019 Budget. Seconded by Council Member Engelmann. Vote: All ayes with Council Member Carlson absent. Motion carried.

**RESOLUTION NO. 67-R-2017-2018**

**RESOLUTION ADOPTING THE 2018-2019 FISCAL YEAR BUDGET FOR THE CITY OF STORM LAKE, IOWA**

Be it resolved by the Council of the City of Storm Lake, Iowa:

Whereas the proposed budget has been published as required by law, and

Whereas the City Council has held a public hearing as required by law, and

Whereas all transfer of funds must be approved by resolution of the City Council.

NOW THEREFORE BE IT RESOLVED that the annual budget for the fiscal year ending June 30, 2018, as set forth in the Budget Summary and in the detailed budget in support thereof showing the revenue estimates, transfers and appropriation expenditures and allocations to program activities for said fiscal year be adopted.

| | | Budget FY 2019 | Re-est. FY 2018 | Actual FY 2017 |
|---|---|---|---|---|
| | | (a) | (b) | (c) |
| **Revenues & Other Financing Sources** | | | | |
| Taxes Levied on Property | 1 | 4,191,406 | 4,218,861 | 4,548,875 |
| Less: Uncollected Property Taxes-Levy Year | 2 | 0 | 0 | 0 |
| **Net Current Property Taxes** | **3** | 4,191,406 | 4,218,861 | 4,548,875 |
| Delinquent Property Taxes | 4 | 0 | 0 | 0 |
| TIF Revenues | 5 | 785,734 | 794,019 | 895,498 |
| Other City Taxes | 6 | 2,218,636 | 2,084,841 | 2,290,573 |
| Licenses & Permits | 7 | 160,895 | 156,100 | 251,129 |
| Use of Money and Property | 8 | 164,315 | 153,185 | 150,024 |
| Intergovernmental | 9 | 3,844,718 | 5,882,727 | 2,372,600 |
| Charges for Services | 10 | 14,236,416 | 13,742,024 | 13,647,583 |
| Special Assessments | 11 | 0 | 0 | 0 |
| Miscellaneous | 12 | 248,000 | 369,400 | 397,824 |
| Other Financing Sources | 13 | 706,000 | 103,000 | 236,281 |
| Transfers In | 14 | 6,478,884 | 6,478,884 | 5,800,792 |
| **Total Revenues and Other Sources** | **15** | 33,035,004 | 33,983,041 | 30,591,179 |
| **Expenditures & Other Financing Uses** | | | | |
| Public Safety | 16 | 3,766,780 | 2,952,044 | 2,914,869 |
| Public Works | 17 | 1,466,067 | 1,359,165 | 1,242,955 |
| Health and Social Services | 18 | 7,500 | 8,250 | 7,618 |
| Culture and Recreation | 19 | 2,221,733 | 1,983,912 | 1,965,502 |
| Community and Economic Development | 20 | 648,843 | 592,500 | 322,778 |
| General Government | 21 | 614,735 | 504,171 | 448,744 |
| Debt Service | 22 | 2,315,552 | 2,163,550 | 1,746,309 |
| Capital Projects | 23 | 2,991,753 | 5,123,600 | 616,303 |
| **Total Government Activities Expenditures** | 24 | 14,032,963 | 14,687,192 | 9,265,078 |
| Business Type / Enterprises | 25 | 12,366,654 | 12,439,622 | 14,006,751 |
| **Total ALL Expenditures** | **26** | 26,399,617 | 27,126,814 | 23,271,829 |
| Transfers Out | 27 | 6,478,884 | 6,478,884 | 5,800,792 |
| **Total Expenditures/Transfers Out** | **28** | 32,878,501 | 33,605,698 | 29,072,621 |
| **Excess Revenues & Other Sources Over (Under) Expenditures/Transfers Out** | **29** | 156,503 | 377,343 | 1,518,558 |
| Beginning Fund Balance July 1 | 30 | 16,090,244 | 15,712,901 | 14,194,343 |
| **Ending Fund Balance June 30** | **31** | 16,246,747 | 16,090,244 | 15,712,901 |

PASSED AND APPROVED this 5th day of March, 2018.

Michael Porsch, Mayor

ATTEST:

______________________________
Mayra A. Martinez, City Clerk

Moved by Council Member Rice to adopt Resolution No.68-R2017-2018 adopting the Five-Year Capital Improvements Plan. Seconded by Council Member Ibarra. Vote: All ayes with Council Member Carlson absent. Motion carried.

**RESOLUTION NO. 68-R-2017-2018**

**RESOLUTION ADOPTING THE CITY OF STORM LAKE 5-YEAR CAPITAL IMPROVEMENTS PLAN**

WHEREAS, the City of Storm Lake has a need to develop a 5-Year Capital Improvements Plan that will assist city staff and the City Council in the development of long term capital funding priorities; and

WHEREAS, each department of the City of Storm Lake has submitted and prioritized potential projects for the next five fiscal years; and

WHEREAS, the City Manager and City Council have reviewed and prioritized those projects based on potential funding sources in each fund; and

WHEREAS, the proposed 5-Year Capital Improvements Plan has been reviewed and commented on by the City Council during their Budget Workshop in January 15, 2018.

NOW, THEREFORE BE IT HEREBY RESOLVED, that the Storm Lake City Council formally approves the City's FY 2019-2023 5-Year Capital Improvement Plan as a planning document for the entire city organization.

PASSED AND APPROVED this 5th day of March, 2018.

______________________________
Michael Porsch, Mayor

ATTEST:

______________________________
Mayra A. Martinez, City Clerk

**Airport –** Moved by Council Member Smith setting March 19, 2018 at 5:00 pm public hearing for Plans, Specifications, Form of Contract and Engineer's Estimate for Airport Rehabilitation Apron and Connector Taxiway Project. Seconded by Council Member Ibarra. Vote: All ayes with Council Member Carlson absent. Motion carried.

**7th and Geneseo Street Sanitary Sewer Improvement –** Moved by Council Member Engelmann to adopt Resolution No. 69- R-2017-2018 approving contract to Hulstein Excavating for the 7th and Geneseo Street Sanitary Sewer Improvements. Amount of $306,440.05.

Seconded by Council Member Smith. Vote: All ayes with Council Member Carlson absent. Motion carried.

**RESOLUTION NO. 69-R-2017-2018**

RESOLUTION APPROVING CONSTRUCTION CONTRACT AND BOND

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA;

That the construction contract and bond executed and insurance coverage for the construction of certain public improvements described in general as 7th and Geneseo Street Sanitary Sewer Improvements Project and as described in detail in the plans and specifications heretofore approved, and which have been signed by the Mayor and Clerk on behalf of the City be and the same are hereby approved as follows:

| | |
|---|---|
| Contractor: | Hulstein Excavating, Inc |
| Date of Contract: | February 19, 2018 |
| Bond Surety: | United Fire & Casualty Company |
| Date of Bond: | February 19, 2018 |
| Portion of Project: | All |

PASSED AND APPROVED this 5th day of March, 2018.

______________________________
Michael Porsch, Mayor

ATTEST:

______________________________
Mayra A. Martinez, City Clerk

**Supporting Workforce Housing –** Moved by Council Member Rice to adopt Resolution No. 70-R-2017-2018 supporting Workforce Housing Tax Incentive Program submitted by Joseph Aube to the Iowa Economic Development Authority. Seconded by Council Member Ibarra. Vote: All ayes with Council Member Carlson absent. Motion carried.

**RESOLUTION NO. 70–R-2018-2019**

**A RESOLUTION IN SUPPORT OF A WORKFORCE HOUSING TAX INCENTIVE APPLICATION TO BE SUBMITTED TO THE IOWA ECONOMIC DEVELOPMENT AUTHORITY (IDEA) BY JOSEPH AUBE FOR HOUSING PROJECTS LOCATED AT STORM LAKE CORP. FRIESEN'S SECOND ADDITION**

**WHEREAS,** Joseph Aube plans on a $993,600 capital investment for a housing development located on in Storm Lake Corp. Friesen's Second Addition; and

**WHEREAS,** the project consists of five (5) new constructed homes; and

**WHEREAS**, the project will add new assessable tax valuation to Storm Lake; and

**WHEREAS**, the City of Storm Lake will assist the project by providing tax abatement of 100% on the first $75,000 of actual value added for five years; and

**WHEREAS**, Joseph Aube submitted an application for Workforce Housing Tax Incentive through the Iowa Economic Development Authority; and

**WHEREAS,** the City of Storm Lake is a duly recognized political subdivision of the State of Iowa action under the laws of the State of Iowa; and

**WHEREAS**, the City Council is the duly elected governing body of Storm Lake, Iowa; and

**IT IS HEREBY RESOLVED** by the City Council of Storm Lake Iowa as follows:

1. The City Council is in full support of the opportunity to promote housing development in Storm Lake, Iowa and fully supports the Application for Workforce Housing Tax Incentives.
2. City staff is authorized to assist in the preparation of the application and related materials deemed necessary.

**PASSED AND APPROVED** this 5th day of March, 2018.

________________________________
Michael Porsch,
Mayor

ATTEST

________________________________
Mayra Martinez, City Clerk

**Habitat Care-A-Vanners -** Moved by Council Member Smith to adopt Resolution No. 71-R-2017-2018 Waive Fees for Habitat Care-A-Vanners for six campground spaces from June 16, 2018 to July 29, 2017. Approximately fee waive $6,864 with about 2640 hours of donated by the volunteers. Seconded by Council Member Engelmann. Vote: All ayes with Council Member Carlson absent. Motion carried.

**RESOLUTION NO. 71-R-2017-2018**

RESOLUTION APPROVING THE HABITAT FOR HUMANITY OF Buena Vista COUNTY REQUEST WAIVING FEES FOR THE RV CARE-A-VANNERS.

WHEREAS, the City of Storm Lake's Housing Study noted a significant need for housing in the community; and

WHEREAS, the City of Storm Lake recognizes the value of partnering with Habitat for Humanity of Buena Vista County to assist with building homes in the community; and

WHEREAS, the City of Storm Lake welcomes the Habitat for Humanity's RV Care-A-Vanners and greatly appreciates their efforts in building homes, adding value in our community and generously donating 2640 hours of time improving our community.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA:

To approve waiving fees for 6 RV sites for the Habitat for Humanity RV Care-A-Vanners from Friday, June 16, 2018 to Sunday, July 29, 2018.

PASSED AND APPROVED this 5th day of March, 2018.

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Michael Porsch, Mayor

ATTEST:

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Mayra A. Martinez, City Clerk

**Marina Contract –** Buoys Bar and Grill, LLC and Northland Auto and Marine presented the council proposed services for the Storm Lake Marina.

Moved by Council Member Rice to approve Storm Lake Marina Contract to Buoys Bar and Grill, LLC. contingent to DNR written approval. Seconded by Council Member Ibarra. Vote: All ayes with Council Member Carlson absent. Motion carried.

Council Member Rice left at 6:06 pm and arrived at 6:07 pm

**City Code Proposed Code Change –** James Johnson from Healthy Efficient Homes presented to the Council information on the shallow frost free footing systems for single family dwellings.

Council then requested Mr. Johnson provide additional information from a licensed engineer to City Staff for review and consideration by Council.

Council Member Rice left at 6:42 pm and returned at 6:47 pm.

**Adjournment –** Moved by Council Member Engelmann to adjourn the meeting at 6:47 pm. Seconded by Council Member Smith. Vote: All ayes with Council Member Carlson absent. Motion carried.

______________________________
Michael Porsch, Mayor

ATTEST:

______________________________
Keri Navratil, City Manager

**UNAVAILABLE**

| | | |
|---|---|---|
| AFLAC | PR Batch 00551.03.2018 Aflac Pretax | 488.29 |
| AFLAC | PR Batch 00551.03.2018 Aflac After tax | 37.63 |
| City of Storm Lake | PR Batch 00551.03.2018 Dental employee/child | 3.00 |
| City of Storm Lake | PR Batch 00551.03.2018 Dental insurance employee c | 26.00 |
| City of Storm Lake | PR Batch 00551.03.2018 Dental employee/spouse | 27.69 |
| City of Storm Lake | PR Batch 00551.03.2018 Dental insurance family | 90.20 |
| City of Storm Lake | PR Batch 00551.03.2018 125 Flexible Benefits | 1,101.71 |
| City of Storm Lake | PR Batch 00551.03.2018 Flex- Child Care | 38.46 |
| City of Storm Lake | PR Batch 00551.03.2018 Health Insurance Family | 2,408.70 |
| City of Storm Lake | PR Batch 00551.03.2018 Health Insurance Single | 545.82 |
| Collection Services Center | PR Batch 00551.03.2018 Child Support Payments to I | 596.76 |
| EFTPS | PR Batch 00551.03.2018 Federal Income Tax | 10,656.18 |
| EFTPS | PR Batch 00551.03.2018 FICA Employee Portion | 4,995.14 |
| EFTPS | PR Batch 00551.03.2018 FICA Employer Portion | 4,995.14 |
| EFTPS | PR Batch 00551.03.2018 Medicare Employee Portion | 1,801.79 |
| EFTPS | PR Batch 00551.03.2018 Medicare Employer Portion | 1,801.79 |
| ICMA Retirement Trust 457 | PR Batch 00551.03.2018 ICMA | 1,580.00 |
| ICMA Retirement Trust 457 | PR Batch 00551.03.2018 ICMA City Paid | 370.94 |
| ICMA Retirement Trust 457 | PR Batch 00551.03.2018 ICMA City paid for Police | 425.34 |
| Iowa Public Employees | PR Batch 00551.03.2018 IPERS | 4,676.64 |
| Iowa Public Employees | PR Batch 00551.03.2018 IPERS City Share | 7,018.78 |
| ITT Hartford AMS RPVA | PR Batch 00551.03.2018 457 Hartford | 500.00 |
| Muni Fire/Police Retire | PR Batch 00551.03.2018 Muni Police/Fire Pension | 3,651.32 |
| Muni Fire/Police Retire | PR Batch 00551.03.2018 Muni Police/Fire Pension Ci | 9,975.11 |
| Teamsters Local Union 554 | PR Batch 00551.03.2018 Union Dues | 307.00 |
| Treasurer State Of Iowa | PR Batch 00551.03.2018 State Income Tax | 5,396.41 |

**UNAVAILABLE** **Department Total =** 63,515.84

**Police Department**

| | | |
|---|---|---|
| Alliant Energy | Gas Service Jan/Feb 2018 | 513.40 |
| Alta Body Shop | Towing Services- February 2018 | 1,990.00 |
| Cintas First Aid & Safety | First Aid Supplies | 17.95 |
| Hayes Rhonda | Training- Johnston- Hayes | 62.00 |
| Julius Dennis R. | Laundry Services | 5.00 |
| Julius Dennis R. | Laundry Services | 4.60 |
| Julius Dennis R. | Dry Cleaning Services | 37.10 |
| Julius Dennis R. | Dry Cleaning Services | 19.60 |
| Julius Dennis R. | Dry Cleaning Services | 10.70 |
| Julius Dennis R. | Laundry Services | 2.30 |
| Kruger Trevor | Door Closure- Less Tax | 555.00 |
| Long Lines Broadband | Phone Service March 2018 | 250.27 |
| Nepple Electric Inc | Ballast Replacement | 188.19 |
| Neuroth Kevin | Garbage Service February 2018 | 24.50 |
| Paxton's Jewelry | Engraving of 2017 | 4.00 |
| Prosser Mark | IPCA Training- Newton- Prosser | 93.74 |
| Star Energy, LLC | Fuel February 2018 | 2,568.02 |
| Verizon Wireless Inc | Phone Service- February 2018 | 1,212.14 |
| Weflen Randy | Training- Johnston- Weflen | 62.00 |

**Police Department** **Department Total =** 7,620.51

**Fire Department**

| | | |
|---|---|---|
| Alliant Energy | Gas Service Jan/Feb 2018 | 870.48 |
| Arnold Motor Supply, LLP | Tubing & Connector #74 | 13.07 |

| | | |
|---|---|---|
| Arnold Motor Supply, LLP | Supplies | 18.97 |
| Electronic Engineering | Pager Replacement | 493.00 |
| Julius Dennis R. | Laundry Services- FD- No Tax | 48.15 |
| Long Lines Broadband | Phone Service March 2018 | 40.65 |
| Neuroth Kevin | Garbage Service February 2018 | 54.25 |
| Star Energy, LLC | Fuel February 2018 | 40.36 |
| Verizon Wireless Inc | Phone Service- February 2018 | 156.84 |

**Fire Department** — **Department Total =** 1,735.77

**Building Official**

| | | |
|---|---|---|
| Long Lines Broadband | Phone Service March 2018 | 60.97 |
| Star Energy, LLC | Fuel February 2018 | 22.55 |
| Storm Lake Ace Hardware Inc | Deicer | 5.98 |
| Verizon Wireless Inc | Phone Service- February 2018 | 52.28 |

**Building Official** — **Department Total =** 141.78

**Animal Care**

| | | |
|---|---|---|
| Johnson Dianne | Bd & Dispose of Cats & Dogs | 150.00 |

**Animal Care** — **Department Total =** 150.00

**Roadway Maintenance**

| | | |
|---|---|---|
| Alliant Energy | Gas Service Jan/Feb 2018 | 2,150.23 |
| Bolton & Menk, Inc | Redesign & Construction Service through 2/28/2018 | 892.50 |
| Buena Vista Regional Medical Center | CL Testing- Demay | 101.00 |
| Buena Vista Regional Medical Center | CDL Testing- Wahlberg | 30.00 |
| Crescent Electric Supply Co | Supplies | 10.36 |
| Deere Credit Inc | Switch for #16 Loader | 552.60 |
| General Traffic Controls Inc | FY2018 GRIDSMART Support | 375.00 |
| Iowa Office Supply Inc | Toner | 83.86 |
| JNB Acquisition Corporation | Copier Maintenance Agreement | 32.06 |
| Long Lines Broadband | Phone Service March 2018 | 56.41 |
| Neuroth Kevin | Garbage Service February 2018 | 127.00 |
| Occupational Medicine at Riverside UnityPoint Clinic | CDL Testing Services | 37.00 |
| Rebnord Technologies Inc | Speaker System | 29.95 |
| Star Energy, LLC | Fuel February 2018 | 6,684.78 |
| Storm Lake Ace Hardware Inc | Filter | 17.99 |
| Storm Lake Ace Hardware Inc | Filter Returned | -17.99 |
| Storm Lake Ace Hardware Inc | Filter | 31.99 |
| Storm Lake Ace Hardware Inc | Filter | 19.96 |
| Verizon Wireless Inc | Phone Service- February 2018 | 104.56 |

**Roadway Maintenance** — **Department Total =** 11,319.26

**Snow Removal**

| | | |
|---|---|---|
| City of Storm Lake | Installation of Snow Equipment #113 | 412.51 |
| Graham Tire | Tire #5 | 231.00 |
| Graham Tire | Tire #59 | 155.00 |
| Storm Lake Hydraulics Co Inc | Hyd Hose #12 | 190.91 |

**Snow Removal** — **Department Total =** 989.42

**Airport**

| | | |
|---|---|---|
| Bolton & Menk, Inc | Construction Service through 2/28/2018 | 455.00 |
| Bolton & Menk, Inc | Design Service through 2/28/2018 | 4,675.00 |
| Century Link | Phone Service March 2018 | 157.22 |
| Storm Lake Ace Hardware Inc | Ice Melt | 8.99 |
| **Airport** | **Department Total =** | 5,296.21 |
| **Library** | | |
| Alliant Energy | Gas Service Jan/Feb 2018 | 1,338.95 |
| Long Lines Broadband | Phone Service March 2018 | 108.01 |
| Neuroth Kevin | Garbage Service February 2018 | 38.25 |
| Storm Lake Ace Hardware Inc | Heat Cable | 24.99 |
| **Library** | **Department Total =** | 1,510.20 |
| **Parks Department** | | |
| Alliant Energy | Gas Service Jan/Feb 2018 | 294.80 |
| Arnold Motor Supply, LLP | Door Handle | 12.78 |
| Arnold Motor Supply, LLP | Hyd Filter | 105.32 |
| Arnold Motor Supply, LLP | Alternator #30 | 254.71 |
| Arnold Motor Supply, LLP | Idler Pulley Return | -9.03 |
| Long Lines Broadband | Phone Service March 2018 | 36.00 |
| Plumbing & Heating Wholesale, Inc | Supplies | 3.08 |
| Star Energy, LLC | Fuel February 2018 | 441.16 |
| Storm Lake Ace Hardware Inc | Supplies Returned | -12.98 |
| Storm Lake Ace Hardware Inc | Supplies | 89.22 |
| Verizon Wireless Inc | Phone Service- February 2018 | 156.84 |
| **Parks Department** | **Department Total =** | 1,371.90 |
| **Golf Course** | | |
| Arnold Motor Supply, LLP | Winter Blades S-10 | 16.14 |
| Star Energy, LLC | Fuel February 2018 | 64.07 |
| **Golf Course** | **Department Total =** | 80.21 |
| **Campgrounds** | | |
| Arnold Motor Supply, LLP | Filter | 26.48 |
| Arnold Motor Supply, LLP | Filter & Oil | 20.34 |
| Long Lines Broadband | Phone Service March 2018 | 102.00 |
| Twin Rivers Media, LLC | Job Posting Advertising | 300.00 |
| **Campgrounds** | **Department Total =** | 448.82 |
| **Shelter House** | | |
| Alliant Energy | Gas Service Jan/Feb 2018 | 363.34 |
| **Shelter House** | **Department Total =** | 363.34 |
| **UNAVAILABLE** | | |
| Neuroth Kevin | Garbage Service February 2018 | 93.00 |
| Storm Lake Times The | February 2018 Publications | 33.60 |

| | | | |
|---|---|---|---|
| **UNAVAILABLE** | | **Department Total =** | 126.60 |
| **Economic Develop** | | | |
| Buena Vista Extension Svc | Salud- Leadership Sponsorship | | 2,500.00 |
| Long Lines Broadband | Phone Service March 2018 | | 20.32 |
| **Economic Develop** | | **Department Total =** | 2,520.32 |
| **Storm Lake Sub-Division #5** | | | |
| Bolton & Menk, Inc | Construction Services through 2/28/2018 | | 455.00 |
| **Storm Lake Sub-Division #5** | | **Department Total =** | 455.00 |
| **Convention/Visitor's Bureau** | | | |
| Storm Lake United | 3rd Qtr FY2018 H/M Tax Distribution | | 16,622.26 |
| **Convention/Visitor's Bureau** | | **Department Total =** | 16,622.26 |
| **Legal Services** | | | |
| Havens Philip E | Legal Services- February 2018 | | 227.50 |
| Havens Philip E | Legal Services- February 2018 | | 822.50 |
| Havens Philip E | Legal Services- February 2018 | | 210.00 |
| Havens Philip E | Legal Services- February 2018 | | 787.50 |
| **Legal Services** | | **Department Total =** | 2,047.50 |
| **City Hall Building** | | | |
| Alliant Energy | Gas Service Jan/Feb 2018 | | 570.41 |
| Julius Dennis R. | Entrance Mats- CH | | 59.30 |
| Long Lines Broadband | Phone Service March 2018 | | 73.22 |
| Neuroth Kevin | Garbage Service February 2018 | | 28.50 |
| Schumacher Elevator Company | Elevator Maintenance Service | | 202.86 |
| Verizon Wireless Inc | Phone Service- February 2018 | | 52.28 |
| **City Hall Building** | | **Department Total =** | 986.57 |
| **Other Policy & Administration** | | | |
| Central Bank | Supplies | | 15.81 |
| Central Bank | Des Moines Register Subscription | | 2.42 |
| Central Bank | Survey Monkey Subscription | | 120.00 |
| Getty Images (US) Inc | iStock Membership | | 129.68 |
| Iowa Office Supply Inc | Office Supplies | | 1.51 |
| Iowa Office Supply Inc | Office Supplies | | 55.61 |
| JNB Acquisition Corporation | Copier Maintenance Agreement | | 32.06 |
| Pilot Tribune | Advertising- Legislative Lunch | | 26.04 |
| Storm Lake Times The | February 2018 Publications | | 479.62 |
| **Other Policy & Administration** | | **Department Total =** | 862.75 |
| **Water Administration** | | | |
| Accela, Inc #774375 | Online Payments | | 159.50 |

| | | |
|---|---|---|
| Central Bank | Survey Monkey Subscription | 120.00 |
| Central Bank | Supplies | 15.81 |
| Getty Images (US) Inc | iStock Membership | 129.69 |
| Iowa Office Supply Inc | Office Supplies | 55.60 |
| Iowa Office Supply Inc | Office Supplies | 6.15 |
| JNB Acquisition Corporation | Copier Maintenance Agreement | 32.06 |
| Long Lines Broadband | Phone Service March 2018 | 68.69 |
| Tyler Technologies, Inc | Chart of Accounts Services | 87.50 |
| Tyler Technologies, Inc | Excutime Services | 362.50 |
| Tyler Technologies, Inc | Incode Finanace Management Services | 37.50 |
| Verizon Wireless Inc | Phone Service- February 2018 | 52.28 |
| **Water Administration** | **Department Total =** | 1,127.28 |

**Water Plant**

| | | |
|---|---|---|
| Alliant Energy | Gas Service Jan/Feb 2018 | 1,378.23 |
| Central Bank | Hotel for Training- Des Moines- Sutton | 217.28 |
| Central Bank | Paratech University Registration- Jensen | 50.00 |
| Foundation Analytical Laboratory Inc | Testing Services | 247.00 |
| Foundation Analytical Laboratory Inc | Testing Services | 120.00 |
| Foundation Analytical Laboratory Inc | Testing Services | 220.00 |
| Long Lines Broadband | Phone Service March 2018 | 164.08 |
| Mississippi Lime Company | Lime | 4,613.90 |
| Mississippi Lime Company | Lime | 4,521.60 |
| Neuroth Kevin | Garbage Service February 2018 | 82.75 |
| ProElect/Professional Electronics | Elevator Phone Service | 449.10 |
| Seiler Plumbing & Heating Inc | New Valve Installation | 478.75 |
| Star Energy, LLC | Fuel February 2018 | 197.46 |
| Storm Lake Ace Hardware Inc | Supplies | 18.47 |
| Storm Lake Ace Hardware Inc | Epoxy Paint | 535.78 |
| Verizon Wireless Inc | Phone Service- February 2018 | 261.40 |
| **Water Plant** | **Department Total =** | 13,555.80 |

**Water Distribution**

| | | |
|---|---|---|
| Alliant Energy | Gas Service Jan/Feb 2018 | 668.71 |
| Arnold Motor Supply, LLP | Hose Clamp & Tire Gauge | 13.41 |
| Arnold Motor Supply, LLP | Clamp | 3.95 |
| Long Lines Broadband | Phone Service March 2018 | 69.58 |
| Seiler Plumbing & Heating Inc | Sewer Services @ 1133 Seneca | 144.00 |
| Star Energy, LLC | Fuel February 2018 | 271.77 |
| Verizon Wireless Inc | Phone Service- February 2018 | 196.87 |
| **Water Distribution** | **Department Total =** | 1,368.29 |

**Water Meters**

| | | |
|---|---|---|
| Star Energy, LLC | Fuel February 2018 | 110.68 |
| Verizon Wireless Inc | Phone Service- February 2018 | 92.29 |
| **Water Meters** | **Department Total =** | 202.97 |

**Wastewater Administration**

| | | |
|---|---|---|
| Accela, Inc #774375 | Online Payments | 159.50 |
| Central Bank | Supplies | 15.81 |
| Central Bank | Survey Monkey Subscription | 120.00 |

| | | |
|---|---|---|
| Getty Images (US) Inc | iStock Membership | 129.69 |
| Iowa Office Supply Inc | Office Supplies | 5.91 |
| Iowa Office Supply Inc | Office Supplies | 55.60 |
| JNB Acquisition Corporation | Copier Maintenance Agreement | 32.06 |
| Long Lines Broadband | Phone Service March 2018 | 72.86 |
| Tyler Technologies, Inc | Incode Finanace Management Services | 37.50 |
| Tyler Technologies, Inc | Excutime Services | 362.50 |
| Tyler Technologies, Inc | Chart of Accounts Services | 87.50 |
| Verizon Wireless Inc | Phone Service- February 2018 | 52.28 |

**Wastewater Administration** **Department Total =** 1,131.21

**Wastewater Treatment Plant**

| | | |
|---|---|---|
| Alliant Energy | Gas Service Jan/Feb 2018 | 1,013.29 |
| Control System Specialists, LLC | Serviced Headworks Building HVAC | 293.48 |
| Fastenal Company | Supplies | 56.23 |
| Foundation Analytical Laboratory Inc | Testing Services | 960.00 |
| Foundation Analytical Laboratory Inc | Testing Services | 344.00 |
| Graham Tire | Service Call- Tire Repair on Lime Truck | 121.90 |
| Grainger Inc W.W. | New Lighting | 344.70 |
| H-O-H Water Technology, Inc | Polymer | 3,556.74 |
| Larson Oil & Distributing Co, Inc | Propane for Shop | 1,855.65 |
| NCL of Wisconsin Inc | Testing Supplies | 340.51 |
| Neuroth Kevin | Garbage Service February 2018 | 67.00 |
| Ozone Solutions, Inc | Unit R#116 Rental through 2/27/2018 | 500.00 |
| Ozone Solutions, Inc | Unit R#1116 Rental through 2/20/2018 | 1,732.00 |
| Ozone Solutions, Inc | Unit R#1116 & R#917 Purchase | 17,384.00 |
| Rebnord Technologies Inc | Hard Drive | 84.95 |
| Recycle Center Harold Rowley | Recycling | 41.60 |
| Recycle Center Harold Rowley | Recycling | 28.60 |
| Star Energy, LLC | Fuel February 2018 | 205.65 |
| Storm Lake Ace Hardware Inc | Ext Cord & Supplies | 67.98 |
| Storm Lake Ace Hardware Inc | Supplies | 165.42 |
| US Peroxide, LLC | Facility & Maintenance Service | 750.00 |
| Verizon Wireless Inc | Phone Service- February 2018 | 314.99 |
| WesTech Engineering, Inc | Wiper for Clarifier | 539.04 |

**Wastewater Treatment Plant** **Department Total =** 30,767.73

**Wastewater Collection**

| | | |
|---|---|---|
| Seiler Plumbing & Heating Inc | Sewer Services @ 1125 Seneca | 1,632.92 |
| Star Energy, LLC | Fuel February 2018 | 140.01 |

**Wastewater Collection** **Department Total =** 1,772.93

**Landfill**

| | | |
|---|---|---|
| Accela, Inc #774375 | Online Payments | 159.50 |
| JNB Acquisition Corporation | Copier Maintenance Agreement | 32.07 |
| Tyler Technologies, Inc | Incode Finanace Management Services | 9.38 |
| Tyler Technologies, Inc | Chart of Accounts Services | 21.88 |
| Tyler Technologies, Inc | Excutime Services | 90.63 |

**Landfill** **Department Total =** 313.46

**Storm Water Administration**

| | | |
|---|---|---|
| Accela, Inc #774375 | Online Payments | 159.50 |
| Getty Images (US) Inc | iStock Membership | 129.69 |
| JNB Acquisition Corporation | Copier Maintenance Agreement | 32.07 |
| Tyler Technologies, Inc | Excutime Services | 90.62 |
| Tyler Technologies, Inc | Chart of Accounts Services | 21.87 |
| Tyler Technologies, Inc | Incode Finanace Management Services | 9.37 |
| **Storm Water Administration** | **Department Total =** | 443.12 |

**Storm Water Collection**

| | | |
|---|---|---|
| Bolton & Menk, Inc | Construction Service through 1/31/2018 | 930.00 |
| Bolton & Menk, Inc | Construction Service through 12/29/2017 | 1,775.00 |
| I&S Group, Inc. | Final Design Services through 2/28/2018 | 886.75 |
| **Storm Water Collection** | **Department Total =** | 3,591.75 |

**Insurance**

| | | |
|---|---|---|
| Auxiant - Claims Account | 3/5/2018 Claims | 4,436.42 |
| Auxiant - Claims Account | 3/12/2018 Claims | 29,137.74 |
| Auxiant - Flex Account | 2/28/2018 Flex | 801.85 |
| Auxiant - Flex Account | 3/8/2018 Flex Claims | 156.42 |
| **Insurance** | **Department Total =** | 34,532.43 |

**Vehicle Maintenance**

| | | |
|---|---|---|
| Arnold Motor Supply, LLP | Battery Core Returned | -21.00 |
| Arnold Motor Supply, LLP | Filter | 6.83 |
| Arnold Motor Supply, LLP | Supplies | 113.40 |
| Arnold Motor Supply, LLP | Oil Filter | 15.99 |
| Arnold Motor Supply, LLP | Plug | 2.72 |
| Arnold Motor Supply, LLP | Battery | 114.25 |
| Arnold Motor Supply, LLP | Brake Clean | 29.88 |
| Arnold Motor Supply, LLP | Brake Clean | 59.76 |
| Arnold Motor Supply, LLP | Supplies | 2.73 |
| Arnold Motor Supply, LLP | Lights | 19.38 |
| Arnold Motor Supply, LLP | Tensioner #136 | 88.88 |
| Edwards Storm Lake | Bolts | 15.39 |
| Reinert Michael P | Removal of Broken Bolt | 20.00 |
| Reinert Michael P | S.S Strips | 35.00 |
| Storm Lake Hydraulics Co Inc | Plugs & Caps | 32.31 |
| Storm Lake Hydraulics Co Inc | Hyd Hose & Ends #113 | 305.86 |
| Storm Lake Hydraulics Co Inc | Connectors #113 | 36.26 |
| **Vehicle Maintenance** | **Department Total =** | 877.64 |

**Technology**

| | | |
|---|---|---|
| Bolton & Menk, Inc | GIS Mapping Update through 2/28/2018 | 598.00 |
| Long Lines Broadband | Internet Service March 2018 | 894.95 |
| Rebnord Technologies Inc | Keyboard & Mouse- Oakleaf | 44.95 |
| Rebnord Technologies Inc | 2 Factor Auth | 375.00 |
| Rebnord Technologies Inc | My AntiSpam | 75.00 |
| Rebnord Technologies Inc | IT Service Agreement | 3,333.33 |
| Rebnord Technologies Inc | IT Service Agreement- Fiber Network | 200.00 |
| **Technology** | **Department Total =** | 5,521.23 |

**Grand Total =** 213,370.10

# Operating

City of Storm Lake

Check Register

From 3/3/2018 to 3/12/2018

| Vendor | Description | Amount |
| --- | --- | --- |
| Weigand Omega Management Payroll | Payroll | 65,669.20 |
| | | **65,669.20** |

**Applicant** **License Application ( LE0001647 )**

**Name of Applicant:** Sichanh Inc.

**Name of Business (DBA):** Sichanh Liquor Store

**Address of Premises:** 812 Flindt Drive

**City** Storm Lake **County:** Buena Vista **Zip:** 50588

**Business** (712) 732-4416

**Mailing** P.O. Box 65

**City** Storm Lake **State** IA **Zip:** 50588

**Contact Person**

**Name** John Khamphavong

**Phone:** (712) 732-4416 **Email** johnk_inc@yahoo.com

**Classification** Class E Liquor License (LE)

**Term:** 12 months

**Effective Date:** 04/05/2018

**Expiration Date:** 04/04/2019

**Privileges:**

- Class B Wine Permit
- Class C Beer Permit (Carryout Beer)
- Class E Liquor License (LE)
- Sunday Sales

**Status of Business**

**BusinessType:** Privately Held Corporation

**Corporate ID Number:** XXXXXXXXX **Federal Employer ID** XXXXXXXXX

**Ownership**

**John Khamphavong**

**First Name:** John **Last Name:** Khamphavong

**City:** Storm Lake **State:** Iowa **Zip:** 50588

**Position:** Owner

**% of Ownership:** 100.00% **U.S. Citizen:** Yes

**Insurance Company Information**

**Insurance Company:** Western Surety Company

**Policy Effective Date:** 04/05/2018 **Policy Expiration** 01/01/1900

**Bond Effective** 2 **Dram Cancel Date:**

**Outdoor Service Effective** **Outdoor Service Expiration**

| Temp Transfer Effective | Temp Transfer Expiration Date: |
| --- | --- |

M E M O R A N D U M

TO: MAYRA MARTINEZ

FROM: MARK PROSSER

DATE: MARCH 14, 2017

REFERENCE: LIQUOR LICENSE RENEWAL
SICHANH LIQUOR STORE
812 FLINDT DRIVE

Discussion: Per your request I have accessed the department computer for calls of interest to the aforementioned establishment. The calls are as follows:

| | 02-18-2015 to 03-12-2016 | 03-13-2016 to 03-12-2017 |
|---|---|---|
| INCIDENTS | | |
| 9-1-1 Hang Up Call | 2 | 2 |
| Accident | 1 | 3 |
| Burglar Alarm | 2 | 1 |
| Business Security | 4 | 4 |
| City Code Enforcement | 0 | 1 |
| City/County Department Assist | 0 | 1 |
| Keys Locked in Car | 1 | 1 |
| Law Department Assist | 1 | 0 |
| PR/Talk/Presentation | 1 | 3 |
| Station Assignement | 2 | 1 |
| Street Beat | 4 | 0 |
| Vehicle Stop | 3 | 1 |
| ARRESTS | | |
| Disorderly Conduct | 1 | 0 |
| Possession of Controlled Substance | 0 | 2 |
| Public Intoxication | 1 | 0 |

Recommendation: Approval of liquor license.

**Applicant** **License Application ( LB0002003 )**

| | |
|---|---|
| **Name of Applicant:** | City of Storm Lake |
| **Name of Business (DBA):** | King's Pointe Waterpark Resort |
| **Address of Premises:** | 1520 E. Lakeshore Drive |
| **City** Storm Lake | **County:** Buena Vista **Zip:** 50588 |
| **Business** | (712) 213-4500 |
| **Mailing** | PO Box 1086 |
| **City** Storm Lake | **State** IA **Zip:** 50588 |

**Contact Person**

**Name** Keri Navratil

**Phone:** (712) 732-8000 **Email** cityhall@stormlake.org

**Classification** Class B Liquor License (LB) (Hotel/Motel)

**Term:** 12 months

**Effective Date:** 04/01/2018

**Expiration Date:** 03/31/2019

**Privileges:**

- Catering Privilege
- Class B Liquor License (LB) (Hotel/Motel)
- Outdoor Service
- Sunday Sales

**Status of Business**

**BusinessType:** Municipality

**Corporate ID Number:** XXXXXXXXX **Federal Employer ID** XXXXXXXXX

**Ownership**

**Jon Kruse**

| | | | | | |
|---|---|---|---|---|---|
| **First Name:** | Jon | **Last Name:** | Kruse | | |
| **City:** | Storm Lake | **State:** | Iowa | **Zip:** | 50588 |
| **Position:** | Mayor | | | | |
| **% of Ownership:** | 0.00% | **U.S. Citizen:** | Yes | | |

**Insurance Company Information**

**Insurance Company:** Scottsdale Insurance Company

**Policy Effective Date:** **Policy Expiration**

**Bond Effective** **Dram Cancel Date:**

**Outdoor Service Effective** **Outdoor Service Expiration**

| Temp Transfer Effective | Temp Transfer Expiration Date: |
| --- | --- |

M E M O R A N D U M

TO: MAYRA MARTINEZ

FROM: MARK PROSSER

DATE: MARCH 13, 2018

REFERENCE: LIQUOR LICENSE RENEWAL
KING'S POINTE
1520 E LAKESHORE DR

Discussion: Per your request I have accessed the department computer for calls of interest to the aforementioned establishment. The calls are as follows:

| INCIDENTS | 03-13-2016 to 03-15-2017 | 3-16-2017 to 3-10-2018 |
|---|---|---|
| 911 Hang Up Call | 10 | 6 |
| Accident | 1 | 0 |
| Ambulance Assist | 6 | 4 |
| Animal Complaint | 5 | 2 |
| Assault | 1 | 0 |
| Bar Check | 4 | 2 |
| Business Assist | 1 | 2 |
| Business Security | 202 | 116 |
| Burglar Alarm | 0 | 1 |
| Child Abuse - Sexual | 1 | 0 |
| Citizen Assist | 4 | 0 |
| City/County Department Assist | 1 | 2 |
| Civil Standby | 1 | 0 |
| Criminal Mischief | 2 | 0 |
| Disturbance | 2 | 2 |
| Domestic | 2 | 1 |
| Drug Investigation | 0 | 2 |
| Execute Search Warrant | 0 | 1 |
| Extra Security | 0 | 1 |
| Fire Department Assist | 5 | 2 |
| Found Property | 1 | 2 |
| General Information | 3 | 1 |
| Hit and Run | 1 | 0 |
| Intoxicated Driver | 1 | 1 |
| Intoxicated Pedestrian | 3 | 2 |

| | | |
|---|---|---|
| Juvenile Problem | 2 | 1 |
| Keys Locked In Car | 11 | 5 |
| Law Department Assist | 1 | 1 |
| Lost Child | 1 | 0 |
| Lost Property | 1 | 2 |
| Meeting | 17 | 15 |
| Missing Person Juvenile | 0 | 1 |
| Motorist Assist | 3 | 2 |
| Open Window/Door | 1 | 1 |
| PR/Talk/Presentation | 34 | 29 |
| Reckless Driver | 3 | 0 |
| Registration Check | 0 | 1 |
| Sex Offender Registry | 0 | 1 |
| Station Assignment | 9 | 5 |
| Street Beat | 3 | 4 |
| Surveillance | 0 | 1 |
| Suspicious Activity | 2 | 0 |
| Suspicious Person | 1 | 0 |
| Suspicious Vehicle | 0 | 1 |
| Theft | 1 | 2 |
| Traffic Control | 0 | 4 |
| Training | 3 | 2 |
| Vehicle Stop | 13 | 27 |
| Violation of No Contact Order | 0 | 1 |
| Warrant Service | 2 | 0 |

ARRESTS

| | | |
|---|---|---|
| Assault | 1 | 1 |
| Disorderly Conduct | 3 | 0 |
| Failure to Appear | 1 | 0 |
| Possess Alcohol as Minor | 0 | 3 |
| Possess Controlled Substance | 1 | 0 |
| Possess Drug Paraphernelia | 1 | 0 |
| Public Intoxication | 4 | 2 |
| Sell Alcohol to Minor | 1 | 1 |
| Theft | 0 | 1 |

Recommendation: Approval of liquor license

**Applicant** **License Application ( LC0030489 )**

**Name of Applicant:** City of Storm Lake

**Name of Business (DBA):** Sunrise Pointe Golf Course

**Address of Premises:** 1528 Lakeshore Dr

**City** Storm Lake **County:** Buena Vista **Zip:** 50588

**Business** (712) 213-4500

**Mailing** PO Box 1086

**City** Storm Lake **State** IA **Zip:** 50588

**Contact Person**

**Name** Keri Navratil

**Phone:** (712) 732-8000 **Email** cityhall@stormlake.org

**Classification** Class C Liquor License (LC) (Commercial)

**Term:** 12 months

**Effective Date:** 04/01/2018

**Expiration Date:** 03/31/2019

**Privileges:**

Class C Liquor License (LC) (Commercial)

Outdoor Service

Sunday Sales

**Status of Business**

**BusinessType:** Municipality

**Corporate ID Number:** XXXXXXXXX **Federal Employer ID** XXXXXXXXX

**Ownership**

**Jon Kruse**

**First Name:** Jon **Last Name:** Kruse

**City:** Storm Lake **State:** Iowa **Zip:** 50588

**Position:** Director/Mayor

**% of Ownership:** 0.00% **U.S. Citizen: Yes**

**James Patrick**

**First Name:** James **Last Name:** Patrick

**City:** Storm Lake **State:** Iowa **Zip:** 50588

**Position:** City Manager

**% of Ownership:** 0.00% **U.S. Citizen: Yes**

**Insurance Company Information**

**Insurance Company:** Scottsdale Insurance Company

| | |
|---|---|
| **Insurance Company:** Scottsdale Insurance Company | |
| **Policy Effective Date:** | **Policy Expiration** |
| **Bond Effective** | **Dram Cancel Date:** |
| **Outdoor Service Effective** | **Outdoor Service Expiration** |
| **Temp Transfer Effective** | **Temp Transfer Expiration Date:** |

# M E M O R A N D U M

TO: MAYRA MARTINEZ

FROM: MARK PROSSER

DATE: MARCH 13, 2018

REFERENCE: LIQUOR LICENSE RENEWAL
SUNRISE POINTE GOLF COURSE
1528 E LAKESHORE DR

Discussion: Per your request I have accessed the department computer for calls of interest to the aforementioned establishment. The calls are as follows:

| | 03-13-2016 to 03-15-2017 | 03-16-2017 to 03-10-2018 |
|---|---|---|
| INCIDENTS | | |
| Accident | 1 | 0 |
| Animal Complaint | 2 | 1 |
| Bar Check | 7 | 2 |
| Burglar Alarm | 13 | 16 |
| Business Security | 46 | 45 |
| Extra Security | 0 | 1 |
| Fire Department Assist | 2 | 4 |
| Found Property | 0 | 1 |
| Keys Locked In Car | 4 | 1 |
| Open Window/Door | 10 | 10 |
| PR/Talk/Presentation | 4 | 2 |
| Reckless Driver | 2 | 0 |
| Suspicious Person | 0 | 1 |
| Suspicious Vehicle | 0 | 1 |
| Station Assignment | 1 | 1 |
| Theft | 3 | 0 |
| Vehicle Maintenance | 1 | 0 |
| Vehicle Stop | 10 | 7 |
| ARRESTS | | |
| Open Container | 0 | 1 |

Recommendation: Approval of liquor license.

# Staff Summary

**3/19/2018**
**Agenda Item # B.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Mayra Martinez, City Clerk

**SUBJECT:** **Buy Local Information**

**BACKGROUND:** Early in 2011 during a Study Session discussion Council asked staff to look at putting together some analysis information regarding the amount of purchases made locally. We have pulled that information together and a provided a summary of purchases identified in the current list of bills to be approved that are purchased locally (within the City of Storm Lake), within Buena Vista County, and outside of Buena Vista County are presented here for Council's review. This information is presented for for both the City and King's Pointe's bills.

As the reader reviews the information they should note the following key notes:

- Costs associated with any major capital project (those bid under the State of Iowa Bid Law) are excluded from the calculation
- Costs associated with travel is excluded from the calculation and %
- Costs associated with payroll is excluded from the calculation and %
- In some cases there is only one vendor or an item is only available from vendors outside of the City limits and/or Buena Vista County – we have not identified these
- Some departments have fairly minor budgets and a major purchase can skew the % and or amount for a given review period (For Example: the Airport may have normally $4,000 - $6,000 in expenses until they purchase Jet Fuel or Av Gas which can be $10,000 + and as a vendor who is not local this can skew the information for that review period)
- Local has been determined to be has an office front in the

area and based on where the office front is located for local vs. BV County (For Example: Wal-Mart is considered local since they have a store in Storm Lake even though their headquarters is not located here)

As with all analytical data it is possible to interpret the numbers in a variety of ways and as we move forward we would be happy to provide further detail and or revise the way in which we show the data.Likewise if you have any questions or concerns please don't hesitate to contact city staff.

**FISCAL IMPACT:**

| | Calculated Expenses |
|---|---|
| Payroll/Refunds/Insurance | $98,678.52 |
| Contracts/Agreements | $13,167.25 |
| Local Businesses | $58,498.11 |
| Buena Vista County Business | $2,990.97 |
| Non-Local Business | $40,035.25 |
| Total Expenses | $213,370.10 |
| Please see attachment for supporting documents | |

**RECOMMENDATION:** Review Buy Local Information

**ATTACHMENTS:**

| | Description | Type |
|---|---|---|
| 🗋 | Supporting Documents | Backup Material |

Payroll/Refunds/Insurance

$ 98,678.52

Contracts/Agreements

$ 13,167.25

Local Businesses

$ 58,498.11

Buena Vista County Business

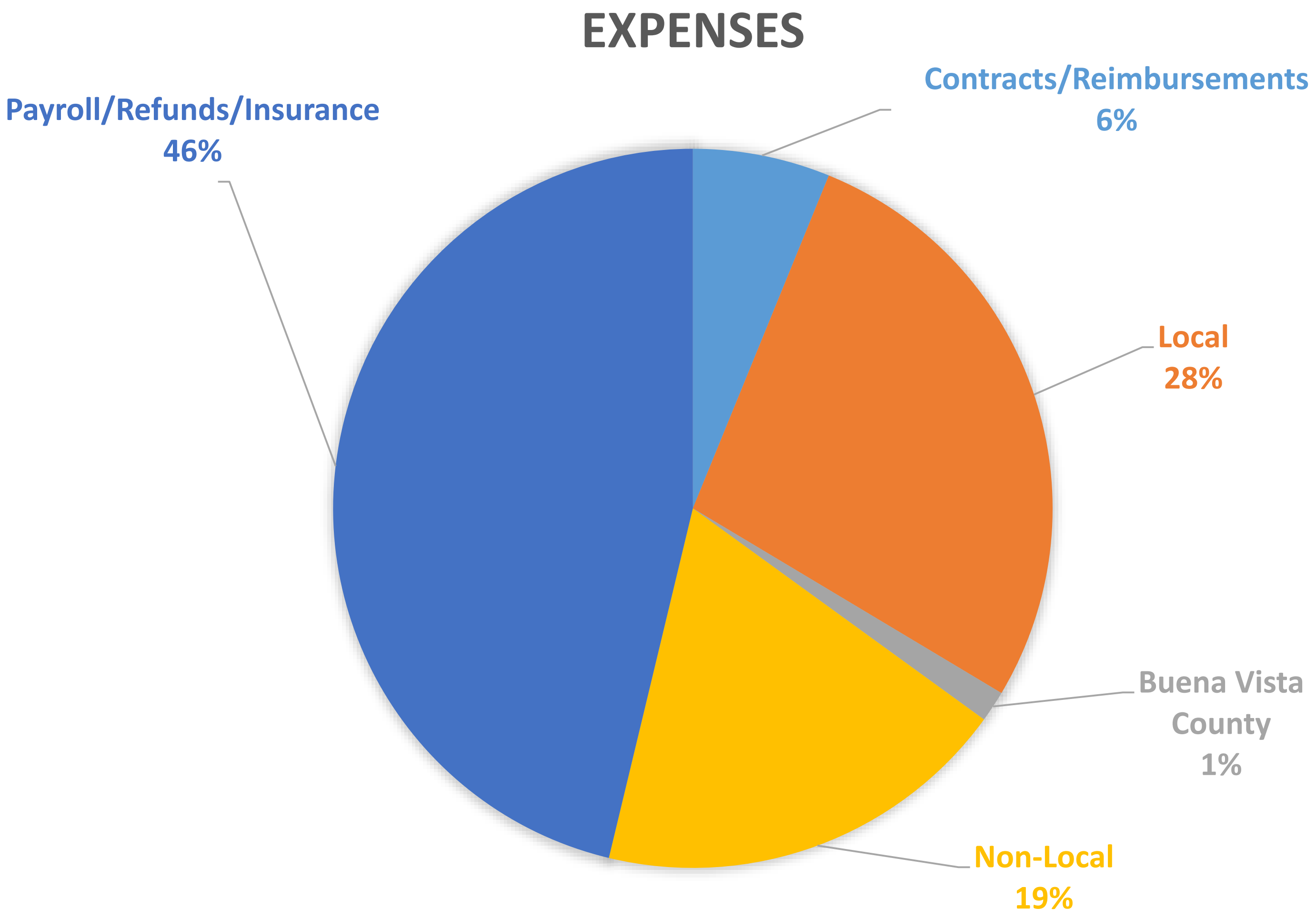
$ 2,990.97

Non-Local Business

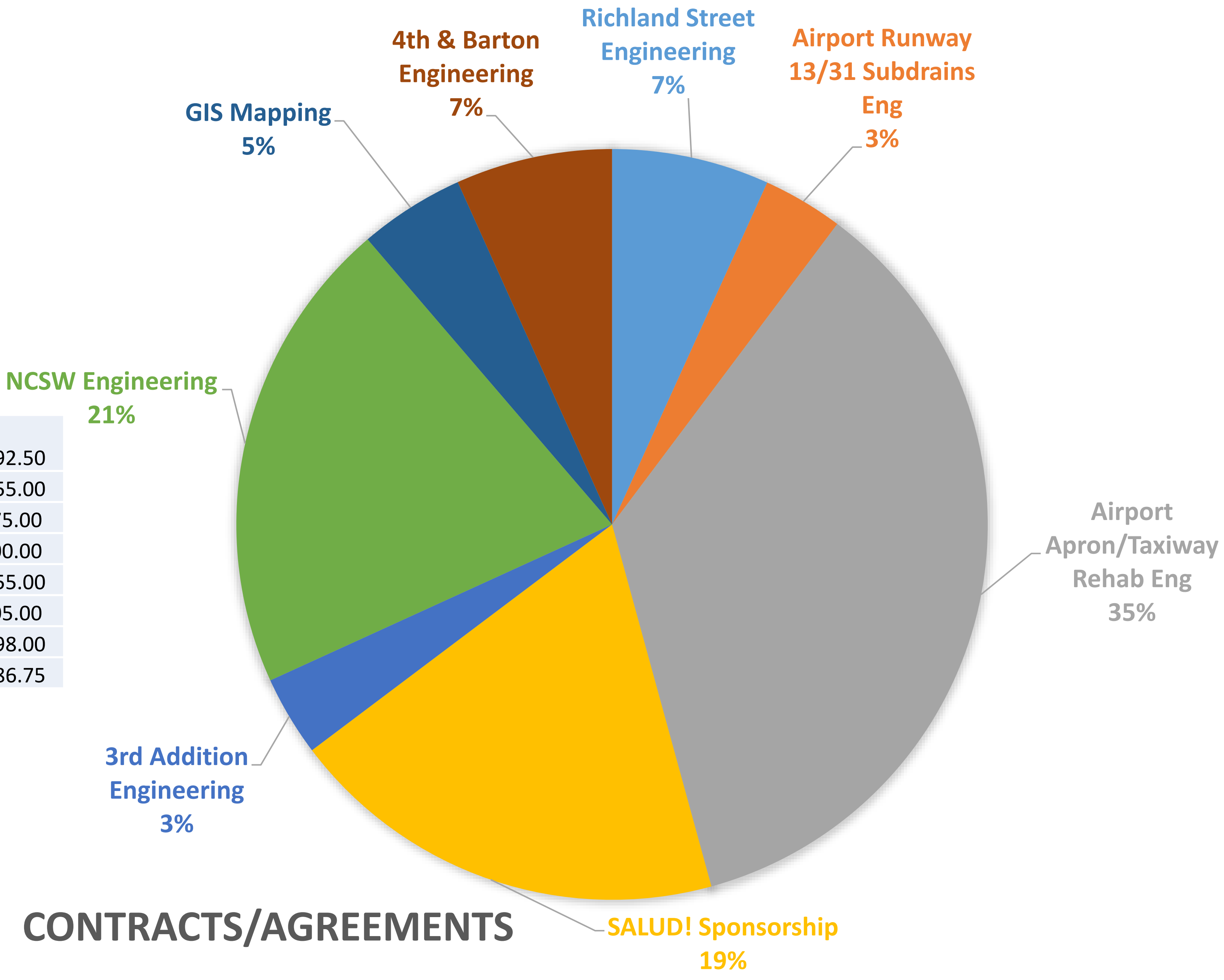
$ 40,035.25

Total Expenses

$213,370.10

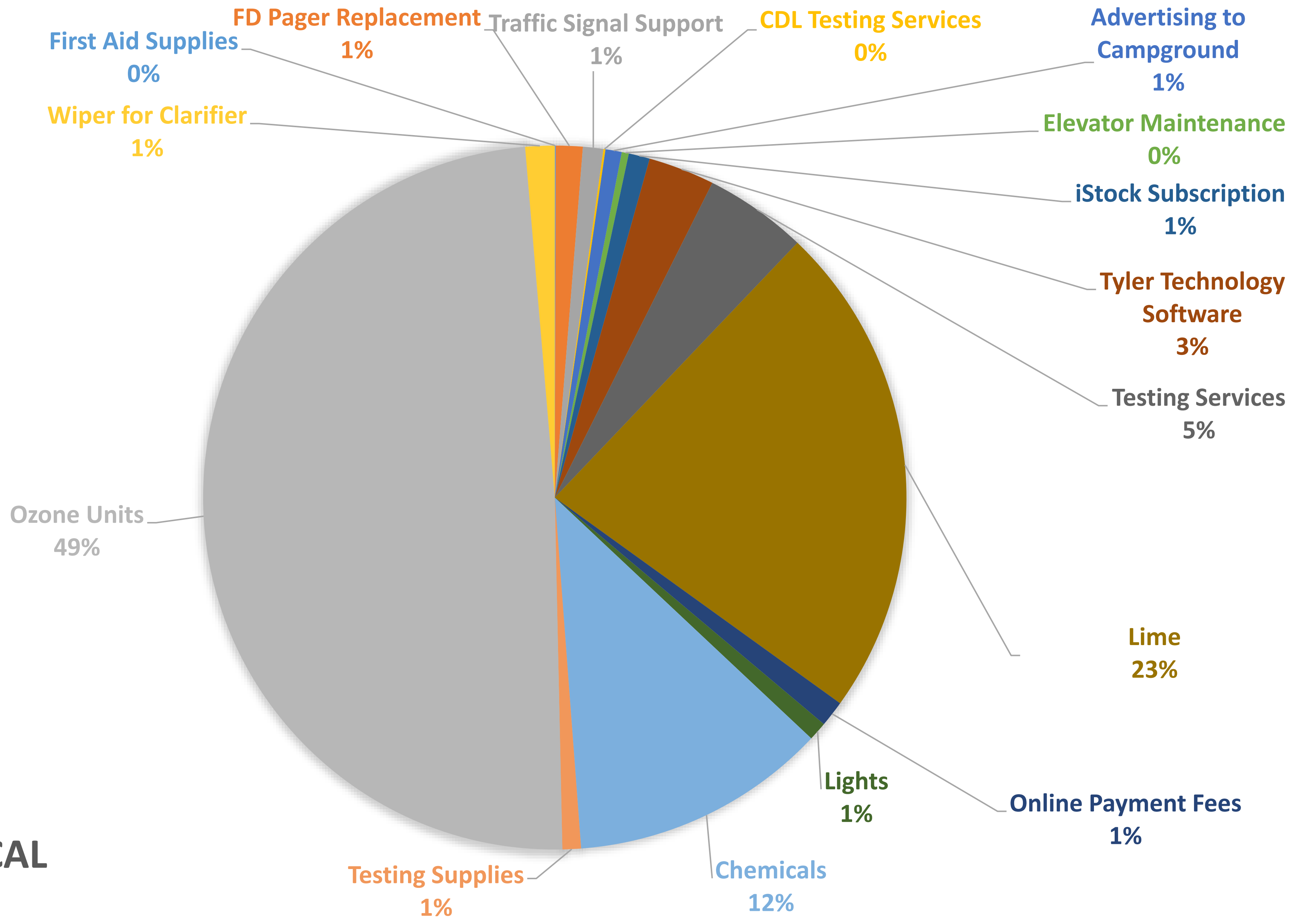


| | | |
|---|---|---|
| Richland Street Engineering | $ | 892.50 |
| Airport Runway 13/31 Subdrains Eng | $ | 455.00 |
| Airport Apron/Taxiway Rehab Eng | $ | 4,675.00 |
| SALUD! Sponsorship | $ | 2,500.00 |
| 3rd Addition Engineering | $ | 455.00 |
| NCSW Engineering | $ | 2,705.00 |
| GIS Mapping | $ | 598.00 |
| 4th & Barton Engineering | $ | 886.75 |




CONTRACTS/AGREEMENTS

| | | |
|---|---|---|
| First Aid Supplies | $ | 17.95 |
| FD Pager Replacement | $ | 493.00 |
| Traffic Signal Support | $ | 375.00 |
| CDL Testing Services | $ | 37.00 |
| Advertising to Campground | $ | 300.00 |
| Elevator Maintenance | $ | 129.68 |
| iStock Subscription | $ | 389.07 |
| Tyler Technology Software | $ | 1,218.75 |
| Testing Services | $ | 1,891.00 |
| Lime | $ | 9,135.50 |
| Online Payment Fees | $ | 478.50 |
| Lights | $ | 344.70 |
| Chemicals | $ | 4,729.55 |
| Testing Supplies | $ | 340.51 |
| Ozone Units | $ | 19,616.00 |
| Wiper for Clarifier | $ | 539.04 |




# NON-LOCAL

Payroll

$ 65,669.20

Contract/Reimbursement

$ 0.00

Local Expenses

$ 0.00

Non-Local

$ 0.00

BVC

$ 0.00

Total Expenses

$ 65,669.20

## KING'S POINTE EXPENSES

# KP NON-LOCAL

## Staff Summary

**3/19/2018**
**Agenda Item # C.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Mark Prosser, Public Safety Director

**SUBJECT:** **Resolution No. 72-R-2017-2018 Authorizing Requests Associated with the 2018 BVU Fiesta Latina Event**

**BACKGROUND:** Attached to this staff summary is a written request from Ebony King (BVU Staff) making a series of requests associated with the 2018 BVU Fiesta Latina Event scheduled for Saturday, April 14, 2018 between the hours of 1:00 pm and 6:00 pm in Chautauqua Park.

Specific requests are as follows:

*Use of Chautauqua Park on 4-14-2018 for the Fiesta Latina Event

*A Noise Variance for the venue between the hours of 12:00pm & 7:00pm for outdoor amplified entertainment

*Permission for food vendors within the venue

*Permission for inflatables & other attractions within the venue

*The closing of Chautauqua Park Drive from Hudson Street west to Lakeshore Drive to enhance security for the event's venue.

Buena Vista University traditionally keeps a copy of an insurance certificate on file with city hall showing the City of Storm Lake additionally insured for these types of events.

These requests are consistent with previous years. The event has always run smooth.

I will issue the Variance upon receipt of a consensus in the affirmative by the city council.

| | |
|---|---|
| **FISCAL IMPACT:** | There will be some Parks' Department support to this event absorbed in their normal operational budget. |
| **RECOMMENDATION:** | Pass Resolution No. 72-R-2017-2018 |

**ATTACHMENTS:**

| | Description | Type |
|---|---|---|
| 🗋 | Resolution | Backup Material |

March 2, 2018

Mr. Mark Prosser
Director of Public Safety
401 East Milwaukee Avenue
Storm Lake, IA 50588

Dear Mr. Prosser:

RAICES, one of our student organizations from Buena Vista University, is preparing for its annual **Fiesta Latina** to be held Saturday, April 14, from 1 PM to 6 PM, at Chautauqua Park. In order for Fiesta Latina to be a success this year, we would like to request the city's assistance. We would appreciate your help with the following:

- A noise variance from 12 pm to 7pm for live performances
- Permission to allow food vendors on site
- Permission to allow inflatables and other attractions on site
- Closing of the street behind the park - Chautauqua Park Dr. - *We are requesting the street be closed for safety purposes and to prevent any potential risks by leaving the street open to traffic.*

Our current schedule of events is provided below for your reference. We greatly appreciate the City Council's consideration of this community event. Should you have any questions or need additional information, please contact me at kinge@bvu.edu or 712.749.2379.

Thank you for all you do for Buena Vista University and the community of Storm Lake.

Sincerely,

Ebony King
Director of Multicultural Engagement and Student Activities

Karla Trujillo
President, RAICES

| **Schedule of Events** | | |
|---|---|---|
| **Time** | | **Major Activities** |
| 9:00 a | 1:00 p | Set up |
| 1:00 p | | ***Start of Fiesta Latina*** |
| 1:00 p | 2:30 p | Mariachi & DJ |
| 2:30 p | 3:00 p | Guest DJ Elkan |
| 3:00 p | 4:00 p | Dance Group |
| 4:00 p | 4:30 p | Zumba |
| 4:30 p | 5:00 p | Talent Show |
| 5:00 p | 6:00 p | Mariachi |
| 6:00 p | 8:00 p | Cleanup |
| 6:00 p | | End of Fiesta Latina |

City of Storm Lake
PO Box 1086
Storm Lake, Iowa 50588
712-732-8000
cityclerk@stormlake.org
www.stormlake.org

# City of Storm Lake
## Park Event / Rental Registration Application

Please complete this form for all events requested to be held within the Storm Lake Park System

| | | | |
|---|---|---|---|
| Name of Requesting Party: | Ebony King | Phone #: | ~~912-222-0193~~ 712-749-2379 |
| Mailing Address: | 610 WEST FOURTH STREET | Email: | KING-E@BVU.EDU |
| City: | STORM LAKE | State: | IA |
| Zip: | 50588 | | |
| Cell Phone: | 912-222-0193 | | |
| 2nd Contact: | ASHLEY FARMER-HANSON | Position/Relationship: | SUPERVISOR |
| Email: | HANSONA@BVU.EDU | Cell Phone: | 712-749-2377 |

| | | | |
|---|---|---|---|
| Requested Park: | CHAUTAUQUA PARK | Event Date: | 4/14/18 |
| Event Type: | FIESTA LATINA | Event Start Time: | 1:00 PM |
| | | Event End Time: | 6:00 PM |

**Please answer the following questions regarding your proposed events:**

Will there be amplified noise such as music, spoken word through a microphone or karaoke? (Use of amplified noise will require a noise variance) ✓

Will you have horses involved in the event? (All animal feces must be managed and removed from public property) NO

Will you be selling food or drink as part of event? (Sale of food requires a permit from the BV County Sanitarian 712-749-2555, please provide a copy of this permit to the City. You may be required to have a solicitor license. ✓

☐ Check this box if you will be charging admission to this event.

Will you be using an open shelter, the band shell, or the Chautauqua Park Shelter House? (These facilities are available for rent and have a rental fee associated with them - please fill out the rental agreement in addition to this document.) ✓
ALSO TENNIS COURTS,

Will you be erecting a tent? If YES attach a map of the park showing the location of the tent, size, and staking layout. NO

How many people will be attending the event? Provide your best estimate on attendance. 2500

Do you have electrical needs? NO Identify: Renting Generator from Rent All

Will there be alcohol at the event? NO Will alcohol be sold at the event? NO Do you have a liquor license? NO

Will you have inflatables at the event? If yes you will be required to provide liability insurance to the City. YES

Are you requesting Street closures? YES Which Streets? CHAUTAUQUA DRIVE

Starting Time: 9:00AM Ending Time: 7:00PM

Will there be fireworks involved with this event? If Yes please contact the Fire Chief at 712-732-8010. NO

Are you requesting security services provided by Storm Lake Public Safety? SLPS may require security services. NO

Signature Field: Ebony King Date: 1/19/18

Requesting additional dumpsters be provided for the Event

Storm Lake Public Safety

**Public Safety**
**Police & Fire**
# PERMIT

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

Event: 2018 Fiesta Latina

Issued To:

Name: Ebony King

Organization: BVU Director of Multicultural Engagement

Address: 610 West 4th Street, Storm Lake, IA 50588

Phone: 712-749-2379

Date(s) of Event: Saturday, 4-14-2018

Time(s) of Event: 12:00pm until 7:00pm

Expiration of Permit: 4-15-2018

Location / Area of Use: Chautauqua Park

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [x] Street Closing — Chautauqua Park Drive (Hudson west to Lakeshore)
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser
Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

# Staff Summary

**3/19/2018**
**Agenda Item # D.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Mark Prosser, Public Safety Director

**SUBJECT:** **Resolution No. 72-R-2017-2018 Authorizing a Series of Requests by Storm Lake United Related to Community Events Throughout 2018**

**BACKGROUND:** Attached to this staff summary is a written request submitted by Lee Dutfield making a series of requests for facility and parks usage, permits and variances related to a variety of community events throughout 2018.

The requests are associated with the following events:

Taste of Storm Lake
Storm Lake Farmers Market
Lake Fest
Ridiculous Days
Wood, Wine & Blues
Chills & Thrills
Miracle on Lake Avenue

Specific requests are as follows:

**Taste of Storm Lake**
*Permission to use the Chautauqua Park Shelter House each Thursday from 6/7 until 9/13 for the weekly event

*A Noise Variance for the venue on each Thursday from 4:00pm until 8:00pm

**Farmers Market**
*Authorization for sidewalk sale of farmer raised goods on the east side of Erie Street from East 5th north to East 6th and the north side of East 5th immediately east of Erie Street

*Farmers Market to be set up on Saturdays from 6/2 until 10/13 from 7:00am until1:00pm and on Thursdays during the same period from 3:00pm until 6:30pm

*Noise Variance for the market venue during the same dates and times as listed above

**Lake Fest**

*Use of Awaysis and Sunrise Parks on 6/22 through 6/24 for the events (including the Great Lawn) from 8:00am until 12:00am on 6/22, 7:00am until 1:00am on 6/23 and 12:00am until 5:00pm on 6/24 for set up, the event(s) and clean up

*Noise Variances from 12:00pm until 12:00am on 6/22 & 12:00pm until 1:00am on 6/23 for the venue

*Closure of the west Awaysis Parking Lot on 6/23 from 6:00am until 1:00pm to facilitate entertainer, public safety and support vehicles

*Appropriate support from the Parks and Public Safety Department throughout the weekend

*Permission for food & merchandise vending within the venue

*Permission for alcohol sales within the venue on Saturday 12:00pm until 12:00am under the umbrella of the Kings Pointe liquor license

*Permissions for committee personnel to use ATV's in the venue throughout the weekend for logistics and clean up

*Permission to fence off the great lawn to create the entertainment venue

*Permission for port-a-pots to be placed inside of the venue for the event

It should be noted that the Lake Fest Committee will attain the required insurance for the event listing the City of Storm Lake as additionally insured.

The Lake Fest Committee will also use Kings Pointe staff and other volunteers to assist in staffing and managing the event.

**Ridiculous Days**

*Permission for sidewalk sales in the downtown central business district from 7:00am on 7/19 until 5:00pm on 7/21

*Permission for food vending on sidewalks in the central business district on 7/19 from 8:00am until 8:00pm

*Noise Variance for the central business district on 7/19 from 3:00pm until 8:00pm

**Wood, Wine & Blues**
*Permission to use Sunset Park from 9:00am on 8/17 until 5:00pm on 8?19 for the event venue

*Permission to use the Band Shell in Sunset Park on 8/18 from 10:00am until 5:00pm

*Noise Variance for the venue on 8/17 from 12p-9p, 8/18 from 11a-7p, 8/19 from 10a-5p

*Permission for chainsaw sculpting within the venue for the weekend

*Permission for Storm Lake United, vendors and sculptors to sell merchandise within the venue during the event

*Permission for food vending within the venue

*Appropriate access to electrical service in the park

*Appropriate support from the Parks and Public Safety Departments throughout the event

**Chills and Thrills**
*Permission for student and community organizations to set up tables on the sidewalks in the central business district from 9a-12p on 10-27-2018

*Noise Variance for the central business district for the event from 9a-12p

**Miracle of Main Street**
*Noise Variance in the central business district on 12/6 from 5p-9p
*Permit for a 6p parade
*Permission to briefly close the 200 block of East 5th Street following the parade for the Christmas Tree lighting
*Appropriate support from the Public Safety Department

These requests are consistent with previous years.

**FISCAL IMPACT:** A variety of these events will require staff and resources from several city departments all of which are covered under the department's operational budgets. Lake Fest does reimburse for police overtime costs.

**RECOMMENDATION:** Pass Resolution No. 72-R-2017-2018

**ATTACHMENTS:**

| | Description | Type |
|---|---|---|
| | Resolution | Resolution |

*Storm Lake Public Safety Department*
*Attn: Chief Mark Prosser*
*401 East Milwaukee Ave*
*Storm Lake, IA 50588*

Dear Chief Prosser,

For 2018, Storm Lake United would like to make requests for the following events:

**Taste of Storm Lake**
**Farmers Market**
**LakeFest**
**Ridiculous Days**
**Wood, Wine and Blues**
**Chills and Thrills**
**Miracle on Lake Avenue**

*Taste of Storm Lake* is a weekly summer event that enables local non-profit organizations to serve a meal to the public and earn funds for their entity. For *Taste of Storm Lake 2018,* Storm Lake United would like to request the following:

- Permission to use the Chautauqua Park Shelter House each Thursday starting on June 7th and ending September 13th. The non-profit agency serving the meal each week will pay the damage deposit for the facility one to two weeks prior to their hosting date.
- A Noise Variance for all *Taste of Storm Lake* events at Chautauqua Park Shelter House between the hours of 4:00pm and 8:00pm.

For the Storm Lake *Farmers Market,* Storm Lake United would like to request permission for the following:

- Authorization to have sales of farmer raised goods in the BV County Courthouse Square (Including the 600 block on the east side of Erie Street between BV County Courthouse and Meta Bank and the first four parking spots on the North Side of East 5th Street immediate east of Erie Street).
- Permission for set up of *Farmers Market* stands starting on Saturday June 2nd and running through Saturday October 13th on both Thursday Nights from 3:00pm to 6:30pm and on Saturday Mornings from 7:00am to 1:00pm.
- A Noise Variance on Thursday events and Saturday events for the duration.

*LakeFest 2018* will be taking place during the weekend of June 22nd to June 24th. Storm Lake United would like to request a permit for the following activities:

Friday, June 22nd

- Use of Awaysis and Sunrise Park including The Great Lawn to set up for the event from 8:00am to 12:00am.
- A Noise Variance between the hours of 12:00pm to 12:00am.

Saturday, June 23rd

- Closure of Awaysis Park West Parking lot for Public Safety and the entertainer's vehicles between 6:00am to 1:00am. The East lot will remain open.
- Use of Awaysis Park including The Great Lawn from 7:00am to 1:00am for the concerts.
- Use of the Parks Department for setup, clean up, and during the event.
- Use of the Public Safety Department throughout the event (please note: there will be additional security staff and volunteers provided to assist the Police Department at the event).
- Request for a Noise Variance issued between the hours of 12:00pm and 1:00am for the concert.
- Permission to post directional signs throughout town to navigate traffic to and from the concert area and to allotted parking lots.
- Permission to have vendors in Awaysis Park including The Great Lawn to sell food and promotional items.
- Permission to sell alcohol during the event under King's Pointe's liquor license from 12:00pm to 12:00am.
- Permission to use ATV's in Sunrise Park and Awaysis Park including The Great Lawn for logistics and clean up.
- Staff will be provided during the event at entrances to check ID's.
- One entity involved will purchase an insurance policy listing the other entities, including the City of Storm Lake, as additional insured (Storm Lake United will hold the overall insurance policy, and King's Pointe Resort will issue the DRAM Insurance).
- Permission to place Port-A-Pots in the concert area venue
- Permission for events to take place in Sunrise Park from 12:00pm to 11:00pm.

Sunday, June 24th

- Use of Awaysis Park including The Great Lawn to tear down and clean up the area from 12:00am to 5:00pm.
- Permission to use ATV's in Sunrise Park and Awaysis Park including The Great Lawn for clean up

*Ridiculous Days* will be taking place on Lake Avenue on July 19th through July 21st. Storm Lake United would like to request the following for this event:

- Permission to hold sidewalk sales from Thursday, July 19th at 7:00am through Saturday, July 21st at 5:00pm.
- Permission to allow food vendors on sidewalks on Thursday, July 19th from 8:00am to 8:00pm.
- A Noise Variance beginning Thursday, July 19th from 3:00pm to 8:00pm.

August 17th-19th 2018, Storm Lake United is planning to host *Wood, Wine & Blues*. *Wood, Wine & Blues* is a community-wide event that will include a three-day chainsaw carving competition between professional wood carvers, a wine and arts festival on Saturday, August 18th in the park with craft vendors selling their products and Iowa wineries and breweries providing free tastings for the public, and free daytime concerts from local artists. Storm Lake United would like to request permission for the following:

- To use Sunset Park on Friday, August 17th between the hours of 9:00am to 9:00pm. On Saturday, August 18th from 10:00am to 7:00pm. On Sunday, August 19th from 9:00am to 5:00pm.
- To use the Sunset Park Band Shell from 10:00am to 5:00pm on Saturday, August 18th.
- To have a Noise Variance in Sunset Park on Friday, August 17th from 12:00pm to 9:00pm. On Saturday, August 18th from 11:00am to 7:00pm. On Sunday, August 19th from 10:00am to 5:00pm.
- To allow chainsaw competitors to complete tree sculpture carvings with the designated logs located in Sunset Park on Friday, August 17th from 1:30pm to 5:00pm. Saturday, August 18th from 10:00am to 5:00pm. Sunday, August 19th from 12:30pm to 3:30pm.
- To allow craft vendors to display and sell their products in Sunset Park Saturday, August 18th from 10:00am to 5:00pm.
- To allow Storm Lake United to sell quick carve sculptures that the competing carvers will create in a 90 minute quick carve competition via silent auction on Saturday, August 18th.
- To allow food vendors to sell their products on Friday, Saturday, and Sunday in Sunset Park.
- To allow the competing carvers to sell their work in Sunset Park.
- For appropriate support from parks and public safety.
- For access to electrical power in Sunset Park.

The competing carvers will be responsible to supply their own safety equipment, including safety netting, fire extinguishers, eye protection, ear plugs, and chainsaw resistant pants or chaps. Each carver will be required to sign a waiver before they will be able to compete in the competition.

*Chills and Thrills* is the annual Halloween Trick or Treat in Storm Lake that includes coordination with BVU Student Organization and local businesses to provide a family friendly Halloween Trick or Treat event for the citizens of Storm Lake. This year the event is scheduled for Saturday. October 27th. Storm Lake United would like to request a permit for the following activities during *Chills and Thrills 2018:*

- A Noise Variance beginning at 9:00am to 12:00pm.
- Permission for student organizations and local businesses to set up tables for games and candy on the 500 and 600 block of Lake Avenue from 9:00am to 12:00pm.

Finally, *Miracle on Lake Avenue* will take place on Thursday, December 6th, 2018. Storm Lake United would like to make the request for the following activities on Lake Avenue between 5:00pm and 9:00pm.

- A Noise Variance for holiday music is needed for the parade and sidewalk activities on the 500 and 600 blocks of Lake Avenue from 5:00pm to 9:00pm.
- The parade will start at 6:00pm. The staging area will be in the 500 and 600 blocks of Cayuga Street. The parade will go West on 7th Street, South on Lake Avenue, East on Railroad Street and North on Erie Street ending in the 700 block.

- A street closure at the 200 block of East 5th Street for the Tree Lighting ceremony that will take place immediately following the parade. Once the ceremony is over, the street will be reopened.

A representative from Storm Lake United will be in attendance at the city council meeting to answer any questions that may arise. If the council has any questions prior to the meeting, feel free to contact me by email.

Thank you,

**Lee Dutfield**
*Marketing and Activities Director*
*Storm Lake United*
*Phone: 712-732-3780*
*Email:* lee@stormlakeunited.com

# Mark Prosser

**From:** Lee Dutfield <lee@stormlakeunited.com>
**Sent:** Friday, March 9, 2018 2:31 PM
**To:** Mark Prosser
**Subject:** Re: 2018 Events/Permits
**Attachments:** 2018 SL United Event Request.pdf

Mark,

Attached is Storm Lake United's requests for 2018. Please let me know if you need anything additional.

Thank you very much,

Lee Dutfield
Marketing and Activities Director
Storm Lake United
119 W 6th Street
P.O. Box 584
Storm Lake, IA. 50588
(712) 732-3780
lee@stormlakeunited.com

On Wed, Mar 7, 2018 at 3:59 PM, Mark Prosser <Prosser@stormlake.org> wrote:

> Sounds fine.
>
> MP

Public Safety
Police & Fire
# PERMIT

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

Event: 2018 Farmers Market

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: 6-2-2018 until 10-13-2018 (Thursdays & Saturdays)

Time(s) of Event: 7a-1p (Saturdays) // 3p-630p (Thursday)

Expiration of Permit: 10-14-2018

Location / Area of Use: 600 block of Erie Street

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser
Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

Storm Lake Public Safety

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

# Public Safety
# Police & Fire
# PERMIT

Event: 2018 Taste of Storm Lake

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Thursdays. 6-7-2018 through 9-13-2018

Time(s) of Event: 4:00pm until 8:00pm

Expiration of Permit: 9-14-2018

Location / Area of Use: Chautauqua Park Shelter House Area

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser

Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

Storm Lake Public Safety

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

# Public Safety
## Police & Fire
# PERMIT

Event: 2018 Lake Fest

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Saturday, 6-23-2018

Time(s) of Event: 12:00pm until 1:00am

Expiration of Permit: 6-24-2018

Location / Area of Use: Awaysis Park

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser (Please Print)

Date: 3-20-2018

Signature: [signature]

Title: Public Safety Director

Storm Lake Public Safety

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

# Public Safety Police & Fire PERMIT

Event: 2018 Ridiculous Days

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Thursday, 7-19-2018

Time(s) of Event: 3:00pm until 8:00pm

Expiration of Permit: 7-20-2018

Location / Area of Use: Downtown - Central Business District

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser

Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

Storm Lake Public Safety

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

# Public Safety
# Police & Fire
# PERMIT

Event: 2018 Wood, Wine & Blues

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: 8-17-2018 // 8-18-2018 // 8-19-2018

Time(s) of Event: 12p-9p // 11a-7p // 10a-5p

Expiration of Permit: 8-20-2018

Location / Area of Use: Sunset Park

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser

Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

Storm Lake Public Safety

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

**Public Safety**
**Police & Fire**
# PERMIT

Event: 2018 Chills & Thrills

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Saturday, 10-27-2018

Time(s) of Event: 9:00am until 12:00pm

Expiration of Permit: 10-28-2018

Location / Area of Use: Downtown - Central Business District

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser
Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

Storm Lake Public Safety

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

# Public Safety
# Police & Fire
# PERMIT

Event: 2018 Miracle on Lake Avenue

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Thursday, 12-6-2018

Time(s) of Event: 5:00pm until 9:00pm

Expiration of Permit: 12-7-2018

Location / Area of Use: Downtown - Central Business District

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(l2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser
Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

Storm Lake Public Safety

**Public Safety**
**Police & Fire**
# PERMIT

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

Event: 2018 Miracle on Lake Avenue

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Thursday, 12-6-2018

Time(s) of Event: 5:00pm until 9:00pm

Expiration of Permit: 12-7-2018

Location / Area of Use: Downtown - Central Business District

Type of Permit

- [x] Noise Variance (8-7-4)
- [ ] Ride/Run/Walk (9-13-4)
- [ ] Parade (9-13-4)
- [ ] Public Demonstration (8-7-4)
- [ ] Street Closing
- [ ] Fireworks (8-2-1(I2A))
- [ ] Authorized Burn (7-2-2-B)
- [ ] Other

Authorized by: Mark A. Prosser    Date: 3-20-2018

Please Print

Signature:    Title: Public Safety Director

Public Safety
Police & Fire

# PERMIT

401 East Milwaukee Avenue
Storm Lake, Iowa
Phone: 712-732-8010
Email: publicsafety@stormlake.org

Event: 2018 Miracle on Lake Avenue

Issued To:

Name: Lee Dutfield

Organization: Storm Lake United

Address: 119 West 6th Street, Storm Lake, IA 50588

Phone: 712-732-3780

Date(s) of Event: Thursday, 12-6-2018

Time(s) of Event: 6:00pm

Expiration of Permit: 12-7-2018

Location / Area of Use: Cayuga-East 7th-Lake Avenue-East Railroad-Erie

Type of Permit

☐ Noise Variance (8-7-4)

☐ Ride/Run/Walk (9-13-4)

☒ Parade (9-13-4)

☐ Public Demonstration (8-7-4)

☒ Street Closing 200 block of East 5th Street (Post Parade for tree lighting)

☐ Fireworks (8-2-1(I2A))

☐ Authorized Burn (7-2-2-B)

☐ Other

Authorized by: Mark A. Prosser
Please Print

Date: 3-20-2018

Signature:

Title: Public Safety Director

## Staff Summary

**3/19/2018**
**Agenda Item # 3.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Scott Olesen, Building Official

**SUBJECT:** **Ordinance No. 05-O-2017-2018 Amending The City Code By Updating The Referenced Electrical Codes and Standards To The Most Recent Edition - 3rd Reading**

**BACKGROUND:**

The City Code adopts by reference the National Electrical Code.

This code is produced by the National Fire Protection Association. This organization updates this code on a three year cycle.

At this time, City staff is proposing to update from the 2014 version of the National Electrical Code to the 2017 National Electrical Code.

Updating to the current code editions will bring the City into line with the code as adopted by the State of Iowa. The Electrical Code is mandated by the State of Iowa and is in effect Statewide. Additionally, the City of Storm Lake is reviewed every three years by the Insurances Services Offices (ISO), which provides ratings for building departments which is then used for setting insurance rates. A City's ISO rating is also used by FEMA in responding to natural disasters. Adopting more current codes will help to maintain our current rating.

Adopting the most current codes is also important to keep pace with new materials and techniques in the industry as well.

A copy of the proposed Ordinance and the amendments is attached for your review.

**FISCAL IMPACT:** Legal fees and publication are estimated to be $300.00

**RECOMMENDATION:** ~~Pass on 1st reading February 19, 2018~~
~~Pass on 2nd reading March 5, 2018~~
Pass on 3rd reading March 19, 2018

**ATTACHMENTS:**

| | Description | Type |
|---|---|---|
| 🗋 | Ordinance 05-O-2017-2018 | Ordinance |

**ORDINANCE NO. 5-O-2017-2018**

ORDINANCE AMENDING CHAPTER 5-4 OF TITLE V OF THE CITY CODE OF THE CITY OF STORM LAKE, IOWA, TITLED “ELECTRICAL CODE AND REGULATION OF ELECTRICIANS,” TO ADOPT BY REFERENCE THE MOST RECENT EDITION OF THE NATIONAL ELECTRICAL CODE, WITH MODIFICATIONS, AND CERTAIN RELATED IOWA CODE SECTIONS, AND TO GENERALLY UPDATE THE PROVISIONS OF THE ELECTRICAL CODE AND REGULATION OF ELECTRICIANS

WHEREAS, the City Council of the City of Storm Lake, Iowa, has determined that Chapter 5-4 of Title V of the City Code of the City of Storm Lake, Iowa should be amended to generally update the City’s electrical code and regulations concerning electricians, including, but not limited to, the adoption by reference of the most recent edition of the National Electrical Code, with certain modifications;

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Storm Lake, Iowa, as follows:

Section 1. Chapter 5-4 of Title V of the City Code of the City of Storm Lake, Iowa, is hereby amended as follows:

a. Section 5-4-3, captioned, “Electrical Code Adopted,” is deleted and, in lieu thereof, the following new Section 5-4-3, captioned “Electrical Code Adopted,” is inserted:

**Section 5-4-3 Electrical Code Adopted**

After published notice and public hearing as required by law, the National Electrical Code, 2017 Edition, as published and approved by the National Fire Protection Association but as adopted and amended from time to time by the electrical examining board within the division of state fire marshal of the Iowa Department of Public Safety pursuant to Iowa Code Sections 100.1, 100.35, 103.1, and 103.6 and administrative rules pursuant thereto is hereby adopted as the Electrical Code for the City, subject to the modifications made by this Section 5-4-3. The National Electrical Code, 2017 Edition, as so adopted and amended, and Iowa Code Sections 100.1, 100.35, 103.1, and 103.6 are hereby incorporated by reference, subject to the modifications set forth below in this Section 5-4-3. All installations, repair or replacement of electrical equipment within the City shall be made in conformance with the Electrical Code for the City and no permit shall be issued by the Electrical Inspector for such a project if the plans and specifications are not in conformance with that Code.

A copy of the National Electrical Code, 2017 Edition, as adopted and amended by the electrical examining board within the division of state fire marshal of the Iowa Department of Public Safety, shall be maintained in the office of the Building Official and shall be available for public inspection during all normal business hours.

Notwithstanding the provisions of the National Electrical Code, 2017 Edition, as adopted and amended by the electrical examining board within the division of state fire marshal of the Iowa Department of Public Safety, the following provisions shall apply:

(A) All business buildings (either erected, altered or converted for such purpose), public buildings, schools, churches, oil stations, warehouses, bulk oil plants, institutional buildings, apartment houses and all buildings except dwelling houses of not more than two (2) families, shall be wired throughout with rigid conduit, armored cable, flexible steel conduit, metal raceway, electrical metallic tubing, metal clad cable, or electrical non-metallic tubing in accordance with NEW requirements, provided, however, that armored cable or flexible steel conduit may be used only where it is impractical to use rigid conduit or electrical metallic tubing, and further provided that in remodeling work in the buildings above mentioned, metal surface raceway may be used in remodeling, where, in the opinion of the Electrical Inspector, it is impractical to install rigid conduit or electrical metallic tubing. However, in all structures having four (4) or more dwelling units, a feeder must be installed to each dwelling unit branch circuit panel and run in conduit or electric metallic tubing. Each individual dwelling unit may be wired in metallic armored cable (BX) or non-metallic sheath cable (Romex).

(B) Basements of all dwelling houses shall be wired in rigid conduit or electric metallic tubing with the same provision for the use of armored cable or flexible steel conduit as provided in the preceding paragraph, provided that where the entrance switch or panel is on a floor other than the basement, the conduit must be continuous from such switch or panel and connect to the basement conduit. The balance of buildings used as dwelling houses for not more than two (2) families and private garages may be wired with non-metallic sheathed cable.

(C) All sign boards or poster boards shall be wired in rigid conduit, electric metallic tubing, or electrical non-metallic tubing.

b. Section 5-4-6, captioned, "Permits," is deleted and, in lieu thereof, the following new Section 5-4-6, captioned "Permits," is inserted:

**Section 5-4-6 Permits**

No electrical equipment shall be installed within or on any building, structure or premises, publicly or privately owned, nor any alterations or additions made in existing equipment, without first securing a permit therefor from the Electrical Inspector except that a permit shall not be required to construct, maintain or install any of the following classes of electrical work:

(A) Routine maintenance as defined in Iowa Code Section 103.1(16).

(B) The installation, alteration or repair of electrical equipment installed by or for any electrical supply agency, for the use of such agency, in the generation, transmission, distribution or metering of electricity.

(C) Any work involved in the manufacturing, testing, servicing, altering or repairing of electrical equipment or apparatus, except that this exemption shall not include any permanent wiring.

(D) Inspections and an electrical permit are not required if all of the following conditions apply:

1. The installation is performed by a licensed Electrical Contractor, Residential Electrical Contractor or their employees.
2. The installation does not in any way involve work within a new or existing switchboard or panelboard.
3. The installation does not exceed 30 amps.
4. The installation does not exceed 277 volts, single phase.

c. Section 5-4-8, captioned, "Applicant Required To Be Licensed, Exception," is deleted and, in lieu thereof, the following new Section 5-4-8, captioned "Applicant Required To Be Licensed, Exception," is inserted:

**Section 5-4-8 Applicant Required To Be Licensed, Exception**

No permits for the installation or alteration of any electrical equipment shall be issued to any person, unless the applicant therefor is the owner of a license entitling such applicant to secure permits for and to execute the work described in the application for the permit, except that a homeowner shall be entitled to a permit for an existing residence in which he/she resides, in accordance with State licensing requirements. New homes must be wired by a Master Electrician, licensed by the State of Iowa.

d. Section 5-4-10, captioned, "Inspection," is deleted and, in lieu thereof, the following new Section 5-4-10, captioned "Inspection," is inserted:

**Section 5-4-10 Inspection**

Upon the completion of any installation or alteration requiring an electrical permit it shall be the duty of the person making the installation or alteration to notify the Electrical Inspector who shall inspect the installation or alteration within twenty-four (24) hours of the time such notice is given, exclusive of Saturdays, Sundays, and holidays, or as soon thereafter as practical. If the Electrical Inspector shall find such installation or alteration in conformity with the provisions of this Chapter, he/she shall inform the person making such installation or alteration verbally of his/her approval. The Electrical Inspector shall provide notice of approval to the serving electrical utility at the time of service connection as required by the specific serving utility. When any electrical equipment is to be hidden or concealed from view by the permanent placement of parts of the building, the person installing the equipment shall notify the Inspector and such equipment shall not be concealed until it has been inspected and approved by him/her, or until twenty-four (24) hours following notification, exclusive of Saturdays, Sundays and holidays provided that on any large installation, where the concealment of equipment proceeds continuously, the person installing such equipment shall give the Electrical Inspector due notice, and inspection shall be made periodically during the progress of the work period.

Section 2. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 3. This ordinance shall be in effect following its passage, approval, and publication as provided by law.

PASSED AND APPROVED this 19th day of March, 2018.

____________________________________

Michael Porsch, Mayor

ATTEST:

____________________________________

Keri Navratil, City Manager

# Staff Summary

**3/19/2018**
**Agenda Item # 4.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

| | |
|---|---|
| **REPORT TO:** | Honorable Mayor and City Council |
| **FROM:** | Brian Oakleaf, Finance Director |
| **SUBJECT:** | **Resolution No. 73-R-2017-2018 Approving Electronic Bidding Procedures And Preliminary Official Statement for $3.35M GO Notes** |
| **BACKGROUND:** | The attached Resolution approves two steps in the process for the issuance of $3,350,000 General Obligation Capital Loan Notes.<br><br>1. Approves the City's Official Statement in the form presented and deemed final for purposes of Rule 15c2-12 of the Securities and Exchange Commission. As this will be the Official Statement distributed in connection with the offering of the Notes for sale, the resolution also authorizes any revisions, corrections or modifications as the Mayor and Clerk, upon the advice of bond counsel, disclosure counsel and the City's financial advisor, determine to be appropriate.<br><br>2. Approves the use of Electronic Bidding Procedures which the City has used with good success in the past. The use of electronic bidding procedures does not preclude potential bidders from bidding in any other appropriate manner. The electronic bid process, specifically the PARITY Competitive Bidding System, is secure and is the generally accepted form of bidding. |
| **FISCAL IMPACT:** | All costs associated with this resolution are included in the fees for services rendered by Piper Jaffray & Co. and previously outlined in Disclosure Counsel Agreement with Ahlers & Cooney. |
| **RECOMMENDATION:** | Adopt Resolution No. 73-R-2017-2018 |

**ATTACHMENTS:**

| Description | Type |
|---|---|
| Resolution No. 73-R-2017-2018 | Resolution |

RESOLUTION NO. 73-R-2017-2018

RESOLUTION APPROVING ELECTRONIC BIDDING PROCEDURES AND DISTRIBUTION OF PRELIMINARY OFFICIAL STATEMENT

WHEREAS, in conjunction with its Financial Advisor, Piper Jaffray & Co. and Disclosure Counsel, the City has caused a Preliminary Official Statement to be prepared outlining the details of the proposed sale of the Notes; and

WHEREAS, the Council has received information from its Financial Advisor evaluating and recommending the procedure hereinafter described for electronic, facsimile and internet bidding to maintain the integrity and security of the competitive bidding process and to facilitate the delivery of bids by interested parties; and

WHEREAS, the Council deems it in the best interests of the City and the residents thereof to receive bids to purchase such Notes by means of both sealed and electronic internet communication.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA:

Section 1. That the preliminary Official Statement in the form presented to this meeting be and the same hereby is approved as to form and deemed final for purposes of Rule 15c2-12 of the Securities and Exchange Commission, subject to such revisions, corrections or modifications as the Mayor and Clerk, upon the advice of bond counsel, disclosure counsel, and the City's Financial Advisor, shall determine to be appropriate, and is authorized to be distributed in connection with the offering of the Notes for sale.

Section 2. That the receipt of electronic bids by facsimile machine and through the PARITY® Competitive Bidding System described in the Official Statement are hereby found and determined to provide reasonable security and to maintain the integrity of the competitive bidding process, and to facilitate the delivery of bids by interested parties in connection with the offering at public sale.

PASSED AND APPROVED this 19th day of March, 2018.

______________________________
Michael Porsch, Mayor

ATTEST:

______________________________
Mayra A. Martinez, City Clerk

# Staff Summary

**3/19/2018**
**Agenda Item # 5.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

| | |
|---|---|
| **REPORT TO:** | Honorable Mayor and City Council |
| **FROM:** | Brian Oakleaf, Finance Director |
| **SUBJECT:** | Resolution No. 74-R-2017-2018 Approving Electronic Bidding Procedures And Preliminary Official Statement for $2.05M GO Refunding Notes |
| **BACKGROUND:** | The attached Resolution approves two steps in the process for the issuance of $2,050,000 General Obligation Capital Loan Notes.<br><br>1. Approves the City's Official Statement in the form presented and deemed final for purposes of Rule 15c2-12 of the Securities and Exchange Commission. As this will be the Official Statement distributed in connection with the offering of the Notes for sale, the resolution also authorizes any revisions, corrections or modifications as the Mayor and Clerk, upon the advice of bond counsel, disclosure counsel and the City's financial advisor, determine to be appropriate.<br><br>2. Approves the use of Electronic Bidding Procedures which the City has used with good success in the past. The use of electronic bidding procedures does not preclude potential bidders from bidding in any other appropriate manner. The electronic bid process, specifically the PARITY Competitive Bidding System, is secure and is the generally accepted form of bidding. |
| **FISCAL IMPACT:** | All costs associated with this resolution are included in the fees for services rendered by Piper Jaffray & Co. and previously outlined in Disclosure Counsel Agreement with Ahlers & Cooney. |
| **RECOMMENDATION:** | Adopt Resolution No. 74-R-2017-2018 |

**ATTACHMENTS:**

| | Description | Type |
|---|---|---|
| 🗋 | Resolution No. 74-R-2017-2018 | Resolution |
| 🗋 | pos for city | Contract |

RESOLUTION NO. 74-R-2017-2018

RESOLUTION APPROVING ELECTRONIC BIDDING PROCEDURES AND DISTRIBUTION OF PRELIMINARY OFFICIAL STATEMENT

WHEREAS, in conjunction with its Financial Advisor, Piper Jaffray & Co., and Disclosure Counsel, the City has caused a Preliminary Official Statement to be prepared outlining the details of the proposed sale of the Notes; and

WHEREAS, the Council has received information from its Financial Advisor evaluating and recommending the procedure hereinafter described for electronic, facsimile and internet bidding to maintain the integrity and security of the competitive bidding process and to facilitate the delivery of bids by interested parties; and

WHEREAS, the Council deems it in the best interests of the City and the residents thereof to receive bids to purchase such Notes by means of both sealed and electronic internet communication.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA:

Section 1. That the preliminary Official Statement in the form presented to this meeting be and the same hereby is approved as to form and deemed final for purposes of Rule 15c2-12 of the Securities and Exchange Commission, subject to such revisions, corrections or modifications as the Mayor and Clerk, upon the advice of bond counsel, disclosure counsel, and the City's Financial Advisor, shall determine to be appropriate, and is authorized to be distributed in connection with the offering of the Notes for sale.

Section 2. That the receipt of electronic bids by facsimile machine and through the PARITY® Competitive Bidding System described in the Official Statement are hereby found and determined to provide reasonable security and to maintain the integrity of the competitive bidding process, and to facilitate the delivery of bids by interested parties in connection with the offering at public sale.

PASSED AND APPROVED this 19th day of March, 2018.

____________________________________
Michael Porsch, Mayor

ATTEST:

____________________________________
Mayra A. Martinez, City Clerk

**Storm Lake, Iowa**

## $3,350,000 * General Obligation Capital Loan Notes, Series 2018A
## $2,050,000* Taxable General Obligation Refunding Capital Loan Notes, Series 2018B

(FAST Closing)
(The Issuer will designate the series 2018A Notes as Bank-Qualified as discussed more thoroughly herein)
(Book Entry Only)
(PARITY© Bidding Available)

| | |
|---|---|
| DATE: | Monday, April 16, 2018 |
| TIME: | 1:00 PM |
| PLACE: | Office of the Finance Director<br>620 Erie St.<br>Storm Lake, IA 50588 |
| Telephone: | (712)732-8000 |

Moody's Rating: "A2"

* Preliminary, subject to change

PiperJaffray®

3900 Ingersoll Ave., Suite 110
Des Moines, IA 50312
515/247-2355

**OFFICIAL BID FORM**

TO: City Council of Storm Lake, Iowa (the "Issuer")

Re: $3,350,000* General Obligation Capital Loan Notes, Series 2018A, dated the date of delivery, of the Issuer (the "Series 2018A Notes")

For all or none of the above Notes, in accordance with the notice of sale, we will pay you $ _____ for Series 2018A Notes bearing interest rates and maturing on June 1 in each of the stated years as follows:

| Coupon | Yield | Due June 1st | Coupon | Yield | Due June 1st |
|---|---|---|---|---|---|
| __________ | ________ | 2019 | __________ | ________ | 2026 |
| __________ | ________ | 2020 | __________ | ________ | 2027 |
| __________ | ________ | 2021 | __________ | ________ | 2028 |
| __________ | ________ | 2022 | __________ | ________ | 2029 |
| __________ | ________ | 2023 | __________ | ________ | 2030 |
| __________ | ________ | 2024 | __________ | ________ | 2031 |
| __________ | ________ | 2025 | | | |

________ We hereby elect to have the following issued as term Notes:

| Principal Amount | Month and Year (Inclusive) | Maturity Month and Year |
|---|---|---|
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |

Subject to mandatory redemption requirement in the amounts and at the times shown above

_____ We will not elect to have any Series 2018A Notes issued as term Notes

_____ We represent that we are a bidder with established industry reputation for underwriting new issuances of municipal Notes.

This bid is for prompt acceptance and for delivery of said Notes to use in compliance with the Official Terms of Offering, which is made a part of this proposal, by reference. Award will be made on a True Interest Cost Basis (TIC).

In order to permit bidders for the Series 2018A Notes and other participating underwriters in the primary offering of the Series 2018A Notes to comply with paragraph (b)(5) of Rule 15c2-12 promulgated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended (the "Rule"), the Issuer will covenant and agree, for the benefit of the registered holders or beneficial owners from time to time of the outstanding Series 2018A Notes, in the Bond Resolution, to provide annual reports of specified information and notice of the occurrence of certain events, if material, as hereinafter described (the "Disclosure Covenants"). The information to be provided, the events as to which notice is to be given, if material, and a summary of other provisions of the Disclosure Covenants, including termination, amendment and remedies, are set forth in Appendix C to this Official Statement.

According to our computations (the correct computation being controlling in the award), we compute the following (to the dated date):

NET INTEREST COST:$____________________________ TRUE INTEREST RATE ________________________%
(Computed from the dated date)

__________________________ __________________________________

Account Manager Signature of Account Manager

The foregoing offer is hereby accepted by and on behalf of the City Council of Storm Lake, in the county of Buena Vista, State of Iowa, this 16th day of April 2018.

ATTEST: ____________________________________ __________________________________

City Clerk Mayor

___________________________

* Preliminary, subject to change

**OFFICIAL BID FORM**

TO: City Council of Storm Lake, Iowa (the "Issuer")

Re: $2,050,000* Taxable General Obligation Refunding Capital Loan Notes, Series 2018B, dated the date of delivery, of the Issuer (the "Series 2018 B Notes")

For all or none of the above Series 2018B Notes, in accordance with the notice of sale, we will pay you $ _____ for Notes bearing interest rates and maturing on June 1 in each of the stated years as follows:

| Coupon | Yield | Due June 1st | Coupon | Yield | Due June 1st |
|---|---|---|---|---|---|
| __________ | ________ | 2019 | __________ | ________ | 2025 |
| __________ | ________ | 2020 | __________ | ________ | 2026 |
| __________ | ________ | 2021 | __________ | ________ | 2027 |
| __________ | ________ | 2022 | __________ | ________ | 2028 |
| __________ | ________ | 2023 | __________ | ________ | 2029 |
| __________ | ________ | 2024 | | | |

________ We hereby elect to have the following issued as term Notes:

| Principal Amount | Month and Year (Inclusive) | Maturity Month and Year |
|---|---|---|
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |
| $____________ | ______________ to ______________ | ______________ |

Subject to mandatory redemption requirement in the amounts and at the times shown above

_____ We will not elect to have any Series 2018B Notes issued as term Notes

_____ We represent that we are a bidder with established industry reputation for underwriting new issuances of municipal bonds.

This bid is for prompt acceptance and for delivery of said Notes to use in compliance with the Official Terms of Offering, which is made a part of this proposal, by reference. Award will be made on a True Interest Cost Basis (TIC).

In order to permit bidders for the Series 2018B Notes and other participating underwriters in the primary offering of the Series 2018B Notes to comply with paragraph (b)(5) of Rule 15c2-12 promulgated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended (the "Rule"), the Issuer will covenant and agree, for the benefit of the registered holders or beneficial owners from time to time of the outstanding Series 2018B Notes, in the Bond Resolution, to provide annual reports of specified information and notice of the occurrence of certain events, if material, as hereinafter described (the "Disclosure Covenants"). The information to be provided, the events as to which notice is to be given, if material, and a summary of other provisions of the Disclosure Covenants, including termination, amendment and remedies, are set forth in Appendix C to this Official Statement.

According to our computations (the correct computation being controlling in the award), we compute the following (to the dated date):

NET INTEREST COST:$______________________________ TRUE INTEREST RATE __________________________%
(Computed from the dated date)

____________________________ ____________________________________
Account Manager Signature of Account Manager

The foregoing offer is hereby accepted by and on behalf of the City Council of Storm Lake, in the county of Buena Vista, State of Iowa, this 16th day of April 2018.

ATTEST: ______________________________________ ____________________________________
City Clerk Mayor

____________________________

* Preliminary, subject to change

## OFFICIAL TERMS OF OFFERING

This section sets forth the description of certain terms of the Notes as well as the terms of offering with which all bidders and bid proposals are required to comply, as follows:

The Notes. The Notes to be offered are the following:

**GENERAL OBLIGATION CAPITAL LOAN NOTES**, Series 2018A in the principal amount of $3,350,000* dated the Date of Delivery in the denomination of $5,000 or multiples thereof, and maturing as shown on the front page of the official statement

And

**TAXABLE GENERAL OBLIGATION REFUNDING CAPITAL LOAN NOTES**, Series 2018B in the principal amount of $2,050,000* dated the Date of Delivery in the denomination of $5,000 or multiples thereof, and maturing as shown on the front page of the official statement

Collectively herein called the Notes

* Adjustment to Principal Amount After Determination of Best Bid Each scheduled maturity of the Notes are subject to increase or decrease. Such adjustments shall be made promptly after the sale and prior to the award of bids by the issuer and shall be in the sole discretion of the Issuer. To cooperate with any adjustment in the principal amounts, the Successful Bidder is required, as a part of its bid, to indicate its Initial Reoffering yield and Initial Reoffering price on each maturity of the Notes (said price shall be calculated to the date as indicated by the Issuer).

The dollar amount bid by the Successful Bidder may be changed if the aggregate principal amount of the Notes, as adjusted as described below, is adjusted, however the interest rates specified by the Successful Bidder for all maturities will not change. The Issuer's financial advisor will make every effort to ensure that the percentage net compensation to the Successful Bidder (the percentage resulting from dividing (i) the aggregate difference between the offering price of the Notes to the public and the price to be paid to the Issuer (not including accrued interest), less any bond insurance premium and credit rating fee, if any, to be paid by the Successful Bidder, by (ii) the principal amount of the Notes) does not increase or decrease from what it would have been if no adjustment was made to principal amounts shown in the maturity schedule.

The Successful Bidder may not withdraw or modify its bid once submitted to the Issuer for any reason, including post bond adjustment. Any adjustment shall be conclusive, and shall be binding upon the Successful Bidder.

Optional Redemption: The Notes maturing in the years 2024-2027, may be called for redemption by the Issuer and paid before maturity beginning June 1, 2023 or any date thereafter, from any funds regardless of source, in whole or from time to time in part, in any order of maturity and within an annual maturity by lot. The terms of redemption shall be par, plus accrued interest to date of call.

Interest: Interest on said Notes will be payable on December 1, 2018 and semiannually on the 1st day of June and December thereafter. Interest shall be payable by check or draft of the Paying Agent mailed to the persons who were registered owners thereof as of the fifteenth day of the month immediately preceding the Interest Payment Date, to the addresses appearing on the registration books maintained by the Paying Agent or to such other address as is furnished to the Paying Agent in writing by a registered owner.

Book Entry System: The Notes will be issued by means of a book entry system with no physical distribution of certificates made to the public. The Notes will be issued in fully registered form and one certificate, representing the aggregate principal amount of the Notes maturing in each year, will be registered in the name of Cede & Co. as nominee of The Depository Trust Company ("DTC"), New York, New York, which will act as securities depository of the Notes. Individual purchases of the Notes may be made in the principal amount of $5,000 or any multiple thereof of a single maturity through book entries made on the books and records of DTC and its participants. Principal and interest are payable by the Issuer to DTC or its nominee as registered owner of the Notes. Transfer of principal and interest payments to participants of DTC will be the responsibility of such participants and other nominees of beneficial owners. The successful bidder, as a condition of delivery of the Notes, will be required to deposit the certificates with DTC.

Good Faith Deposit: A Good Faith Deposit ("Deposit") in the form of a certified or cashier's check or a wire in the amount of $33,500 for the Series 2018A Notes and $20,500 for the Series 2018B Notes, payable to the order of the Issuer, is required for each bid to be considered. If a check is used, it must accompany each bid. If a wire is to be used, it must be received by the Issuer not later than two hours after the time stated for receipt of bids. The Financial Advisor or the Issuer will provide the apparent winning bidder (the "Purchaser") with wiring instructions, by facsimile and email, within 10 minutes of the stated time when bids are due. If the wire is not received at the time indicated above, the Issuer will abandon its plan to award to the Purchaser ("Purchaser"), and will contact the next highest bidder received and offer said bidder the opportunity to become the Purchaser, on the terms as outlined in said bidder's bid, so long as said bidder submits a good faith wire within two hours of the time offered. The Issuer will not award the Notes to the Purchaser absent receipt of the Deposit prior to action awarding the Notes. No interest on the Deposit will accrue to the Purchaser. The Deposit will be applied to the purchase price of the Notes. In the event the Purchaser fails to honor its bid, the Deposit will be retained by the Issuer.

Form of Bids: All bids shall be unconditional for the entire issue of Notes for a price of not less than 99% of par, plus accrued interest, and shall specify the rate or rates of interest in conformity to the limitations set forth herein. Bids must be submitted on or in substantial compliance with the Official Bid Form provided by the Issuer or through the Internet Bid System. The Issuer shall not be responsible for any malfunction or mistake made by any person, or as a result of the use of the electronic bid, facsimile facilities or the means used to deliver or complete a bid. The use of such facilities or means is at the sole risk of the prospective bidder who shall be bound by the terms of the bid as received.

No bid will be received after the time specified herein. The time as maintained by the Internet Bid System shall constitute the official time with respect to all Bids submitted. A bid may be withdrawn before the bid deadline using the same method used to submit the bid. If more than one bid is received from a bidder, the last bid received shall be considered.

Sealed Bidding: Sealed bidding will not be allowed

Internet Bidding: Internet bids must be submitted through Parity® ("the Internet Bid System"). Information about the Internet Bid System may be obtained by calling 212-849-5000.

Each bidder shall be solely responsible for making necessary arrangements to access the Internet Bid System for purpose of submitting its internet bid in a timely manner and in compliance with the requirements of the Official Terms of Offering. The Issuer is permitting bidders to use the services of the Internet Bid System solely as a communication mechanism to conduct the internet bidding and the Inter net Bid System is not an agent of the Issuer. Provisions of the Official Terms of Offering shall control in the events of conflict with information provided by the Internet Bid System. The Issuer shall not be responsible for any malfunction or mistake made by any person, or as a result of the use of the Internet Bid System. The use of such facilities or means is at the sole risk of the prospective bidder who shall be bound by the terms of the bid as received.

Electronic Facsimile Bidding: No facsimile bids will be accepted.

Rates of Interest: The rates of interest specified in the bidder's proposal must conform to the limitations following:

All Notes of each annual maturity must bear the same interest rate.

Rates of interest bid may be in multiples of 1/8th 1/20th or 1/100th of 1%.

Rates must be in level or ascending order.

Delivery: The Notes will be delivered to the Purchaser via FAST delivery with the Paying Agent holding the Notes on behalf of DTC, against full payment in immediately available cash or federal funds. The Notes are expected to be delivered within sixty days after the sale. Should delivery be delayed beyond sixty days from date of sale for any reason except failure of performance by the Purchaser, the Purchaser may withdraw his bid and thereafter his interest in and liability for the Notes will cease. (When the Notes are ready for delivery, the Issuer may give the successful bidder five working days notice of the delivery date and the Issuer will expect payment in full on that date, otherwise reserving the right at its option to determine that the bidder has failed to comply with the offer of purchase.)

Official Statement: The Official Statement, when further supplemented by an addendum or addenda specifying the maturity dates, principal amounts, and interest rates of the Notes, and any other information required by law or deemed appropriate by the Issuer, shall constitute a "Final Official Statement" of the Issuer with respect to the Notes, as that term is defined in Rule 15c2-12 of the Securities and Exchange Commission (the "Rule"). By awarding the Notes to any underwriter or underwriting syndicate submitting an Official Bid Form therefore, the Issuer agrees that, no more than seven (7) business days after the date of such award, it shall provide, without cost, to the senior managing underwriter of the syndicate to which the Notes are awarded, one ".pdf" copy of the Official Statement and the addendum described in the preceding sentence to permit each "Participating Underwriter" (as that term is defined in the Rule) to comply with the provisions of such Rule. The Issuer shall treat the senior managing underwriter of the syndicate to which the Notes are awarded as its designated agent for purposes of distributing copies of the Final Official Statement to each participating Underwriter. Any underwriter executing and delivering an Official Bid Form with respect to the Notes agrees thereby that if its bid is accepted by the Issuer, (i) it shall accept such designation and (ii) it shall enter into a contractual relationship with all Participating Underwriters of the Notes for purposes of assuring the receipt by each such Participating Underwriter of the Final Official Statement.

CUSIP Numbers: It is anticipated that CUSIP numbers will be printed on the Notes. In no event will the Issuer be responsible for or Bond Counsel review or express any opinion of the correctness of such numbers, and incorrect numbers on said Notes shall not be cause for the purchaser to refuse to accept delivery of the Notes. The fee will be paid for by the Issuer.

Responsibility of Bidder: It is the responsibility of the bidder to deliver its signed, completed bid prior to the time of sale as posted on the front cover of the official statement. Neither the Issuer nor its Financial Advisor will assume responsibility for the collection of or receipt of bids. Bids received after the appointed time of sale will not be opened.

Continuing Disclosure: In order to permit bidders for the Notes and other participating underwriters in the primary offering of the Notes to comply with paragraph (b)(5) of Rule 15c2-12 promulgated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended (the "Rule"), the Issuer will covenant and agree, for the benefit of the registered holders or beneficial owners from time to time of the outstanding Notes, in the Bond Resolution, to provide annual reports of specified information and notice of the occurrence of certain events, if material, as hereinafter described (the "Disclosure Covenants"). The information to be provided on annual basis, the events as to which notice is to be given, if material, and a summary of other provisions of the Disclosure Covenants, including termination, amendment and remedies, are set forth in Appendix C to this Official Statement.

Breach of the Disclosure Covenants will not constitute a default or an "Event of Default" under the Notes or Resolution. A broker or dealer is to consider a known breach of the Disclosure Covenants, however, before recommending the purchase or sale of the Notes in the secondary market. Thus, a failure on the part of the Issuer to observe the Disclosure Covenants may adversely affect the transferability and liquidity of the Notes and their market price.

Bond Insurance: Application has not been made for municipal bond insurance. Should the Notes qualify for the issuance of any policy of municipal bond insurance or commitment therefore at the option of the bidder, the purchase of any such insurance policy or the issuance of any such commitment shall be at the sole option and expense of the Purchaser. Any increased costs of issuance on the Notes resulting from such purchase of insurance shall be paid by the Purchaser, except that, if the Issuer has requested and received a rating on the Notes from a municipal bond rating service, the Issuer will pay that rating fee. Any other rating service fees shall be the responsibility of the Purchaser.

Requested modifications to the Issuance Resolution or other issuance documents shall be accommodated by the Issuer at its sole discretion. In no event will modifications be made regarding the investment of funds created under the Issuance Resolution or other issuance documents without prior Issuer consent, in its sole discretion. Either the purchaser or the insurer must agree, in the insurance commitment letter or separate agreement acceptable to the Issuer in its sole discretion, to pay any future continuing disclosure costs of the Issuer associated with any rating changes assigned to the municipal bond insurer after closing (for example, if there is a rating change on the municipal bond insurer that require a material event notice filing by the Issuer, the purchaser or the municipal bond insurer must agree to pay the reasonable costs associated with such filing). Failure of the municipal bond insurer to issue the policy after the Notes have been awarded to the Purchaser shall not constitute cause for failure or refusal by the Purchaser to accept delivery of the Notes.

Establishment of Issue Price (10% Test to Apply if Competitive Sale Requirements are Not Satisfied):
The winning bidder shall assist the City in establishing the issue price of the Series 2018A Notes and shall execute and deliver to the City at Closing an "issue price" or similar certificate setting forth the reasonably expected initial offering price to the public or the sales price or prices of the Series 2018A Notes, together with the supporting pricing wires or equivalent communications, substantially in the forms attached hereto as Exhibit A to this Terms of Offering, with such modifications as may be appropriate or necessary, in the reasonable judgment of the winning bidder, the City and Bond Counsel.

The City intends that the provisions of Treasury Regulation Section 1.148-1(f)(3)(i) (defining "competitive sale" for purposes of establishing the issue price of the Series 2018A Notes) will apply to the initial sale of the Series 2018A Notes (the "competitive sale requirements") because:

1. the City shall disseminate this Terms of Offering to potential underwriters in a manner that is reasonably designed to reach potential underwriters;

2. all bidders shall have an equal opportunity to bid;

3. the City may receive bids from at least three underwriters of municipal bonds who have established industry reputations for underwriting new issuances of municipal bonds; and

4. the City anticipates awarding the sale of the Series 2018A Notes to the bidder who submits a firm offer to purchase the Series 2018A Notes at the highest price (or lowest true interest cost), as set forth in this Terms of Offering.

Any bid submitted pursuant to this Terms of Offering shall be considered a firm offer for the purchase of the Series 2018A Notes, as specified in the bid.

In the event that the competitive sale requirements are not satisfied, the City shall so advise the winning bidder. The City shall treat the first price at which 10% of a maturity of the Series 2018A Notes (the "10% test") is sold to the public as the issue price of that maturity, applied on a maturity-by-maturity basis (and if different interest rates apply within a maturity, to each separate CUSIP number within that maturity). The winning bidder shall advise the City if any maturity of the Series 2018A Notes satisfies the 10% test as of the date and time of the award of the Series 2018A Notes. **The City will not require bidders to comply with the "hold-the-offering-price rule" and therefore does not intend to use the initial offering price to the public as of the sale date of any maturity of the Series 2018A Notes as the issue price of that maturity. Bids will not be subject to cancellation in the event that the competitive sale requirements are not satisfied. Bidders should prepare their bids on the assumption that all of the maturities of the Series 2018A Notes will be subject to the 10% test in order to establish the issue price of the Series 2018A Notes.**

*If the competitive sale requirements are not satisfied, then until the 10% test has been satisfied as to each maturity of the Series 2018A Notes, the winning bidder agrees to promptly report to the City the prices at which the unsold Series 2018A Notes of that maturity have been sold to the public. That reporting obligation shall continue, whether or not the Closing Date has occurred, until the 10% test has been satisfied as to the Series 2018A Notes of that maturity or until all Series 2018A Notes of that maturity have been sold.*

By submitting a bid, each bidder confirms that: (i) any agreement among underwriters, any selling group agreement and each retail distribution agreement (to which the bidder is a party) relating to the initial sale of the Series 2018A Notes to the public, together with the related pricing wires, contains or will contain language obligating each underwriter, each dealer who is a member of the selling group, and each broker-dealer that is a party to such retail distribution agreement, as applicable, to report the prices at which it sells to the public the unsold Series 2018A Notes of each maturity allotted to it until it is notified by the winning bidder that either the 10% test has been satisfied as to the Series 2018A Notes of that maturity or all Series 2018A Notes of that maturity have been sold to the public, if and for so long as directed by the winning bidder and as set forth in the related pricing wires, and (ii) any agreement among underwriters relating to the initial sale of the Series 2018A Notes to the public, together with the related pricing wires, contains or will contain language obligating each underwriter that is a party to a retail distribution agreement to be employed in connection with the initial sale of the Series 2018A Notes to the public to require each broker-dealer that is a party to such retail distribution agreement to report the prices at which it sells to the public the unsold Series 2018A Notes of each maturity allotted to it until it is notified by the winning bidder or such underwriter that either the 10% test has been satisfied as to the Series 2018A Notes of that maturity or all Series 2018A Notes of that maturity have been sold to the public, if and for so long as directed by the winning bidder or such underwriter and as set forth in the related pricing wires.

Sales of any Series 2018A Notes to any person that is a related party to an underwriter shall not constitute sales to the public for purposes of this Terms of Offering. Further, for purposes of this Terms of Offering:

1) "public" means any person other than an underwriter or a related party,

2) "underwriter" means (A) any person that agrees pursuant to a written contract with the City (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Series 2018A Notes to the public and (B) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (A) to participate in the initial sale of the Series 2018A Notes to the public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Series 2018A Notes to the public),

3) a purchaser of any of the Series 2018A Notes is a "related party" to an underwriter if the underwriter and the purchaser are subject, directly or indirectly, to (i) at least 50% common ownership of the voting power or the total value of their stock, if both entities are corporations (including direct ownership by one corporation of another), (ii) more than 50% common ownership of their capital interests or profits interests, if both entities are partnerships (including direct ownership by one partnership of another), or (iii) more than 50% common ownership of the value of the outstanding stock of the corporation or the capital interests or profit interests of the partnership, as applicable, if one entity is a corporation and the other entity is a partnership (including direct ownership of the applicable stock or interests by one entity of the other), and
4) "sale date" means the date that the Series 2018A Notes are awarded by the City to the winning bidder.

PRELIMINARY OFFICIAL STATEMENT DATED ______, 2018



NEW ISSUE - DTC BOOK ENTRY ONLY Moody's Rating: "A2"

*Subject to the Issuer's compliance with certain covenants, under present law, in the opinion of Bond Counsel, interest on the Series 2018A Notes is excludable from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum tax; however, such interest is taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed on certain corporations for taxable years beginning before January 1, 2018. The Issuer intends to designate the Series 2018A Notes as "qualified tax-exempt obligations". Interest on the Series 2018B Notes is includable in gross income of the owners thereof for purposes of federal income taxation. Accordingly, the Series 2018B Notes will NOT be designated as "qualified tax-exempt obligations." Interest on the Notes is NOT exempt from present Iowa income taxes. See "***TAX MATTERS***" herein.*

# City of Storm Lake, Iowa
# \$3,350,000* General Obligation Capital Loan Notes, Series 2018A
# \$2,050,000* Taxable General Obligation Refunding Capital Loan Notes, Series 2018B

Dated: Date of Delivery

The General Obligation Capital Loan Notes, Series 2018A (the Series 2018A Notes") and the Taxable General Obligation Refunding Capital Loan Notes, Series 2018B (the "Series 2018B Notes"), described above (the Series 2018A Notes and the Series 2018B Notes referred to herein collectively as the "Notes") are issuable as fully registered Notes in the denomination of \$5,000 or any integral multiple thereof and, when issued, will be registered in the name of Cede & Co., as Bondholder and nominee of the Depository Trust Company, New York, NY ("DTC"). DTC will act as securities depository for the Notes. Purchases of the Notes will be made in book-entry form. Purchasers of the Notes will not receive certificates representing their interest in the Notes purchased. So long as DTC or its nominee, Cede & Co., is the Bondholder, the principal of, premium, if any, and interest on the Notes will be paid by Bankers Trust Company as Registrar and Paying Agent (the "Registrar"), or its successor, to DTC, or its nominee, Cede & Co. Disbursement of such payments to the Beneficial Owners is the responsibility of the DTC Participants as more fully described herein. Neither the Issuer nor the Registrar will have any responsibility or obligation to such DTC Participants, indirect participants or the persons for whom they act as nominee with respect to the Notes.

Interest on the Notes is payable on June 1, and December 1 in each year, beginning December 1, 2018 to the registered owners thereof. Interest shall be payable by check or draft of the Paying Agent mailed to the persons who were registered owners thereof as of the fifteenth day of the month immediately preceding the Interest Payment Date, to the addresses appearing on the registration books maintained by the Paying Agent or to such other address as is furnished to the Paying Agent in writing by a registered owner.

The Notes maturing after June 1, 2023, may be called for redemption by the Issuer and paid before maturity on said date or any date thereafter, from any funds regardless of source, in whole or from time to time in part, in any order of maturity and within an annual maturity by lot. The terms of redemption shall be par, plus accrued interest to date of call.

**MATURITY SCHEDULE ***

See inside cover

The Notes are being offered when, as and if issued by the Issuer and accepted by the Underwriter, subject to receipt of an opinion as to legality, validity and tax exemption by Ahlers & Cooney P.C. Des Moines, Iowa, Bond Counsel. It is expected that the Notes in the definitive form will be available for delivery on or about May 22, 2018. The Underwriter intends to engage in secondary market trading of the Notes subject to applicable securities laws. The Underwriter is not obligated, however, to repurchase any of the Notes at the request of the holder thereof.

The Date of this Official Statement is ______, 2018

* *Preliminary, subject to change*

## MATURITY SCHEDULE *

### Series 2018A

| Notes Due | Amount* | Rate* | Yield* | Cusip Num** | Notes Due | Amount* | Rate* | Yield* | Cusip Num** |
|---|---|---|---|---|---|---|---|---|---|
| June 1, 2019 | 200,000 | | | | June 1, 2026 | 255,000 | | | |
| June 1, 2020 | 215,000 | | | | June 1, 2027 | 160,000 | | | |
| June 1, 2021 | 225,000 | | | | June 1, 2028 | 165,000 | | | |
| June 1, 2022 | 225,000 | | | | June 1, 2029 | 165,000 | | | |
| June 1, 2023 | 230,000 | | | | June 1, 2030 | 170,000 | | | |
| June 1, 2024 | 235,000 | | | | June 1, 2031 | 805,000 | | | |
| June 1, 2025 | 255,000 | | | | | | | | |

$ Term note due Price to yield Cusip Num**

### Series 2018B

| Notes Due | Amount* | Rate* | Yield* | Cusip Num** | Notes Due | Amount* | Rate* | Yield* | Cusip Num** |
|---|---|---|---|---|---|---|---|---|---|
| June 1, 2019 | 145,000 | | | | June 1, 2025 | 175,000 | | | |
| June 1, 2020 | 145,000 | | | | June 1, 2026 | 180,000 | | | |
| June 1, 2021 | 150,000 | | | | June 1, 2027 | 185,000 | | | |
| June 1, 2022 | 155,000 | | | | June 1, 2028 | 190,000 | | | |
| June 1, 2023 | 155,000 | | | | June 1, 2029 | 190,000 | | | |
| June 1, 2024 | 165,000 | | | | | | | | |

$ Term note due Price to yield Cusip Num**

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* *Preliminary, subject to change*

** *CUSIP numbers shown above have been assigned by a separate organization not affiliated with the Issuer. The Issuer has not selected nor is responsible for selecting the CUSIP numbers assigned to the Notes nor do they make any representation as to the correctness of such CUSIP numbers on the Notes or as indicated above.*

No dealer, salesman or any other person has been authorized to give any information or to make any representations other than those contained in this Official Statement, and if given or made, such information or representations must not be relied upon as having been authorized by the Issuer or the Underwriter. This Official Statement does not constitute an offer to sell or a solicitation of any offer to buy any of the securities offered hereby in any state to any persons to whom it is unlawful to make such offer in such state. Except where otherwise indicated, this Official Statement speaks as of the date hereof. Neither the delivery of this Official Statement nor any sale hereunder shall under any circumstances create any implication that there has been no change in the affairs of the Issuer since the date hereof

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IN CONNECTION WITH THIS OFFERING, THE UNDERWRITER MAY EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE NOTES AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

Bond Counsel has not participated in the preparation of this Official Statement other than to review or prepare information describing the terms of the Notes, Iowa and Federal law pertinent to the validity of the Notes, and the tax status of interest on the Notes. Additionally, Bond Counsel has provided its forms of bond opinion and Issuer's continuing disclosure certificate, found in Appendices B and C. Bond Counsel is not expressing any opinion as to the completeness or accuracy of the information contained in the Official Statement.

All other information contained in this Official Statement has been obtained by (or on behalf of) the City from sources which the City considers to be reliable but it makes no warranty, guaranty, or other representation with respect to the accuracy or completeness of such information.

This Official Statement is not to be construed as a contract with the purchasers of the Notes. The Issuer considers the Official Statement to be "near final" within the meaning of Rule 15c2-12 of the Securities Exchange Commission. Statements contained in this Official Statement which involve estimates, forecasts or matters of opinion, whether or not expressly so described herein, are intended solely as such and are not to be construed as a representation of facts. The information and expressions of opinions contained herein are subject to change without notice and neither the delivery of this Official Statement or the sale of the Notes made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the City since the date hereof. The information contained in this Official Statement is not guaranteed.

THESE SECURITIES HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION BY REASON OF THE PROVISIONS OF SECTIONS 3(a)(2) OF THE SECURITIES ACT OF 1933, AS AMENDED. THE REGISTRATION OR QUALIFICATIONS OF THESE SECURITIES IN ACCORDANCE WITH APPLICABLE PROVISIONS OF SECURITIES LAWS OF THE STATES IN WHICH THESE SECURITIES HAVE BEEN REGISTERED OR QUALIFIED AND THE EXEMPTION FROM REGISTRATION OR QUALIFICATION IN OTHER STATES SHALL NOT BE REGARDED AS A RECOMMENDATION THEREOF. NEITHER THESE STATES NOR ANY OF THEIR AGENCIES HAVE PASSED UPON THE MERITS OF THE SECURITIES OR THE ACCURACY OR COMPLETENESS OF THIS OFFICIAL STATEMENT. ANY REPRESENTATION TO THE CONTRARY MAY BE A CRIMINAL OFFENSE.

**FORWARD-LOOKING STATEMENTS**

This Official Statement, including Appendix A, contains statements which should be considered "forward-looking statements," meaning they refer to possible future events or conditions. Such statements are generally identifiable by the words such as "plan," "expect," "estimate," "budget" or similar words. THE ACHIEVEMENT OF CERTAIN RESULTS OR OTHER EXPECTATIONS CONTAINED IN SUCH FORWARD-LOOKING STATEMENTS INVOLVE KNOWN AND UNKNOWN RISKS, UNCERTAINTIES AND OTHER FACTORS WHICH MAY CAUSE ACTUAL RESULTS, PERFORMANCE OR ACHIEVEMENTS EXPRESSED OR IMPLIED BY SUCH FORWARD-LOOKING STATEMENTS. THE CITY DOES NOT EXPECT OR INTEND TO UPDATE OR REVISE ANY FORWARD-LOOKING STATEMENTS CONTAINED HEREIN IF OR WHEN ITS EXPECTATIONS, OR EVENTS, CONDITIONS OR CIRCUMSTANCES ON WHICH SUCH STATEMENTS ARE BASED OCCUR.

**OFFICIAL STATEMENT**
**STORM LAKE, IOWA**
**$3,350,000* GENERAL OBLIGATION CAPITAL LOAN NOTES SERIES 2018A**
**$2,050,000* TAXABLE GENERAL OBLIGATION REFUNDING CAPITAL LOAN NOTES, SERIES 2018B**

## INTRODUCTORY STATEMENT

This Official Statement presents certain information relating to Storm Lake, Iowa (the "Issuer"), in connection with the sale of the Issuer's General Obligation Capital Loan Notes, Series 2018A (the "Series 2018A Notes") and the Taxable General Obligation Refunding Capital Loan Notes, Series 2018B (the "Series 2018B Notes"). Collectively, the Series 2018A Notes and the Series 2018B Notes are referred to as the "Notes." The Series 2018A Notes are being issued to provide funds for (a) the acquisition of new fire vehicles; (b) the current refunding (on June 1, 2018) of the 2019-2031 maturities of the Issuer's outstanding General Obligation Annual Appropriation Urban Renewal Bonds, Series 2011, and (c) paying the costs associated with the issuance of the Series 2018A Notes. The Series 2018B Notes are being issued for the purpose of advance refunding the 2019-2029 maturities of the Issuers' outstanding General Obligation Capital Loan Notes, Taxable Series 2010, to be called on their first call date of June 1, 2019, and to provide for the issuance costs associated with the Series 2018B Notes. See "**THE NOTES - Sources and Uses of Funds**" herein.

This Official Statement is deemed to be a final official statement within the meaning of Rule 15c2-12 of the Securities and Exchange Commission, except for the omission of certain pricing and other information which is to be made available through a final Official Statement.

This Introductory Statement is only a brief description of the Notes and certain other matters. Such description is qualified by reference to the entire Official Statement and the documents summarized or described herein. This Official Statement should be reviewed in its entirety.

The Notes are general obligations of the Issuer, payable from and secured by a continuing annual ad-valorem tax levied against all of the property valuation of the Issuer. See **"THE NOTES – Source of Security for the Notes"** herein.

All statements made in this Official Statement involving matters of opinion or of estimates, whether or not so expressly stated, are set forth as such and not as representations of fact, and no representation is made that any of the estimates will be realized.

## THE NOTES

### General

The Notes are dated as of the Date of Delivery, and will bear interest at the rates to be set forth on the cover page herein, interest payable on June 1 and December 1 in each year, beginning on December 1, 2018, calculated on the basis of a year of 360 days and twelve 30-day months. Interest shall be payable by check or draft of the Paying Agent mailed to the persons who were registered owners thereof as of the fifteenth day of the month immediately preceding the Interest Payment Date, to the addresses appearing on the registration books maintained by the Paying Agent or to such other address as is furnished to the Paying Agent in writing by a registered owner.

### Authorization for the Issuance

The Notes are being issued pursuant to the Code of Iowa, 2017 as amended, Sections 384.24A and 384.25.

### Book Entry Only System

*The following information concerning The Depository Trust Company ("DTC"), New York, New York and DTC's book-entry system has been obtained from sources the Issuer believes to be reliable. However, the Issuer takes no responsibility as to the accuracy or completeness thereof and neither the Indirect Participants nor the Beneficial Owners should rely on the following information with respect to such matters but should instead confirm the same with DTC or the Direct Participants, as the case may be. There can be no assurance that DTC will abide by its procedures or that such procedures will not be changed from time to time.*

The Depository Trust Company ("DTC"), New York, NY will act as securities depository for the securities (the "Securities"). The Securities will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered Security certificate will be issued for the Securities in the aggregate principal amount of such issue, and will be deposited with DTC.

DTC, the world's largest depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S equity,

* Preliminary, subject to change

corporate and municipal debt issues and money market instrument from over 100 countries that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participations include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies clearing corporations and certain other organizations. DTC is a wholly-owned subsidiary of the Depository Trust & Clearing Corporation ("DTCC").

DTCC is the holding company for DTC, national Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has Standard & Poor's highest rating: AA+. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com and www.dtc.org.

Purchases of Securities under the DTC system must be made by or through Direct Participants, which will receive a credit for the Securities on DTC's records. The ownership interest of each actual purchaser of each security ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered in the transaction. Transfers of ownership interest in the Securities are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership in Securities, except in the event that use of the book-entry system for the Securities is discontinued.

To facilitate subsequent transfers, all Securities deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. or such other name as may be requested by an authorized representative of DTC. The deposit of Securities with DTC and their registration in the name of Cede & Co. or such other nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Securities; DTC's records reflect only the identity of the Direct Participants to whose accounts such Securities are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of Securities may wish to taken certain steps to augment transmission to them notices of significant events with respect to the Securities, such as redemptions, tenders, defaults, and proposed amendments to the security documents. For example, Beneficial Owners of Securities may wish to ascertain that the nominee holding the Securities for their benefit have agreed to obtain and transmit notices to Beneficial Owners, in the alternative, Beneficial owners may wish to provide their names and addresses to the registrar and request that copies of the notices by provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Securities within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participants in such issue to be redeemed.

Neither DTC nor Cede & Co. (nor such other DTC nominee) will consent or vote with respect to the Securities unless authorized by a Direct Participant in accordance with DTC's Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to Issue as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Securities are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Redemption proceeds, distributions and dividend payments on the Securities will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts, upon DTC's receipt of funds and corresponding detail information from Issuer or Agent on payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC (nor its nominee), Agent, or Issuer, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of redemption proceeds, distributions, and dividend payments to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of Issuer or Agent, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to Beneficial Owners will be the responsibility of Direct and Indirect Participants.

A Beneficial Owner shall give notice to elect to have its Securities purchased or tendered, through its Participant, to [Tender/Remarketing] Agent, and shall effect delivery of such Securities by causing the Direct Participant to transfer the Participant's interest in the Securities, on DTC's records, to [Tender/Remarketing] Agent. The requirement for physical delivery of Securities in connection with an optional tender or a mandatory purchase will be deemed satisfied when the ownership rights in the Securities are transferred by Direct Participants on DTC's records and followed by a book-entry credit of tendered Securities to [Tender/Remarketing] Agent's DTC account.

DTC may discontinue providing its services as securities depository with respect to the Securities at any time by giving reasonable notice to Issuer or Agent. Under such circumstances, in the event that a successor securities depository is not obtained, Security certificates are required to be printed and delivered.

The Issuer may decide to discontinue use of the system of book-entry-only transfers through DTC (or successor securities depository). In that event Security certificates will be printed and delivered to DTC.

The Issuer cannot and does not give any assurances that DTC, the Direct Participants or the Indirect Participants will distribute to the Beneficial Owners of the Notes (i) payments of principal of or interest and premium, if any, on the Notes, (ii) certificates representing an ownership interest or other confirmation of beneficial ownership interest in the Notes, or (iii) redemption or other notices sent to DTC or Cede & Co., its nominee, as the Registered Owner of the Notes, or that they will do so on a timely basis, or that DTC, Direct Participants or Indirect Participants will serve and act in the manner described in this Official Statement. The current "Rules" applicable to DTC are on file with the Securities Exchange Commission, and the current "Procedures" of DTC to be followed in dealing with Direct Participants are on file with DTC.

Neither the Issuer nor the Paying Agent/Trustee will have any responsibility or obligation to any Direct Participant, Indirect Participant or any Beneficial Owner or any other person with respect to: (1) the accuracy of any records maintained by DTC or any Direct Participant or Indirect Participant; (2) the payment by DTC or any Direct Participant or Indirect Participant of any amount due to any Beneficial Owner in respect of the principal or redemption price of or interest on the Notes; (3) the delivery by DTC or any Direct Participant or Indirect Participant of any notice to any Beneficial Owner which is required or permitted under the terms of the Indenture to be given to owners of Notes; (4) the selection of the Beneficial Owners to receive payment in the event of any partial redemption of the Notes; or (5) any consent given or other action taken by DTC as a Bondholder.

**Transfer and Exchange**

In the event that the Book Entry System is discontinued, any Bond may, in accordance with its terms, be transferred by the person in whose name it is registered, in person or by his duly authorized attorney, upon surrender of such Bond for cancellation at the principal corporate office of the Registrar accompanied by delivery of a duly executed written instrument of transfer in a form approved by the Registrar. Whenever any Bond or Notes shall be surrendered for transfer, the Registrar shall execute and deliver a new Bond or Notes of the same maturity, interest rate, and aggregate principal amount.

Notes may be exchanged at the principal corporate office of the Registrar for a like aggregate principal amount of Notes or other authorized denominations of the same maturity and interest rate; provided, however, that the Registrar is not required to transfer or exchange any Notes which have been selected for prepayment and is not required to transfer or exchange any Notes during the period beginning 15 days prior to the selection of Notes for prepayment and ending the date notice of prepayment is mailed. The Registrar may require the payment by the Bond Owner requesting such exchange of any tax or other governmental charge required to be paid with respect to such exchange. All Notes surrendered pursuant to the provisions of this and the preceding paragraph shall be canceled by the Registrar and shall not be redelivered.

**Prepayment**

Optional Prepayment. The Notes maturing after June 1, 2023, may be called for redemption by the Issuer and paid before maturity on said date or any date thereafter, from any funds regardless of source, in whole or from time to time in part, in any order of maturity and within an annual maturity by lot. The terms of redemption shall be par, plus accrued interest to date of call.

Mandatory Sinking Fund Redemption The Notes maturing on _______are subject to mandatory redemption (by lot, as selected by the Registrar) on ____ 1 and _______ in each of the years _____ through _____ at a redemption price of 100% of the principal amount thereof to be redeemed, plus accrued interest thereon to the redemption date in the following principal amounts:

**___Term Bond**

| Mandatory Sinking Fund Date | Principal Amount |
|---|---|
| | $ |
| (maturity) | |

Selection of Notes for Redemption Notes subject to redemption will be selected in such order of maturity as the Issuer may direct. If less than all of the Notes of a single maturity are to be redeemed, the Notes to be redeemed will be selected by lot or other random method by the Registrar in such a manner as the Registrar may determine.

Notice of Redemption. Prior to the redemption of any Notes under the provisions of the Bond Resolution, the Bond Registrar shall give notice by regular mail not less than thirty (30) days prior to the redemption date to each registered owner thereof.

On the dates so designated for redemption, notice having been given in the manner and under the conditions hereinabove, provided and moneys for payment of the redemption price being held in the Sinking Fund, the Notes so called for redemption shall become and be due and payable at the redemption price provided for redemption of such Notes on such date. Interest on the Notes so called for redemption shall cease to accrue; such Notes shall cease to be entitled to any benefit hereunder, and the Bond Holders shall have no rights in respect thereof except to receive payment of the redemption price thereof.

Notes which have been duly called for redemption, with respect to which irrevocable instructions to call for redemption at a stated redemption have been given to the Bond Registrar, and moneys for the payment the face amount thereof, premium, if any, and interest on are held in separate accounts by the Bond Registrar in trust for Bondholders shall not thereafter be deemed to be outstanding under the provisions of the Resolution, other than be entitled to receive payment from such sources.

### Source of Security for the Notes

These Notes are general obligations of the Issuer. All taxable property within the corporate boundaries of the Issuer is subject to the levy of taxes to pay the principal of and interest on the Notes without constitutional or statutory limitation as to amount.

## NOTEHOLDERS' RISKS

### Secondary Market

There can be no guarantee that there will be a secondary market for the Notes or, if a secondary market exists, that such Notes can be sold for any particular price. Occasionally, because of general market conditions or because of adverse history of economic prospects connected with a particular issue, and secondary marketing practices in connection with a particular Bond or Notes issue are suspended or terminated. Additionally, prices of bond or note issues for which a market is being made will depend upon then prevailing circumstances. Such prices could be substantially different from the original purchase price of the Notes.

### Ratings

Moody's Investors Service, Inc. ("Moody's") has assigned a rating of "A2" to the Notes. Generally, a rating agency bases its rating on the information and materials furnished to it and on investigations, studies and assumptions of its own. There is no assurance that the rating will continue for any given period of time, or that such rating will not be revised, suspended or withdrawn, if, in the judgment of Moody's, circumstances so warrant. A revision, suspension or withdrawal of a rating may have an adverse effect on the market price of the Notes. Additional regulation of rating agencies could materially alter the methodology, rating levels, and types of ratings available, for example, and these changes, if ever, could materially affect the market value of the Notes.

### Forward-Looking Statements

This Official Statement contains statements relating to future results that are "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995. When used in this Official Statement, the words "estimate," "forecast," "intend," "expect" and similar expressions identify forward-looking statements. Any forward-looking statement is subject to uncertainty. Accordingly, such statements are subject to risks that could cause actual results to differ, possibly materially, from those contemplated in such forward-looking statements. Inevitably, some assumptions used to develop forward-looking statements will not be realized or unanticipated events and circumstances may occur. Therefore, investors should be aware that there are likely to be differences between forward looking statements and the actual results. These differences could be material and could impact the availability of funds of the Issuer to pay debt service when due on the Notes.

### Tax Matters, Bank Qualification and Loss of Tax Exemption

As discussed under the heading "**Tax Matters**" herein, the interest on the Series 2018A Notes could become includable in gross income for purposes of federal income taxation retroactive to the date of delivery of the Series 2018A Notes, as a result of acts or omissions of the Issuer in violation of its covenants in the Resolution. Should such an event of taxability occur, the Series 2018A Notes would not be subject to a special prepayment and would remain outstanding until maturity or until prepaid under the prepayment provisions contained in the Series 2018A Notes, and there is no provision for an adjustment of the interest rate on the Series 2018A Notes.

The Issuer will designate the Series 2018A Notes as "qualified tax-exempt obligations" under the exception provided in Section 265(b)(3) of the Internal Revenue Code of 1986, as amended (the "Code"),and has further covenanted to comply with certain other requirements, which affords banks and certain other financial institutions more favorable treatment of their deduction for interest expense than would otherwise be allowed under Section 265(b)(2) of the Code. However, the Issuer's failure to comply with such covenants could cause the Series 2018A Notes not to be "qualified tax-exempt obligations" and banks and certain other financial institutions would not receive more favorable treatment of their deduction for interest expense than would otherwise be allowed under Section 265(b)(2) of the Code

It is possible that actions of the Issuer after the closing of the Series 2018A Notes will alter the tax status of the Series 2018A Notes, and, in the extreme, remove the tax exempt status from the Series 2018A Notes. In that instance, the Series 2018A Notes are not subject to mandatory prepayment, and the interest rate on the Series 2018A Notes does not increase or otherwise reset. A determination of taxability on the Series 2018A Notes, after closing of the Series 2018A Notes, could materially adversely affect the value and marketability of the Series 2018A Notes.

**DTC-Beneficial Owners**

Beneficial Owners of the Notes may experience some delay in the receipt of distributions of principal of and interest on the Notes since such distributions will be forwarded by the Paying Agent to DTC and DTC will credit such distributions to the accounts of the Participants which will thereafter credit them to the accounts of the Beneficial Owner either directly or indirectly through indirect Participants. Neither the Issuer nor the Paying Agent will have any responsibility or obligation to assure that any such notice or payment is forwarded by DTC to any Participants or by any Participant to any Beneficial Owner.

In addition, since transactions in the Notes can be effected only through DTC Participants, indirect participants and certain banks, the ability of a Beneficial Owner to pledge the Notes to persons or entities that do not participate in the DTC system, or otherwise to take actions in respect of such Notes, may be limited due to lack of a physical certificate. Beneficial Owners will be permitted to exercise the rights of registered Owners only indirectly through DTC and the Participants. See "**THE NOTES– Book-Entry Only System**."

**Other Factors**

An investment in the Notes involves an element of risk. In order to identify risk factors and make an informed investment decision, potential investors should be thoroughly familiar with this entire Official Statement (including the Appendices hereto) in order to make a judgment as to whether the Notes are an appropriate investment.

**Pending Federal Tax Legislation**

From time to time, legislative proposals are pending in Congress that would, if enacted, alter or amend one or more of the federal tax matters described herein in certain respects or would adversely affect the market value of the Notes. It cannot be predicted whether or in what forms any of such proposals, either pending or that may be introduced, may be enacted and there can be no assurance that such proposals will not apply to the Notes. In addition regulatory actions are from time to time announced or proposed, and litigation threatened or commenced, which if implemented or concluded in a particular manner, could adversely affect the market value, marketability or tax status of the Notes. It cannot be predicted whether any such regulatory action will be implemented, how any particular litigation or judicial action will be resolved, or whether the Notes would be impacted thereby.

**Tax Levy Procedures**

The Notes are general obligations of the Issuer, payable from and secured by a continuing ad valorem tax levied against all of the property valuation within the Issuer. As part of the budgetary process each fiscal year, the Issuer will have an obligation to request a debt service levy to be applied against all of the taxable property within the Issuer. A failure on the part of the Issuer to make a timely levy request or a levy request by the Issuer that is inaccurate or is insufficient to make full payments of the debt service of the Notes for a particular fiscal year may cause Noteholders to experience delay in the receipt of distributions of principal of and/or interest on the Notes. In the event of a default in the payment of principal of or interest on the Notes, there is no provision for acceleration of maturity of the principal of the Notes. Consequently, the remedies of the owners of the Notes (consisting primarily of an action in the nature of mandamus requiring the Issuer and certain other public officials to perform the terms of the resolution for the Notes) may have to be enforced from year to year.

**Summary**

The foregoing is intended only as a summary of certain risk factors attendant to an investment in the Notes. In order for potential investors to identify risk factors and make an informed investment decision, potential investors should become thoroughly familiar with this entire Official Statement and the Appendices hereto.

## LITIGATION

The City encounters litigation occasionally, as a course of business, however, no litigation currently exists that is not believed to be covered by current insurance carriers and no litigation has been proposed that questions the validity of these Notes.

## ACCOUNTANT

The accrual-basis financial statements of the Issuer included as **APPENDIX D** to this Official Statement have been examined by Winther Stave & Co, Spencer, IA to the extent and for the periods indicated in their report thereon. Such financial statements have been included herein without permission of said CPA, and said CPA expresses no opinion with respect to the Notes or the Official Statement.

## UNDERWRITING

The Notes are being purchased, subject to certain conditions, by ________ (the "Underwriter"). The Underwriter has agreed, subject to certain conditions, to purchase all, but not less than all, of the Notes at an aggregate purchase price of $_________ plus accrued interest to the Closing Date.

The Underwriter may offer and sell the Notes to certain dealers (including dealers depositing the Notes into unit investment trusts, certain of which may be sponsored or managed by the Underwriter) at prices lower than the initial public offering prices stated on the cover page. The initial public offering prices of the Notes may be changed, from time to time, by the Underwriter.

The Underwriter intends to engage in secondary market trading of the Notes subject to applicable securities laws. The Underwriter is not obligated, however, to repurchase any of the Notes at the request of the holder thereof.

## THE PROJECT

The Series 2018A Notes are being issued to provide funds for (a) the acquisition of new fire vehicles; (b) the current refunding (on June 1, 2018) of the 2019-2031 maturities of the Issuer's outstanding General Obligation Annual Appropriation Urban Renewal Bonds, Series 2011, and (c) paying the costs associated with the issuance of the Series 2018A Notes. The Series 2018B Notes are being issued for the purpose of advance refunding the 2019-2029 maturities of the Issuers' outstanding General Obligation Capital Loan Notes, Taxable Series 2010, to be called on their first call date of June 1, 2019, and to provide for the issuance costs associated with the Series 2018B Notes.

## SOURCES AND USES OF FUNDS *

| | | Series 2018A | Series 2018B |
|---|---|---|---|
| Sources of Funds | | | |
| | Note Proceeds | $ | $ |
| | Reoffering Premium | | |
| Total Sources of Funds | | $ | $ |
| Uses of Funds | | | |
| | Deposit to Project Fund | $ | $0 |
| | Purchase of Escrow Securities | | |
| | Call of the prior 2011 Bonds | 2,590,000 | |
| | Issuance Costs | | |
| | Underwriting Fee | | |
| Total Uses of Funds | | $ | $ |

## TAX MATTERS

**TAX EXEMPT NOTES – Series 2018A Notes**

Tax Exemptions and Related Considerations: Federal tax law contains a number of requirements and restrictions that apply to the Series 2018A Notes. These include investment restrictions, periodic payments of arbitrage profits to the United States, requirements regarding the proper use of bond proceeds and facilities financed with bond proceeds, and certain other matters. The Issuer has covenanted to comply with all requirements that must be satisfied in order for the interest on the Series 2018A Notes to be excludable from gross income for federal income tax purposes. Failure to comply with certain of such covenants could cause interest on the Series 2018A Notes to become includable in gross income for federal income tax purposes retroactively to the date of issuance of the Series 2018A Notes.

Subject to the Issuer's compliance with the above referenced covenants, under present law, in the opinion of Bond Counsel, interest on the Series 2018A Notes is excludable from gross income of the owners thereof for federal income tax purposes, and is not included as an item of tax preference in computing the federal alternative minimum tax. However, with respect to corporations (as defined for federal income tax purposes), such interest is included in adjusted current earnings for the purpose of determining the federal alternative minimum tax for such corporations for taxable years beginning before January 1, 2018.

Prospective purchasers of the Series 2018A Notes should be aware that ownership of the Series 2018A Notes may result in collateral federal income tax consequences to certain taxpayers, including, without limitation, corporations subject to the branch profits tax, financial institutions, certain insurance companies, certain S corporations, individual recipients of Social Security or Railroad Retirement benefits and taxpayers who may be deemed to have incurred (or continued) indebtedness to purchase or carry tax-exempt obligations. Bond Counsel will not express any opinion as to such collateral tax consequences. Prospective purchasers of the Series 2018A Notes should consult their tax advisors as to collateral federal income tax consequences.

Interest on the Series 2018A Notes is not exempt from present Iowa income taxes.

Ownership of the Series 2018A Notes may result in other state and local tax consequences to certain taxpayers. Bond Counsel expresses no opinion regarding any such collateral consequences arising with respect to the Series 2018A Notes. Prospective purchasers of the Series 2018A Notes should consult their tax advisors regarding the applicability of any such state and local taxes.

Qualified Tax-Exempt Obligations: The Issuer intends to designate the Series 2018A Notes as "qualified tax-exempt obligations" under the exception provided in Section 265(b)(3) of the Internal Revenue Code of 1986, as amended (the "Code"), which affords banks and certain other financial institutions more favorable treatment of their deduction for interest expense than would otherwise be allowed under Section 265(b)(2) of the Code.

Tax Accounting Treatment of Discount and Premium on Certain Series 2018A Notes: The initial public offering price of certain Series 2018A Notes (the "Discount Notes") may be less than the amount payable on such Series 2018A Notes at maturity. An amount equal to the difference between the initial public offering price of Discount Notes (assuming that a substantial amount of the Discount Notes of that maturity are sold to the public at such price) and the amount payable at maturity constitutes original issue discount to the initial purchaser of such Discount Notes. Owners of Discount Notes should consult with their own tax advisors with respect to the determination of accrued original issue discount on Discount Notes for federal income tax purposes and with respect to the state and local tax consequences of owning and disposing of Discount Notes. It is possible that, under applicable provisions governing determination of state and local income taxes, accrued interest on Discount Notes may be deemed to be received in the year of accrual even though there will not be a corresponding cash payment.

The initial public offering price of certain Series 2018A Notes ("Premium Notes") may be greater than the amount of such Series 2018A Notes at maturity. An amount equal to the difference between the initial public offering price of Premium Notes (assuming that a substantial amount of the Premium Notes of that maturity are sold to the public at such price) and the amount payable at maturity constitutes a premium to the initial purchaser of such Premium Notes. Purchasers of the Premium Notes should consult with their own tax advisors with respect to the determination of amortizable bond premium on Premium Notes for federal income tax purposes and with respect to the state and local tax consequences of owning and disposing of Premium Notes.

Related Tax Matters: The Internal Revenue Service (the "Service") has an ongoing program of auditing tax-exempt obligations to determine whether, in the view of the Service, interest on such tax-exempt obligations is includable in the gross income of the owners thereof for federal income tax purposes. It cannot be predicted whether or not the Service will commence an audit of the Series 2018A Notes. If an audit is commenced, under current procedures the Service may treat the Issuer as a taxpayer and the bondholders may have no right to participate in such procedure. The commencement of an audit could adversely affect the market value and liquidity of the Series 2018A Notes until the audit is concluded, regardless of the ultimate outcome.

Payments of interest on, and proceeds of the sale, redemption or maturity of, tax-exempt obligations, including the Series 2018A Notes, are in certain cases required to be reported to the Service. Additionally, backup withholding may apply to any such payments to any note owner who fails to provide an accurate Form W-9 Request for Taxpayer Identification Number and Certification, or a substantially identical form, or to any note owner who is notified by the Service of a failure to report any interest or dividends required to be shown on federal income tax returns. The reporting and backup withholding requirements do not affect the excludability of such interest from gross income for federal tax purposes.

Current and future legislative proposals, including some that carry retroactive effective dates, if enacted into law, court decisions, or clarification of the Code may cause interest on the Series 2018A Notes to be subject, directly or indirectly, to federal income taxation, or otherwise prevent owners of the Series 2018A Notes from realizing the full current benefit of the tax status of such interest. For example, on December 22, 2017, the Tax Cuts and Jobs Act ("TCJA") was signed into law. For tax years beginning after December 31, 2017, the TCJA, among other things, significantly changes the income tax rates on individuals and corporations, modifies the current provisions relative to the federal alternative minimum tax on individuals, and eliminates the federal alternative minimum tax for corporations. The TCJA, or the introduction or enactment of any other legislative proposals, clarification of the Code or court decisions may also affect, perhaps significantly, the market price for, or marketability of, the Series 2018A Notes. Prospective purchasers of the Series 2018A Notes should consult their own tax advisors regarding the TCJA, as well as any pending or proposed tax legislation, as to which Bond Counsel expresses no opinion other than as set forth in its legal opinion.

The opinions expressed by Bond Counsel are based upon existing legislation and regulations as interpreted by relevant judicial and regulatory authorities as of the date of issuance and delivery of the Series 2018A Notes, and Bond Counsel has expressed no opinion as of any date subsequent thereto or with respect to any proposed or pending legislation, regulatory initiatives or litigation.

Enforcement: Holders of the Series 2018A Notes shall have and possess all the rights of action and remedies afforded by the common law, the Constitution and statutes of the State of Iowa and of the United States of America for the enforcement of payment of the Series 2018A Notes, including, but not limited to, the right to a proceeding in law or in equity by suit, action or mandamus to enforce and compel performance of the duties required by Iowa law and the resolution authorizing issuance of the Series 2018A Notes. There is no bond trustee or similar person to monitor or enforce the terms of the resolution for issuance of the Series 2018A Notes. In the event of a default in the payment of principal of or interest on the Series 2018A Notes, there is no provision for acceleration of maturity of the principal of the Series 2018A Notes. Consequently, the remedies of the owners of the Series 2018A Notes may have to be enforced from year to year.

The owners of the Series 2018A Notes cannot foreclose on property within the boundaries of the Issuer or sell such property in order to pay debt service on the Series 2018A Notes. In addition, the enforceability of the rights and remedies of owners of the Series 2018A Notes may be subject to limitation as set forth in Bond Counsel's opinion. The opinion to be delivered concurrently with the delivery of the Series 2018A Notes will be qualified as to the enforceability of the various legal instruments by limitations imposed by general principles of equity and public policy and by bankruptcy, reorganization, insolvency or other similar laws affecting the rights of creditors generally, and to the exercise of judicial discretion in appropriate cases.

No representation is made, and no assurance is given, that the enforcement of any remedies with respect to such assets will result in sufficient funds to pay all amounts due under the resolution authorizing issuance of the Series 2018A Notes, including principal of an interest on the Series 2018A Notes.

Opinion: Bond Counsel's opinion is not a guarantee of a result, or of the transaction on which the opinion is rendered, or of the future performance of parties to the transaction, but represents its legal judgment based upon its review of existing statutes, regulations, published rulings and court decisions and the representations and covenants of the Issuer described in this section. No ruling has been sought from the Service with respect to the matters addressed in the opinion of Bond Counsel and Bond Counsel's opinion is not binding on the Service. Bond Counsel assumes no obligation to update its opinion after the issue date to reflect any further action, fact or circumstance, or change in law or interpretation, or otherwise.

**ALL POTENTIAL PURCHASERS OF THE SERIES 2018A NOTES SHOULD CONSULT WITH THEIR TAX ADVISOR WITH RESPECT TO FEDERAL, STATE AND LOCAL TAX CONSEQUENCES OF OWNERSHIP OF THE SERIES 2018A NOTES (INCLUDING BUT NOT LIMITED TO THOSE LISTED ABOVE).**

**TAXABLE NOTES – Series 2018B Notes**

In the opinion of Bond Counsel, under existing law, interest on the Series 2018B Notes will be included in gross income of the owners thereof for federal income tax purposes. The Issuer will NOT designate the Series 2018B Notes as qualified tax-exempt obligations under Section 265(b)(3) of the Internal Revenue Code of 1986.

Interest on the Series 2018B Notes is NOT exempt from present Iowa income taxes. Ownership of the Series 2018B Notes may result in other state and local tax consequences to certain taxpayers. Bond Counsel expresses no opinion regarding any such collateral consequences arising with respect to the Series 2018B Notes. Prospective purchasers of the Series 2018B Notes should consult their tax advisors regarding the applicability of any such state and local taxes.

Tax Accounting Treatment of Discount and Premium on Certain Series 2018B Notes: The initial public offering price of certain Series 2018B Notes (the "Discount Notes") may be less than the amount payable on such Series 2018B Notes at maturity. An amount equal to the difference between the initial public offering price of Discount Notes (assuming that a substantial amount of the Discount Notes of that maturity are sold to the public at such price) and the amount payable at maturity constitutes original issue discount to the initial purchaser of such Discount Notes. Owners of Discount Notes should consult with their own tax advisors with respect to the determination of accrued original issue discount on Discount Notes for federal income tax purposes and with respect to the state and local tax consequences of owning and disposing of Discount Notes. It is possible that, under applicable provisions governing determination of state and local income taxes, accrued interest on Discount Notes may be deemed to be received in the year of accrual even though there will not be a corresponding cash payment.

The initial public offering price of certain Series 2018B Notes ("Premium Notes") may be greater than the amount of such Series 2018B Notes at maturity. An amount equal to the difference between the initial public offering price of Premium Notes (assuming that a substantial amount of the Premium Notes of that maturity are sold to the public at such price) and the amount payable at maturity constitutes a premium to the initial purchaser of such Premium Notes. Purchasers of the Premium Notes should consult with their own tax advisors with respect to the determination of amortizable bond premium on Premium Notes for federal income tax purposes and with respect to the state and local tax consequences of owning and disposing of Premium Notes.

The opinions expressed by Bond Counsel are based upon existing legislation and regulations as interpreted by relevant judicial and regulatory authorities as of the date of issuance and delivery of the Series 2018B Notes, and Bond Counsel has expressed no opinion as of any date subsequent thereto or with respect to any proposed or pending legislation, regulatory initiatives or litigation.

Enforcement: Holders of the Series 2018B Notes shall have and possess all the rights of action and remedies afforded by the common law, the Constitution and statutes of the State of Iowa and of the United States of America for the enforcement of payment of the Series 2018B Notes, including, but not limited to, the right to a proceeding in law or in equity by suit, action or mandamus to enforce and compel performance of the duties required by Iowa law and the resolution authorizing issuance of the Series 2018B Notes. There is no bond trustee or similar person to monitor or enforce the terms of the resolution for issuance of the Series 2018B Notes. In the event of a default in the payment of principal of or interest on the Series 2018B Notes, there is no provision for acceleration of maturity of the principal of the Series 2018B Notes. Consequently, the remedies of the owners of the Series 2018B Notes may have to be enforced from year to year.

The owners of the Series 2018B Notes cannot foreclose on property within the boundaries of the Issuer or sell such property in order to pay debt service on the Series 2018B Notes. In addition, the enforceability of the rights and remedies of owners of the Series 2018B Notes may be subject to limitation as set forth in Bond Counsel's opinion. The opinion to be delivered concurrently with the delivery of the Series 2018B Notes will be qualified as to the enforceability of the various legal instruments by limitations imposed by general principles of equity and public policy and by bankruptcy, reorganization, insolvency or other similar laws affecting the rights of creditors generally, and to the exercise of judicial discretion in appropriate cases.

No representation is made, and no assurance is given, that the enforcement of any remedies with respect to such assets will result in sufficient funds to pay all amounts due under the resolution authorizing issuance of the Series 2018B Notes, including principal of an interest on the Series 2018B Notes.

Opinion: Bond Counsel's opinion is not a guarantee of a result, or of the transaction on which the opinion is rendered, or of the future performance of parties to the transaction, but represents its legal judgment based upon its review of existing statutes, regulations, published rulings and court decisions and the representations and covenants of the Issuer described in this section. No ruling has been sought from the Service with respect to the matters addressed in the opinion of Bond Counsel and Bond Counsel's opinion is not binding on the Service. Bond Counsel assumes no obligation to update its opinion after the issue date to reflect any further action, fact or circumstance, or change in law or interpretation, or otherwise.

ALL POTENTIAL PURCHASERS OF THE SERIES 2018B NOTES SHOULD CONSULT WITH THEIR TAX ADVISOR WITH RESPECT TO FEDERAL, STATE AND LOCAL TAX CONSEQUENCES OF OWNERSHIP OF THE SERIES 2018B NOTES (INCLUDING BUT NOT LIMITED TO THOSE LISTED ABOVE).

## FINANCIAL ADVISOR

The Issuer has retained Piper Jaffray & Co. as financial advisor (the "Financial Advisor") in connection with the issuance of the Notes. The Financial Advisor has not been engaged, nor has it undertaken, to independently verify the accuracy of the Official Statement. The Financial Advisor is not a public accounting firm and has not been engaged by the Issuer to compile, review, examine or audit any information in the Official Statement in accordance with accounting standards. .

## CONTINUING DISCLOSURE

The Issuer has covenanted for the benefit of the holders of the Notes to provide certain financial information and operating data relating to the Issuer, and to provide notices of the occurrence of certain enumerated events, if deemed by the Issuer to be material (the "Undertaking"). The specific nature of the information that the Issuer may provide pursuant to the Undertaking is summarized herein under the caption "**APPENDIX C - Form of Continuing Disclosure Certificate.**"

The Issuer provides the following information in accordance with the reporting requirements of paragraph (f)(3) of the Rule. Within the last five years, the Issuer did not timely file its annual report for the fiscal year ending June 30, 2013, for fiscal years ending 2012-2017, final audited financials were not available within the filing deadline and were filed after the deadline, and in certain years, the Issuer did not provide unaudited financial statements. The issuer failed to link its audited financial statements and operating data for the fiscal year ending June 30, 2016 to its General Obligation Capital Loan Notes, Series 2016B bonds. On April 8, 2015 Moody's downgraded the City's General Obligation debt and the material event filing did not include the last maturity of the Issuer's 2005 General Obligation bonds which were advance refunded in 2012. Lastly, due to a technical error, the City inadvertently failed to upload operating data by the filing deadline of January 15, 2016 with respect to the City's continuing disclosure undertaking for its Storm Water Revenue Bonds, Series 2013C. An attempt was made to upload the information January 15, 2016, but only the cover page correctly uploaded. The operating data was promptly uploaded on February 11, 2016 after discovery of the error. For certain of the aforementioned filings, the Issuer did not timely file notice of its failure to provide such information on or before the date specified in the applicable undertakings.

The foregoing description of instances of noncompliance by the City with respect to its continuing disclosure undertakings should not be construed as an acknowledgment that any such instance was material.

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I have reviewed the information contained within the Official Statement of Storm Lake, Iowa, and said Official Statement does not contain any material misstatements of fact nor omissions of any material fact regarding the issue of $3,350,000* General Obligation Capital Loan Notes, Series 2018A and $2,050,000* Taxable General Obligation Refunding Capital Loan Notes, Series 2018B of said Issuer to be issued as of the date of delivery.

STORM LAKE, IOWA

/s/ Brian Oakleaf
Finance Director

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* Preliminary, subject to change

## APPENDIX A - INFORMATION ABOUT THE ISSUER

## CITY OF STORM LAKE, IOWA

### CITY OFFICIALS

| | |
|---|---|
| **MAYOR** | Mike Porsch |
| **COUNCIL MEMBERS:** | Jose Ibarra<br>Tyson Rice<br>Bruce Engelmann<br>Bruce Carlson<br>Dan Smith |
| **CITY MANAGER:** | Keri Navratil |
| **FINANCE DIRECTOR:** | Brian Oakleaf |
| **CITY CLERK:** | Mayra Martinez |
| **CITY ATTORNEY** | Phil Havens, Esq.<br>Storm Lake, IA |

### CONSULTANTS

| | |
|---|---|
| **BOND & DISCLOSURE COUNSEL:** | Ahlers & Cooney PC<br>Des Moines, IA |
| **FINANCIAL ADVISOR:** | Piper Jaffray & Co.<br>Des Moines, IA |
| **REGISTRAR/PAYING AGENT:** | Bankers Trust Company<br>Des Moines, IA |

**General Information**

Incorporated in 1873, the City of Storm Lake is the county seat of Buena Vista County and is located in northwest Iowa about 120 miles northwest of Des Moines and 50 miles east of Sioux City. Storm Lake serves as the commercial, financial, healthcare, cultural, educational and recreational center for a major portion of northwest Iowa. The population of Storm Lake's market area is approximately 40,000. Storm Lake has been the home of Buena Vista College (now Buena Vista University) since 1891. Founded by the Presbyterian Church, the university is an independent, regionally acclaimed comprehensive teaching institution. Buena Vista also maintains 18 additional learning centers throughout Iowa. On campus enrollment is approximately 899 students with an additional 1,373 attending remote learning centers. Other continuing education opportunities for area residents are provided by Iowa Central Community College at the Storm Lake Campus. Transportation facilities are provided by U.S. Highway 71, Iowa Highways 7 & 110, 7 miles north of Highway 20 and numerous paved county roads. Rail transportation is provided by the Chicago, Central and Pacific Railroad Co. Surrounded by some of Iowa's most productive farmland, Storm Lake is also home to the following major companies; Tyson Fresh Foods, pork processing and Hillshire Foods, turkey processing.

**Government**

The City operates under a Mayor-Council form of government. The Mayor is elected to a four-year term and Council Members are elected to four-year terms; three Members' terms expiring at the same time and the remaining two expiring two years later. This method insures at least two experienced members at all times. A City Manager has been on staff and contributing to the efficient administration of City affairs since January 1, 2010.

Public safety is secured by a professional police department consisting of a Public Safety Director, one Assistant Chief, four Lieutenants, two detectives, one School Resource Officer and eleven patrol officers. The department is trained on and uses advanced technological equipment in all facets of its operation. The department is staffed by civilian and sworn bilingual employees and is part of a statewide mutual aid agreement which allows for additional resources when needed. The department operates eight marked and five unmarked radio police cars. The department is a full service department with divisions that address administration, patrol, investigations, K-9, public education, tactical, lab team and emergency coordination.

**Utilities**

The following utilities operate within the Issuer providing the services indicated:

| | |
|---|---|
| Electric Power: | Mid American Energy |
| Natural Gas: | Alliant Energy |
| Landfill: | Buena Vista County Recycle Center |
| Garbage Hauling: | Garbage Hauling Service |
| Telephone: | CenturyLink, Mediacom and Vast Broadband |
| Water: | Municipal Waterworks |
| Sanitary Waste: | Municipal Sanitary Sewer System |
| Storm Water: | Municipal Storm Water System |

Source: City of Storm Lake

**Employee Pension Plan**

Defined Benefit Plan – Iowa Public Employees' Retirement System

Plan Description**.** Iowa Public Employees' Retirement System ("IPERS") membership is mandatory for employees of the Issuer. The Issuer's employees are provided with pensions through a cost-sharing multiple employer defined pension plan administered by IPERS. IPERS benefits are established under Iowa Code, Chapter 97B and the administrative rules thereunder. The Issuer's employee who completed seven years of covered service or has reached the age of 65 while in IPERS covered employment becomes vested. If the Issuer's employee retires before normal retirement age, the employees' monthly retirement benefit will be permanently reduced by an early-retirement reduction. IPERS provides pension benefits as well as disability benefits to Issuer employees and benefits to the employees' beneficiaries upon the death of the eligible employee. See "APPENDIX D–AUDITED FINANCIAL STATEMENTS OF THE ISSUER–NOTES TO THE FINANCIAL STATEMENTS" for additional information on IPERS. Additionally, copies of IPERS annual financial report may be obtained from www.ipers.org. Moreover, IPERS maintains a website at www.ipers.com. However, the information presented in such financial reports or on such websites is not incorporated into this Official Statement by any reference.

Contributions. Although the actuarial contribution rates are calculated each year, the contribution rates were set by state law through June 30, 2012 and did not necessarily coincide with the actuarially calculated contribution rate. As a result, from June 30, 2002 through June 30, 2013, the rate allowed by statute was less than the actuarially required rate. Effective July 1, 2012, as a result of a 2010 law change, IPERS contribution rates for the Issuer and its employees are established by IPERS following the annual actuarial valuation (which applies IPERS'

Contribution Rate Funding Policy and Actuarial Amortization method.) State statute, however, limits the amount rates can increase or decrease each year to one (1) percentage point. Therefore, any difference between the actuarial contribution rates and the contributions paid is due entirely to statutorily set contributions that may differ from the actual contribution rates. As a result, while the contribution rate in the fiscal year ended June 30, 2017 equaled the actuarially required rate, there is no guarantee, due to this statutory limitation on rate increases, that the contribution rate will meet or exceed the actuarially required rate in the future.

In fiscal year 2017, pursuant to the IPERS' required rate, the Issuer's employees contributed 5.95% of pay and the Issuer contributed 8.93% for a total rate of 14.88 percent. The Issuer's contributions to IPERS for the year ended June 30, 2017 were $_____which amount is not less than its actuarially determined calculated annual actuarial valuation. The Issuer's share of the contribution, payable from the applicable funds of the Issuer, is provided by a statutorily authorized annual levy of taxes without limit or restriction as to rate or amount. The Issuer has always made its full required contributions to IPERS.

The following table sets forth the contributions made by the Issuer and its employees to IPERS for the period indicated. The Issuer cannot predict the levels of funding that will be required in the future.

Table 1 – Issuer and Employees Contribution to IPERS.

| | Issuer Contribution | | Issuer Employees' Contribution | |
|---|---|---|---|---|
| Fiscal Year | Amount Contributed | % of Covered Payroll | Amount Contributed | % of Covered Payroll |
| 2013 | 158,050 | 8.67 | $105,367 | 5.78 |
| 2014 | 199,453 | 8.93 | 132,894 | 5.95 |
| 2015 | 208,066 | 8.93 | 138,633 | 5.95 |
| 2016 | 196,320 | 8.93 | 130,810 | 5.95 |
| 2017 | 187,899 | 8.93 | 125,199 | 5.95 |

SOURCE: The Issuer

The Issuer cannot predict the levels of funding that will be required in the future as any IPERS unfunded pension benefit obligation could be reflected in future years in higher contribution rates. The investment of moneys, assumptions underlying the same and the administration of IPERS is not subject to the direction of the Issuer. Thus, it is not possible to predict, control or prepare for future unfunded accrued actuarial liabilities of IPERS ("UAALs"). The UAAL is the difference between total actuarially accrued liabilities and actuarially calculated assets available for the payment of such benefits. The UAAL is based on assumptions as to retirement age, mortality, projected salary increases attributed to inflation, across-the-board raises and merit raises, adjustments, cost-of-living adjustments, valuation of current assets, investment return and other matters. Such UAAL could be substantial in the future, requiring significantly increased contributions from the Issuer which could affect other budgetary matters.

The following table sets forth certain information about the funding status of IPERS that has been extracted from the comprehensive annual financial reports of IPERS for the fiscal years ended June 30, 2017 through, and including, 2013 (collectively, the "IPERS CAFRs (2013-2017)"), and the actuarial valuation reports provided to IPERS by Cavanaugh MacDonald Consulting, LLC (collectively, the "IPERS Actuarial Reports (2013-2017)"). Additional information regarding IPERS and its latest actuarial valuations can be obtained by contacting IPERS administrative staff.

Table 2 – Funding Status of IPERS

| Valuation Date | Actuarial Value of Assets [a] | Market Value of Assets [b] | Actuarial Accrued Liability [c] | Unfunded Actuarial Accrued Liability (Actuarial Value) [c]-[a] | Funded Ratio (Actuarial Value) [a]/[c] | Unfunded Actuarial Accrued Liability (Market Value) [c]-[b] | Funded Ratio (Market Value) % [b]/[c] | Covered Payroll [d] | UAAL as a Percentage of Covered Payroll (Actuarial Value) [[c-a]/[d]] |
|---|---|---|---|---|---|---|---|---|---|
| 2013 | 24,711,096,187 | 24,756,663,715 | 30,498,342,320 | 5,787,246,133 | 81.02 | 5,741,678,605 | 81.17 | 6,880,131,134 | 84.12 |
| 2014 | 26,460,428,085 | 28,038,549,893 | 32,004,456,088 | 5,544,028,003 | 82.68 | 3,965,906,195 | 87.61 | 7,099,277,280 | 78.09 |
| 2015 | 27,915,379,103 | 28,429,834,829 | 33,370,318,731 | 5,454,939,628 | 83.65 | 4,940,483,902 | 85.19 | 7,326,348,141 | 74.46 |
| 2016 | 29,033,696,587 | 28,326,433,656 | 34,619,749,147 | 5,586,052,560 | 83.86 | 6,293,315,491 | 81.82 | 7,556,515,720 | 73.92 |
| 2017 | 30,472,423,914 | 30,779,116,326 | 37,440,382,029 | 6,967,958,115 | 81.39 | 6,661,265,703 | 82.21 | 7,863,160,443 | 88.62 |

Source: IPERS CAFRs (2011-2016) and IPERS Actuarial Reports (2013-2017)
For a description of the assumptions used when calculating the funding status of IPERS for the fiscal year ended June 30, 2017, see IPERS CAFRs (2013-2017)

Table 3 – Recent returns of IPERS

According to IPERS, the market value investment return on program assets is as follows:

| Fiscal Year Ended June 30 | Investment Return % |
|---|---|
| 2013 | 10.12 |
| 2014 | 15.88 |
| 2015 | 3.96 |
| 2016 | 2.15 |
| 2017 | 11.70 |

Net Pension Liabilities.

Effective for fiscal years beginning after June 15, 2014, GASB Statement 68 requires all reporting units in a multi-employer cost sharing pension plan to record a balance sheet liability for their proportionate share of the net pension liability of the plan. The Issuer was required to implement GASB 68 in their year end June 30, 2015 financial statements.

At June 30, 2017, the Issuer reported a liability of $____for its proportional share of the IPERS net pension liability. The net pension liability was measured as of June 30, 2016 and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of that date. The discount rate used to measure the total pension liability was 7.5%. The Issuer's proportion of the net pension liability was based on the Issuer's share of contributions to the pension plan relative to the contributions of all IPERS participating employers. See "**APPENDIX D–AUDITED FINANCIAL STATEMENTS OF THE ISSUER–NOTES TO THE FINANCIAL STATEMENTS**" for additional information related to the Issuer's deferred outflows and inflows of resources related to pensions, actuarial assumptions, discount rate and discount rate sensitivity.

Detailed information about the pension plan's fiduciary net position is available in the separately issued IPERS financial report which is available on IPERS' website at www.ipers.org.

Bond Counsel, Disclosure Counsel, the Issuer, and the Financial Advisor undertake no responsibility for and make no representations as to the accuracy or completeness of the material available from IPERS as discussed above or included on the IPERS website, including, but not limited to, updates of such information on the Auditor of State's website or links to other websites through the IPERS website.

Defined Benefit Pension Plan - Municipal Fire and Police Retirement System of Iowa

The Municipal Fire and Police Retirement System of Iowa (MFPRSI), created under Chapter 411.35 of the Code of Iowa, is the administrator of a multiple-employer, cost sharing, defined benefit pension plan for the exclusive benefit of eligible employees of participating cities (substantially all full-time employees of the respective fire and police departments). It is governed by a nine-member board of trustees who are elected by the employers and participants of MFPRSI. The City's responsibility is limited to payment of contributions. MFPRSI provides retirement disability and death benefits that are established by state statue to plan members and beneficiaries.

Plan members and their employer cities are required to contribute as shown below:

| Fiscal Year | Combined contribution rate | % of Payroll paid by Issuer | % of Payroll paid by Employee |
|---|---|---|---|
| 2013 | 35.52 | 26.12 | 9.40 |
| 2014 | 39.52 | 30.12 | 9.40 |
| 2015 | 39.81 | 30.41 | 9.40 |
| 2016 | 37.17 | 27.77 | 9.40 |
| 2017 | 35.32 | 25.92 | 9.40 |

MFPRSI is administered by the Board with administration costs paid from income derived from invested funds. MFPRSI has an unfunded actuarial liability and unrecognized actuarial loss. The following table sets forth certain information about the funding status of MFPRSI that has been extracted from the Actuarial Valuation Report for fiscal years noted below (the "MFPRSI Reports").

| Fiscal Year Ended June 30 | Actuarial Value of Assets [a] | Actuarial Accrued Liability [b] | Unfunded Actuarial Accrued Liability Actuarial Value [b] – [a] | Funded Ratio {Actuarial Value) [a] / [b] | Covered Payroll [c] | UAL as a % of Covered Payroll (Actuarial Value) [[b-a] / [c]] |
|---|---|---|---|---|---|---|
| 2013 | 1,860,947,878 | 2,518,228,578 | 657,280,700 | 73..90 | 258,425,211 | 2.543 |
| 2014 | 2,054,844,278 | 2,640,955,176 | 586,110,898 | 77.81 | 266,265,413 | 2.201 |
| 2015 | 2,239,539,373 | 2,769,994,684 | 530,455,311 | 80.85 | 273,319,323 | 1.941 |
| 2016 | 2,333,944,800 | 2,867,807,326 | 533,862,526 | 81.38 | 283,639,887 | 1.882 |
| 2017 | 2,436,896,111 | 3,023,371,171 | 562,209,754 | 80.60 | 296,237,982 | 1.980 |

Source: MFPRSI CAFRs (2012-2017) and MFPRSI Actuarial Reports (2012-2017)
For a description of the assumptions used when calculating the funding status of MFPRSI for each fiscal year ended June 30, see MFPRSI CAFRs (2012-2017)

The investment return on the market value of program assets is as follows:

| Fiscal Year Ended June 30 | Investment Return % |
|---|---|
| 2013 | 13.04 |
| 2014 | 18.47 |
| 2015 | 3.07 |
| 2016 | 0.22 |
| 2017 | 11.72 |

Net Pension Liabilities. Effective for fiscal years beginning after June 15, 2014, GASB Statement 68 requires all reporting units in a multi-employer cost sharing pension plan to record a balance sheet liability for their proportionate share of the net pension liability of the plan. The Issuer was required to implement GASB 68 in their year end June 30, 2015 financial statements.

At June 30, 2017, the Issuer reported a liability of $________ for its proportional share of the MFPRSI net pension liability. The net pension liability was measured as of June 30, 2016 and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of that date. The discount rate used to measure the total pension liability was 7.5%. The Issuer's proportion of the net pension liability was based on the Issuer's share of contributions to the pension plan relative to the contributions of all MFPRSI participating employers. See "**APPENDIX A–AUDITED FINANCIAL STATEMENTS OF ISSUER - NOTES TO THE FINANCIAL STATEMENTS- PENSION PLAN**" for additional information related to the Issuer's deferred outflows and inflows of resources related to pensions, actuarial assumptions, discount rate and discount rate sensitivity.

Detailed information about the pension plan's fiduciary net position is available in the separately issued MFPRSI financial report which is available on MFPRSI' website at www.mfprsi.org.

Bond Counsel, Disclosure Counsel, the Issuer, the Underwriter and the Financial Advisor undertake no responsibility for and make no representations as to the accuracy or completeness of the information available from the MFPRSI discussed above or included on the MFPRSI website, including, but not limited to, updates of such information on the State Auditor's website or links to other Internet sites accessed through the MFPRSI website.

**ICMA Retirement Plan**

The Public Safety Director, City Manager, and City Community Development Director are covered under the nationwide retirement plan offered by the International City Manager's Association (ICMA). Contributions required by the employer are 12% of the annual salary for the Public Safety Director, $2,000 per year for the City Community Development Director, and an annual salary determined on a calendar year basis for the City Administrator- $14,300 for calendar year 2016 and $______ for calendar year 2017. The City's responsibility is limited to payment of contributions required by established rates. The employer's contribution paid by the City for the year ended June 30, 2017 totaled $_______.

**Other Post-Employment Benefits (OPEB)**

Plan Description - The City operates a single-employer benefit plan which provides medical/prescription drug benefits for retirees and their spouses.. There are _______ active and ________ retired members in the plan. Participants must be age 55 or older at retirement.

The medical/prescription drug benefits are provided through a fully-insured plan with Wellmark Blue Cross and Blue Shield of Iowa. Retirees under age 65 pay the same premium for the medical/prescription drug benefits as active employees.

Funding Policy – The contribution requirements of plan members are established and may be amended by the City. The City currently finances the benefit plan on a pay-as-you-go basis. The most recent active member monthly premiums for the City and plan members are $____ for single coverage and $_____ for family coverage. For the year ended June 30, 2017, the City contributed $_____ and plan members eligible for benefits contributed $_____ to the plan.

**Population**

The following table sets forth population trends for the Issuer:

| Year | Population |
|---|---|
| 2010 | 10,600 |
| 2000 | 10,076 |
| 1990 | 8,769 |
| 1980 | 8,814 |
| 1970 | 8,591 |

Source: U.S. Census Bureau

**Major Employers**

Following are the major employers within the City and the current number of people they employ:

| Name | Product | Number of Employees |
|---|---|---|
| Tyson Fresh Meats | Pork processing | 1,800 |
| Hillshire (Tyson) | Turkey processing | 670 |
| Buena Vista Regional Medical Center | Medical | 380 |
| Storm Lake Community School District | Education | 310 |
| Buena Vista University | Education | 293 |
| Wal-Mart | Retail | 280 |
| Friesen of Iowa | Metal storage containers | 170 |
| Meridian | Grain hauling equipment | 170 |
| Methodist Manor | Health care | 152 |
| Faith Hope & Charity | Children's Home | 150 |
| City of Storm Lake | Municipal government | 140 |

Source: Locationone.com

**Employment Statistics**

The State of Iowa Department of Job Service reports unemployment unadjusted rates as follows (December 2017)

| Governmental Body | Percentage Unemployed |
|---|---|
| National Average | 4.10% |
| State of Iowa | 2.80% |
| Buena Vista County | 2.20% |

Source: Iowa Workforce Development

**Historical Employment Statistics**

Presented below are the historical unemployment rates for the years indicated for County and the State of Iowa.

| Calendar Year | Buena Vista County | State Of Iowa |
|---|---|---|
| 2016 | 3.60% | 3.70% |
| 2015 | 3.60 | 3.80 |
| 2014 | 4.30 | 4.40 |
| 2013 | 4.10 | 4.60 |
| 2012 | 4.50 | 5.20 |

Source: Iowa Workforce Development

**Retail Sales**

Presented below are retail sales statistics for the City of Storm Lake for the period indicated:

| Year Ended | Taxable Retail Sales | Number of Businesses |
|---|---|---|
| 2017 | $175,712,599 | 371 |
| 2016 | 170,810,707 | 369 |
| 2015 | 169,591,835 | 369 |
| 2014 | 163,448,213 | 380 |
| 2013 | 163,346,504 | 386 |
| 2012 | 166,313,819 | 374 |

* reported as of June 30
Source: Iowa Department of Revenue

**Building Permits**

Presented below are the building permits issued in the City for the calendar year indicated.

| Fiscal Year | Number of Permits | Dollar Value |
|---|---|---|
| 2017 | 203 | $12,564,575 |
| 2016 | 232 | 46,979,976 |
| 2015 | 203 | 6,358,839 |
| 2014 | 125 | 2,220,965 |
| 2013 | 251 | 8,772,443 |

Source: City of Storm Lake

**Property Tax Legislation**

During the 2013 legislative session, the Iowa General Assembly enacted Senate File 295 (the "Act"), which the Governor signed into law on June 12, 2013. Among other things, the Act (i) reduces the maximum annual taxable value growth percent, due to revaluation of existing residential and agricultural property, from the current 4% to 3%, (ii) assigns a "rollback" (the percentage of a property's value that is subject to tax) to commercial, industrial and railroad property of 95% for the 2013 assessment year and 90% for the 2014 assessment year and all years thereafter, (iii) creates a new property tax classification for multi-residential properties (mobile home parks, manufactured home communities, land-lease communities, assisted living facilities and property primarily used or intended for human habitation containing three or more separate dwelling units) ("Multi-residential Property") that begins in the 2015 assessment year, and assigns a declining rollback percentage of 3.75% to such properties for each subsequent year until 2021 assessment year (the rollback percentage for Multi-residential Properties will be equal to the residential rollback percentage in 2022 assessment year and thereafter) and (iv) exempts a specified portion of the assessed value of telecommunication properties.

The Act includes a standing appropriation to replace some of the tax revenues lost by local governments, including tax increment districts, resulting from the new rollback for commercial and industrial property. Prior to Fiscal Year 2017-18, the appropriation is a standing unlimited appropriation, but beginning in fiscal year 2017-18 the standing appropriation cannot exceed the actual fiscal year 2016-17 appropriation amount. The appropriation does not replace losses to local governments resulting from the Act's provisions that reduce the annual revaluation growth limit for residential and agricultural properties to 3% from 4%, the gradual transition for Multi-residential Property from the commercial rollback percentage (100% of Actual Value in Fiscal Year 2013-14) to the residential rollback percentage (currently 54.4002% of Actual Valuation), or the reduction in the percentage of telecommunications property that is subject to taxation.

Given the wide scope of the statutory changes, and the State of Iowa's discretion in establishing the annual replacement amount that is appropriated each year commencing in fiscal year 2017-18, the impact of the Act on the City's future property tax collections is uncertain and the City is unable to accurately assess the financial impact of the Act's provisions on the City's future operations.

In Moody's Investor Service US Public Finance Weekly Credit Outlook, dated May 30, 2013, Moody's Investor Service ("Moody's") projected that local governments in the State of Iowa are likely to experience modest reductions in property tax revenues starting in fiscal year 2014-15 as a result of the Act, with sizeable reductions possible starting in fiscal year 2017-18. According to Moody's, local governments that may experience disproportionately higher revenue losses include regions that have a substantial commercial base, a large share of Multi-residential Property (such as college towns), or significant amounts of telecommunications property.

Notwithstanding any decrease in property tax revenues that may result from the Act, Iowa Code section 76.2 provides that when an Iowa political subdivision issues general obligation bonds, "the governing authority of these political subdivisions before issuing bonds shall, by resolution, provide for the assessment of an annual levy upon all the taxable property in the political subdivision sufficient to pay the interest and principal of the bonds within a period named not exceeding twenty years. A certified copy of this resolution shall be filed with the county auditor or the auditors of the counties in which the political subdivision is located; and the filing shall make it a duty of the auditors to enter annually this levy for collection from the taxable property within the boundaries of the political subdivision until funds are realized to pay the bonds in full."

From time to time, other legislative proposals may be considered by the Iowa General Assembly that would, if enacted, alter or amend one or more of the property tax matters described in this Official Statement. It cannot be predicted whether or in what forms any of such proposals may be enacted, and there can be no assurance that such proposals will not apply to valuation, assessment or levy procedures for the levy of taxes by the City.

**Property Tax Valuations**

In compliance with Section 441.21 of the Code of Iowa, as amended, the State Director of Revenue annually directs all county auditors to apply prescribed statutory percentages to the assessments of certain categories of real property. The final values, called Actual Valuation, are then adjusted by the county auditor. Assessed or Taxable Valuation subject to tax levy is then determined by the application of State determined rollback percentages, principally to residential and commercial property.
Beginning in 1978, the State required a reduction in Actual Valuation to reduce the impact of inflation on its residents. The resulting value is defined as the Assessed or Taxable Valuation. The rollback percentages for residential, agricultural and commercial valuations are as follows:

| Fiscal Year | Residential Rollback | Ag. Land & Buildings | Commercial | Multi-residential |
|---|---|---|---|---|
| 2018-19 | 55.60209 | 54.4480 | 90.0000 | 78.7500 |
| 2017-18 | 56.9391 | 47.4996 | 90.0000 | 82.5000 |
| 2016-17 | 55.6259 | 46.1068 | 90.0000 | 86.2500 |
| 2015-16 | 55.7335 | 44.7021 | 90.0000 | |
| 2014-15 | 54.4002 | 43.3997 | 95.0000 | |

Source: Iowa Department of Revenue

Property is assessed on a calendar year basis. The assessments finalized as of January 1 of each year are applied to the following fiscal year. For example, the assessments finalized on January 1, 2016 are used to calculate tax liability for the tax year starting July 1, 2017 through June 30, 2018. Presented below are the historic property valuations of the Issuer by class of property.

**Property Valuations**

| Actual Valuation | | | | | |
|---|---|---|---|---|---|
| Valuation as of January | 2017 | 2016 | 2015 | 2014 | 2013 |
| Fiscal Year | 2018-19 | 2017-18 | 2016-17 | 2015-16 | 2014-15 |
| Residential: | 307,379,127 | 299,661,392 | 297,188,857 | 284,551,251 | 284,263,173 |
| Agricultural Land: | 1,248,140 | 1,528,746 | 1,499,332 | 1,595,057 | 1,638,823 |
| Ag Buildings: | 72,860 | 93,177 | 77,394 | 117,350 | 100,230 |
| Commercial: | 107,546,999 | 103,805,049 | 101,619,177 | 120,289,460 | 120,624,021 |
| Industrial: | 16,685,375 | 16,938,375 | 14,685,079 | 13,871,426 | 13,567,705 |
| Multi-residential: | 17,911,888 | 18,248,252 | 18,859,327 | | |
| Personal RE: | 0 | 0 | | 0 | 0 |
| Railroads: | 629,105 | 667,260 | 669,974 | 635,390 | 559,300 |
| Utilities: | 1,121,411 | 1,125,627 | 1,249,403 | 1,394,273 | 1,683,346 |
| Other: | 0 | 0 | 0 | 0 | 0 |
| Total Valuation: | 452,594,905 | 442,067,878 | 435,848,543 | 422,454,207 | 422,436,598 |
| Less Military: | 472,260 | 509,300 | 555,600 | 583,380 | 646,348 |
| Net Valuation: | 452,122,645 | 441,558,578 | 435,292,943 | 421,870,827 | 421,790,250 |
| TIF Valuation: | 23,948,334 | 27,448,317 | 26,883,800 | 23,461,613 | 22,502,767 |
| Utility Replacement: | 20,388,323 | 20,052,031 | 19,497,417 | 17,383,891 | 14,940,999 |

| Taxable Valuation | | | | | |
|---|---|---|---|---|---|
| Valuation as of January | 2017 | 2016 | 2015 | 2014 | 2013 |
| Fiscal Year | 2018-19 | 2017-18 | 2016-17 | 2015-16 | 2014-15 |
| Residential: | 170,582,468 | 170,195,001 | 164,570,009 | 157,911,349 | 153,937,188 |
| Agricultural Land: | 647,488 | 683,687 | 646,569 | 659,310 | 659,575 |
| Ag Buildings: | 39,671 | 44,259 | 35,684 | 52,458 | 43,499 |
| Commercial: | 95,428,937 | 91,940,183 | 89,932,370 | 106,954,197 | 113,985,166 |
| Industrial: | 14,087,070 | 14,101,459 | 12,242,213 | 11,597,845 | 12,449,155 |
| Multi-residential: | 14,073,652 | 15,023,935 | 16,236,648 | | |
| Personal RE: | 0 | 0 | | 0 | 0 |
| Railroads: | 566,195 | 667,260 | 602,977 | 571,851 | 531,335 |
| Utilities: | 1,121,411 | 1,125,627 | 1,249,403 | 1,394,273 | 1,683,346 |
| Other: | 0 | 0 | 0 | 0 | 0 |
| Total Valuation: | 296,546,892 | 293,781,411 | 285,515,873 | 279,141,283 | 283,289,264 |
| Less Military: | 472,260 | 509,300 | 548,192 | 582,575 | 637,875 |
| Net Valuation: | 296,074,632 | 293,272,111 | 284,967,681 | 278,558,708 | 282,651,389 |
| TIF Valuation: | 23,948,334 | 27,448,317 | 26,876,392 | 23,460,808 | 22,494,294 |
| Utility Replacement: | 10,164,534 | 10,112,756 | 10,974,442 | 10,785,438 | 10,841,430 |

| Valuation Year | Actual Valuation w/ Utilities | % Change in Actual Valuation | debt Service Valuation w/ Utilities | % Change in debt Service Valuation | General Fund Valuation w/ Utilities | % Change in General Fund Valuation |
|---|---|---|---|---|---|---|
| 2017 | 496,459,302 | 1.51% | 330,187,500 | -0.20% | 305,552,007 | 0.96% |
| 2016 | 489,058,926 | 1.53% | 330,833,184 | 2.48% | 302,656,921 | 2.51% |
| 2015 | 481,674,160 | 4.10% | 322,818,515 | 3.20% | 295,259,870 | 2.30% |
| 2014 | 462,716,331 | 0.76% | 312,804,954 | -1.01% | 288,632,378 | -1.42% |
| 2013 | 459,234,016 | 1.65% | 315,987,113 | 1.95% | 292,789,745 | 2.48% |

Source: Iowa Department of Management

**Tax Rates**

The Issuer levied the following taxes for collection during the fiscal years indicated:

| Fiscal Year | General | Outside | Emergency | Debt Service | Employee Benefits | Improve | Total Levy |
|---|---|---|---|---|---|---|---|
| 2018 | 8.10000 | 0.38464 | 0.27000 | 1.56482 | 3.95218 | 0.00000 | 14.27164 |
| 2017 | 8.10000 | 0.25401 | 0.26999 | 1.60803 | 4.35792 | 0.00000 | 14.58995 |
| 2016 | 8.10000 | 0.24252 | 0.27000 | 1.10443 | 3.88965 | 0.00000 | 13.60660 |
| 2015 | 8.10000 | 0.23908 | 0.27000 | 1.08925 | 3.32563 | 0.00000 | 13.02396 |
| 2014 | 8.10000 | 0.24506 | 0.27000 | 1.11217 | 3.83263 | 0.00000 | 13.55986 |

Source: Iowa Department of Management

**Historic Tax Rates**

| Fiscal Year | City | School | College | State | Assessor | Ag Extens | Hospital | County | Total Levy Rate |
|---|---|---|---|---|---|---|---|---|---|
| 2018 | 14.27164 | 15.66630 | 0.99381 | 0.00310 | 0.48532 | 0.21300 | 0.36848 | 6.95967 | 38.96132 |
| 2017 | 14.58995 | 15.25788 | 1.14337 | 0.00330 | 0.37326 | 0.21342 | 0.37880 | 7.14848 | 39.10846 |
| 2016 | 13.60660 | 15.80236 | 0.82510 | 0.00330 | 0.37354 | 0.18914 | 0.38773 | 7.12243 | 31.18777 |
| 2015 | 13.02396 | 15.72915 | 0.89671 | 0.00330 | 0.37750 | 0.20837 | 0.39010 | 6.83725 | 37.46634 |
| 2014 | 13.55986 | 15.91513 | 0.87786 | 0.00330 | 0.37000 | 0.17097 | 0.40118 | 7.09977 | 38.39807 |

Source: Iowa Department of Management

**Tax Collection History**

| Fiscal Year | Amount Levied | Amount Collected | Percentage Collected |
|---|---|---|---|
| 2018 | 4,363,187 | In collection | NA |
| 2017 | 4,353,096 | $4,548,875 | 104.50% |
| 2016 | 3,955,356 | 3,992,039 | 100.93% |
| 2015 | 3,839,895 | 3,527,167 | 91.86% |
| 2014 | 3,899,382 | 3,902,576 | 100.08% |
| 2013 | 3,578,088 | 3,552,240 | 99.28% |

Source: City of Storm Lake and Iowa Department of Management

**Largest Taxpayers**

Set forth in the following table are the persons or entities which represent the 2016 largest taxpayers within the Issuer, as provided by the County Auditor's Offices. No independent investigation has been made of and no representation is made herein as to the financial condition of any of the taxpayers listed below or that such taxpayers will continue to maintain their status as major taxpayers in the City. The City's mill levy is uniformly applicable to all of the properties included in the table, and thus taxes expected to be received by the City from such taxpayers will be in proportion to the assessed valuations of the properties. The total tax bill for each of the properties is dependent upon the mill levies of the other taxing entities which overlap the properties.

| Taxpayer | 2016 Taxable Valuation | Percent of Total |
|---|---|---|
| MidAmerican Energy Company | $14,787,897 | 4.47% |
| Wal-Mart Real Estate | 9,118,810 | 2.76% |
| Iowa Beef Processors Inc | 7,032,590 | 2.13% |
| Bil Mar Foods of Iowa, Inc | 6,326,810 | 1.91% |
| Storm Lake, City of | 5,977,662 | 1.81% |
| Methodist Manor Retirement | 5,818,170 | 1.76% |
| Peterson Family Trust | 3,506,160 | 1.06% |
| 1301 North Lake LLC | 2,657,790 | 0.80% |
| Hy-Vee Food Stores, Inc. | 2,600,000 | 0.79% |
| Meridian Manufacturing | 2,578,550 | 0.78% |
| | Total of Top 10 Taxpayers: | 18.26% |

Source: Buena Vista County Auditor

(1) Utility Property Tax Replacement

Beginning in 1999, the State replaced its previous property tax assessment procedure in valuing the property of entities involved primarily in the production, delivery, service and sale of electricity and natural gas with a replacement tax formula based upon the delivery of energy by these entities. Electric and natural gas utilities now pay replacement taxes to the State in lieu of property taxes. All replacement taxes are allocated among local taxing cities by the State Department of Revenue and Finance and the Department of Management. This allocation is made in accordance with a general allocation formula developed by the Department of Management on the basis of general property tax equivalents. Properties of these utilities are exempt from the levy of property tax by political subdivisions. Utility property will continue to be valued by a special method as provided in the statute and taxed at the rate of three cents per one thousand dollars for the general fund of the State.

The utility replacement tax statute states that the utility replacement tax collected by the State and allocated among local taxing cities (including the Issuer) shall be treated as property tax when received and shall be disposed of by the county treasurer as taxes on real estate. However, utility property is not subject to the levy of property tax by political subdivisions, only the utility replacement tax and statewide property tax. It is possible that the general obligation debt capacity of the Issuer could be adjudicated to be proportionately reduced in future years if utility property were determined to be other than "taxable property" for purposes of computing the Issuer's debt limit under Article XI of the Constitution of the State of Iowa. There can be no assurance that future legislation will not (i) operate to reduce the amount of debt the Issuer can issue or (ii) adversely affect the Issuer's ability to levy taxes in the future for the payment of the principal of and interest on its outstanding debt obligations, including the Bonds. Approximately 4.59% of the Issuer's tax base currently is utility property. Notwithstanding the foregoing, the Issuer has the obligation to levy taxes against all the taxable property in the Issuer sufficient to pay principal of and interest on the Bonds.

**Public Funds Investments**

As of January 30, 2018, the City held investments in the following amounts:

| | Amount on Deposit |
|---|---|
| Non Marketable CD | $7,000,000 |
| Local Bank Time Deposits | 0 |
| Money Market Deposits | 11,213,124 |
| Marketable Securities | 0 |
| Total | 18,213,124 |

Source: City of Storm Lake

**Outstanding General Obligation Principal and Interest**

Including these issues, the City has eleven separate outstanding general obligation issues. Presented below is the outstanding principal and interest of the Issuer's General Obligation Debt, presented by fiscal year:

| Fiscal Year | Total Principal | Total Interest | Total P&I |
|---|---|---|---|
| 2018 | 1,131,000 | 499,851 | 1,630,851 |
| 2019 | 1,250,000 | 534,907 | 1,784,907 |
| 2020 | 1,330,000 | 499,423 | 1,829,423 |
| 2021 | 1,399,000 | 471,797 | 1,870,797 |
| 2022 | 1,327,000 | 440,757 | 1,767,757 |
| 2023 | 1,375,000 | 410,152 | 1,785,152 |
| 2024 | 1,426,000 | 377,314 | 1,803,314 |
| 2025 | 1,480,000 | 342,078 | 1,822,078 |
| 2026 | 1,320,000 | 304,778 | 1,624,778 |
| 2027 | 1,035,000 | 268,141 | 1,303,141 |
| 2028 | 930,000 | 239,562 | 1,169,562 |
| 2029 | 946,000 | 213,015 | 1,159,015 |
| 2030 | 991,000 | 185,960 | 1,176,960 |
| 2031 | 1,648,000 | 155,928 | 1,803,928 |
| 2032 | 872,000 | 109,318 | 981,318 |
| 2033 | 898,000 | 81,096 | 979,096 |
| 2034 | 654,000 | 51,980 | 705,980 |
| 2035 | 680,000 | 26,500 | 706,500 |
| Totals: | 20,692,000 | 5,212,555 | 25,904,555 |

Source: City of Storm Lake

**Outstanding Debt Subject to Abatement from Other Revenues ("Self-Supporting Debt")**

Nine of the City's outstanding general obligation issues are currently being retired in full or in part from revenues other than ad-valorem property taxes, including TIF income, Flood Remediation TIF income, hotel-motel tax income and net operating income from the City's Kings Point Hotel. Presented below is a schedule illustrating the bonds that are abated by fiscal year:

| Year | 2/16/10 | 2/1/12 | 2/1/12 | 9/18/15 | 9/18/15 | 5/20/15 | 5/10/16 | 5/3/18 | 5/3/18 | Total | Interest | P&I |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 115,000 | 30,000 | 132,000 | 30,000 | 20,000 | 225,000 | 85,000 | | | 637,000 | 349,738 | 986,738 |
| 2019 | | 26,119 | 120,149 | 35,000 | 33,000 | 230,000 | 85,000 | 120,000 | 145,000 | 794,268 | 468,886 | 1,263,154 |
| 2020 | | 25,000 | 120,000 | 50,000 | 73,000 | 235,000 | 90,000 | 135,000 | 145,000 | 873,000 | 442,173 | 1,315,173 |
| 2021 | | 23,973 | 119,863 | 90,000 | 71,000 | 240,000 | 95,000 | 140,000 | 150,000 | 929,836 | 422,442 | 1,352,278 |
| 2022 | | 29,605 | 128,289 | 109,000 | 85,000 | 250,000 | 100,000 | 140,000 | 155,000 | 996,894 | 400,460 | 1,397,354 |
| 2023 | | 30,380 | 136,709 | 112,000 | 85,000 | 255,000 | 110,000 | 140,000 | 155,000 | 1,024,089 | 376,882 | 1,400,971 |
| 2024 | | 30,723 | 143,373 | 116,000 | 86,000 | 260,000 | 110,000 | 145,000 | 165,000 | 1,056,096 | 351,644 | 1,407,740 |
| 2025 | | 34,195 | 141,667 | 119,000 | 86,000 | 270,000 | 120,000 | 160,000 | 175,000 | 1,105,862 | 324,678 | 1,430,540 |
| 2026 | | | | 122,000 | 113,000 | 280,000 | 340,000 | 160,000 | 180,000 | 1,195,000 | 295,903 | 1,490,903 |
| 2027 | | | | 125,000 | 114,000 | 290,000 | 130,000 | 160,000 | 185,000 | 1,004,000 | 262,241 | 1,266,241 |
| 2028 | | | | 129,000 | 115,000 | 300,000 | | 165,000 | 190,000 | 899,000 | 234,282 | 1,133,282 |
| 2029 | | | | 132,000 | 117,000 | 310,000 | | 165,000 | 190,000 | 914,000 | 208,355 | 1,122,355 |
| 2030 | | | | 136,000 | 118,000 | 535,000 | | 170,000 | | 959,000 | 181,940 | 1,140,940 |
| 2031 | | | | 140,000 | 120,000 | 550,000 | | 805,000 | | 1,615,000 | 152,548 | 1,767,548 |
| 2032 | | | | 143,000 | 121,000 | 575,000 | | | | 839,000 | 106,598 | 945,598 |
| 2033 | | | | 147,000 | 122,000 | 595,000 | | | | 864,000 | 79,036 | 943,036 |
| 2034 | | | | | | 620,000 | | | | 620,000 | 50,600 | 670,600 |
| 2035 | | | | | | 645,000 | | | | 645,000 | 25,800 | 670,800 |
| Totals: | 115,000 | 229,995 | 1,042,050 | 1,735,000 | 1,479,000 | 6,665,000 | 1,265,000 | 2,605,000 | 1,835,000 | 16,971,045 | 4,734,204 | 21,705,249 |

Source: City of Storm Lake

**Debt Limit**

The amount of general obligation debt a political subdivision of the State of Iowa can incur is controlled by the constitutional debt limit, which is an amount equal to 5% of the actual value of property within the corporate limits, taken from the last County Tax list. The Issuer's debt limit, based upon said valuation, amounts to the following:

| | |
|---|---|
| 1/1/2016 Actual Valuation: | $489,058,926 |
| X | 0.05 |
| Statutory Debt Limit: | 24,452,946 |
| | |
| Total General Obligation Debt: | 20,692,000 |
| Annual Appropriation Obligations | -300,000 |
| Less FY18 principal payment for which cash is on hand | -1,131,000 |
| Rebate Agreements: | |
| Capital Leases: | |
| Total Urban Renewal Revenue Debt: | |
| Total Debt Subject to Limit: | 19,261,000 |
| Percentage of Debt Limit Obligated: | 78.77% |
| Debt Limit available: | 5,191,946 |

Source: Iowa Department of Management

**Overlapping & Underlying Debt**

Presented below is a listing of the overlapping and underlying debt for Issuers within the District and the amount applicable to the Issuer:

| Taxing Authority | Outstanding Debt | Taxable Valuation | Taxable Value Within Issuer | Percentage Applicable | Amount Applicable |
|---|---|---|---|---|---|
| Storm Lake Community School District | 7,390,000 | 471,212,930 | 330,833,184 | 70.21% | 5,188,434 |
| Buena Vista County | 4,165,000 | 1,139,491,938 | 330,833,184 | 29.03% | 1,209,241 |
| Iowa Central Community College | 21,895,000 | 8,152,489,537 | 330,833,184 | 4.06% | 888,513 |
| Prairie Lakes Area Education Agency | 430,000 | 14,939,294,779 | 330,833,184 | 2.21% | 9,522 |
| | | | | Total | 7,295,710 |

Source: Iowa Department of Management, Iowa State Treasurer

## FINANCIAL SUMMARY

| | |
|---|---|
| Actual Value of Property, 2017: | $496,459,302 |
| Taxable Value of Property, 2017: | 330,187,500 |
| | |
| Direct General Obligation Debt: | $20,692,000 |
| Annual Appropriation Debt | 3,090,000 |
| Total Direct Debt before Offsets | $23,782,000 |
| Less Self-Supported General Obligation Debt (1): | -20,061,045 |
| Net Direct General Obligation Debt: | $3,720,955 |
| Overlapping Debt: | 7,281,471 |
| Net Direct & Overlapping General Obligation Debt: | $11,002,426 |
| | |
| Population, 2010 US Census: | 10,600 |
| | |
| Direct Debt per Capita: | $1,952.08 |
| Total Debt per Capita: | $1,037.96 |
| | |
| Net Direct Debt to Taxable Valuation: | 1.13% |
| Total Debt to Taxable Valuation: | 3.33% |
| | |
| Net Direct Debt to Actual Valuation: | 0.75% |
| Total Debt to Actual Valuation: | 2.22% |
| | |
| Actual Valuation per Capita: | $46,836 |
| Taxable Valuation per Capita: | $31,150 |

Source: Iowa Department of Management

## APPENDIX B – FORM OF LEGAL OPINIONS

### Series 2018A

We hereby certify that we have examined a certified transcript of the proceedings of the City Council and acts of administrative officers of the City of Storm Lake, State of Iowa (the "Issuer"), relating to the issuance of General Obligation Capital Loan Notes, Series 2018A, by said City, dated ______________, 2018, in the denomination of $5,000 or multiples thereof, in the aggregate amount of $____________ (the "Notes").

We have examined the law and such certified proceedings and other papers as we deem necessary to render this opinion as bond counsel.

As to questions of fact material to our opinion, we have relied upon representations of the Issuer contained in the resolution authorizing the Loan Agreement and issuance of the Notes (the "Resolution") and in the certified proceedings and other certifications of public officials furnished to us, without undertaking to verify the same by independent investigation.

Based on our examination and in reliance upon the certified proceedings and other certifications described above, we are of the opinion, under existing law, as follows:

The Issuer is duly created and validly existing as a body corporate and politic and political subdivision of the State of Iowa with the corporate power to adopt and perform the Resolution and Loan Agreement and issue the Notes.

The Loan Agreement and Notes are valid and binding general obligations of the Issuer.

All taxable property in the territory of the Issuer is subject to ad valorem taxation without limitation as to rate or amount to pay the Notes. Taxes have been levied by the Resolution for the payment of the Notes and the Issuer is required by law to include in its annual tax levy the principal and interest coming due on the Notes to the extent the necessary funds are not provided from other sources.

Interest on the Notes is excludable from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum tax; however, such interest is taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed on certain corporations for taxable years beginning before January 1, 2018. The opinion set forth in the preceding sentence is subject to the condition that the Issuer comply with all requirements of the Internal Revenue Code of 1986, as amended, that must be satisfied subsequent to the issuance of the Notes in order that the interest thereon be, and continue to be, excludable from gross income for federal income tax purposes. The Issuer has covenanted to comply with all such requirements. Failure to comply with certain of such requirements may cause interest on the Notes to be included in gross income for federal income tax purposes retroactively to the date of issuance of the Notes.

The Issuer has designated the Notes "qualified tax exempt obligations" within the meaning of Section 265(b)(3) of the Code.

We express no opinion regarding the accuracy, adequacy, or completeness of the Official Statement or other offering material relating to the Notes. Further, we express no opinion regarding tax consequences arising with respect to the Notes other than as expressly set forth herein.

The rights of the owners of the Notes and the enforceability of the Notes are limited by bankruptcy, insolvency, reorganization, moratorium, and other similar laws affecting creditors' rights generally, and by equitable principles, whether considered at law or in equity.

This opinion is given as of the date hereof, and we assume no obligation to revise or supplement this opinion to reflect any facts or circumstances that may hereafter come to our attention, or any changes in law that may hereafter occur.

Respectfully submitted,

**Series 2018B**

We hereby certify that we have examined a certified transcript of the proceedings of the City Council and acts of administrative officers of the City of Storm Lake, State of Iowa (the "Issuer"), relating to the issuance of Taxable General Obligation Refunding Capital Loan Notes, Series 2018B, by said City, dated ___________, 2018, in the denomination of $5,000 or multiples thereof, in the aggregate amount of $______________ (the "Notes").

We have examined the law and such certified proceedings and other papers as we deem necessary to render this opinion as bond counsel.

As to questions of fact material to our opinion, we have relied upon representations of the Issuer contained in the resolution authorizing the Loan Agreement and issuance of the Notes (the "Resolution") and in the certified proceedings and other certifications of public officials furnished to us, without undertaking to verify the same by independent investigation.

Based on our examination and in reliance upon the certified proceedings and other certifications described above, we are of the opinion, under existing law, as follows:

The Issuer is duly created and validly existing as a body corporate and politic and political subdivision of the State of Iowa with the corporate power to adopt and perform the Resolution and Loan Agreement and issue the Notes.

The Loan Agreement and Notes are valid and binding general obligations of the Issuer.

All taxable property in the territory of the Issuer is subject to ad valorem taxation without limitation as to rate or amount to pay the Notes. Taxes have been levied by the Resolution for the payment of the Notes and the Issuer is required by law to include in its annual tax levy the principal and interest coming due on the Notes to the extent the necessary funds are not provided from other sources.

The interest on the Notes is not excluded from gross income for federal income tax purposes under Section 103(a) of the Internal Revenue Code of 1986, as amended. THE HOLDERS OF THE NOTES SHOULD TREAT THE INTEREST THEREON AS SUBJECT TO FEDERAL INCOME TAXATION. We express no other opinion regarding any other federal or state income tax consequences caused by the receipt or accrual of interest on the Notes.

We express no opinion regarding the accuracy, adequacy, or completeness of the Official Statement or other offering material relating to the Notes. Further, we express no opinion regarding tax consequences arising with respect to the Notes other than as expressly set forth herein.

The rights of the owners of the Notes and the enforceability of the Notes are limited by bankruptcy, insolvency, reorganization, moratorium, and other similar laws affecting creditors' rights generally, and by equitable principles, whether considered at law or in equity.

This opinion is given as of the date hereof, and we assume no obligation to revise or supplement this opinion to reflect any facts or circumstances that may hereafter come to our attention, or any changes in law that may hereafter occur.

Respectfully submitted,

## APPENDIX C – FORM OF CONTINUING DISCLOSURE AGREEMENT

This Continuing Disclosure Certificate (the "Disclosure Certificate") is executed and delivered by the City of Storm Lake, State of Iowa (the "Issuer"), in connection with the issuance of $____________ General Obligation Capital Loan Notes, Series 2018A, dated _________, 2018 and $______________ Taxable General Obligation Refunding Capital Loan Notes, Series 2018B, dated ____________, 2018 (the "Notes"). The Notes are being issued pursuant to Resolutions of the Issuer approved on ______________ (the "Resolutions"). The Issuer covenants and agrees as follows:

Section 1: Purpose of the Disclosure Certificate. This Disclosure Certificate is being executed and delivered by the Issuer for the benefit of the Holders and Beneficial Owners of the Notes and in order to assist the Participating Underwriters in complying with S.E.C. Rule 15c2-12(b)(5).

Section 2: Definitions. In addition to the definitions set forth in the Resolutions, which apply to any capitalized term used in this Disclosure Certificate unless otherwise defined in this Section, the following capitalized terms shall have the following meanings:

"Annual Financial Information" shall mean financial information or operating data of the type included in the final Official Statement, provided at least annually by the Issuer pursuant to, and as described in, Sections 3 and 4 of this Disclosure Certificate.

"Beneficial Owner" shall mean any person which (a) has the power, directly or indirectly, to vote or consent with respect to, or to dispose of ownership of, any Notes (including persons holding Notes through nominees, depositories or other intermediaries), or (b) is treated as the owner of any Notes for federal income tax purposes.

"Business Day" shall mean a day other than a Saturday or a Sunday or a day on which banks in Iowa are authorized or required by law to close.

"Dissemination Agent" shall mean the Issuer or any Dissemination Agent designated in writing by the Issuer and which has filed with the Issuer a written acceptance of such designation.

"Holders" shall mean the registered holders of the Notes, as recorded in the registration books of the Registrar.

"Listed Events" shall mean any of the events listed in Section 5(a) of this Disclosure Certificate.

"Municipal Securities Rulemaking Board" or "MSRB" shall mean the Municipal Securities Rulemaking Board, 1300 I Street NW, Suite 1000, Washington, DC 20005.

"National Repository" shall mean the MSRB's Electronic Municipal Market Access website, a/k/a "EMMA" (emma.msrb.org).

"Official Statement" shall mean the Issuer's Official Statement for the Notes, dated _____________, 2018.

"Participating Underwriter" shall mean any of the original underwriters of the Notes required to comply with the Rule in connection with offering of the Notes.

"Rule" shall mean Rule 15c2-12(b)(5) adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as the same may be amended from time to time.

"State" shall mean the State of Iowa.

Section 3: Provision of Annual Financial Information.

a) The Issuer shall, or shall cause the Dissemination Agent to, not later than the 15th day of April each year, commencing with information for the 2017/2018 fiscal year, provide to the National Repository an Annual Financial Information filing consistent with the requirements of Section 4 of this Disclosure Certificate. The Annual Financial Information filing must be submitted in such format as is required by the MSRB (currently in "searchable PDF" format). The Annual Financial Information filing may be submitted as a single document or as separate documents comprising a package. The Annual Financial Information filing may cross-reference other information as provided in Section 4 of this Disclosure Certificate; provided that the audited financial statements of the Issuer may be submitted separately from the balance of the Annual Financial Information filing and later than the date required above for the filing of the Annual Financial Information if they are not available by that date. If the Issuer's fiscal year changes, it shall give notice of such change in the same manner as for a Listed Event under Section 5(c).

b) If the Issuer is unable to provide to the National Repository the Annual Financial Information by the date required in subsection (a), the Issuer shall send a notice to the Municipal Securities Rulemaking Board, if any, in substantially the form attached as Exhibit A.

c) The Dissemination Agent shall:

   i. each year file Annual Financial Information with the National Repository; and
   ii. (if the Dissemination Agent is other than the Issuer), file a report with the Issuer certifying that the Annual Financial Information has been filed pursuant to this Disclosure Certificate, stating the date it was filed.

Section 4: Content of Annual Financial Information. The Issuer's Annual Financial Information filing shall contain or incorporate by reference the following:

d) The last available audited financial statements of the Issuer for the prior fiscal year, prepared in accordance with generally accepted accounting principles promulgated by the Financial Accounting Standards Board as modified in accordance with the governmental accounting standards promulgated by the Governmental Accounting Standards Board or as otherwise provided under State law, as in effect from time to time, or, if and to the extent such financial statements have not been prepared in accordance with generally accepted accounting principles, noting the discrepancies therefrom and the effect thereof. If the Issuer's audited financial statements for the preceding years are not available by the time Annual Financial Information is required to be filed pursuant to Section 3(a), the Annual Financial Information filing shall contain unaudited financial statements of the type included in the final Official Statement, and the audited financial statements shall be filed in the same manner as the Annual Financial Information when they become available.

e) A table, schedule or other information prepared as of the end of the preceding fiscal year, of the type contained in the Official Statement under the caption reflecting "Population", "Property Valuations", "Tax Rates", "Combined Historic Tax Rates", "Tax Collection History", "Largest Taxpayers", "Outstanding Debt", "Overlapping Debt & Underlying Debt", "Debt Limit" and "Financial Summary."

Any or all of the items listed above may be included by specific reference to other documents, including official statements of debt issues of the Issuer or related public entities, which have been filed with the National Repository. The Issuer shall clearly identify each such other document so included by reference.

Section 5: Reporting of Significant Events.

iii. Pursuant to the provisions of this Section, the Issuer shall give, or cause to be given, notice of the occurrence of any of the following events with respect to the Notes in a timely manner not later than 10 Business Days after the day of the occurrence of the event:
iv. Principal and interest payment delinquencies;
v. Non-payment related defaults, if material;
vi. Unscheduled draws on debt service reserves reflecting financial difficulties;
vii. Unscheduled draws on credit enhancements relating to the Notes reflecting financial difficulties;
viii. Substitution of credit or liquidity providers, or their failure to perform;
ix. Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax-exempt status of the Series Notes, or material events affecting the tax-exempt status of the Notes;
x. Modifications to rights of Holders of the Notes, if material;
xi. Note calls (excluding sinking fund mandatory redemptions), if material, and tender offers;
xii. Defeasances of the Notes;
xiii. Release, substitution, or sale of property securing repayment of the Notes, if material;
xiv. Rating changes on the Notes;
xv. Bankruptcy, insolvency, receivership or similar event of the Issuer;
xvi. The consummation of a merger, consolidation, or acquisition involving the Issuer or the sale of all or substantially all of the assets of the Issuer, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; and
xvii. Appointment of a successor or additional trustee or the change of name of a trustee, if material.

f) Whenever the Issuer obtains the knowledge of the occurrence of a Listed Event, the Issuer shall determine if the occurrence is subject to notice only if material, and if so shall as soon as possible determine if such event would be material under applicable federal securities laws.

g) If the Issuer determines that knowledge of the occurrence of a Listed Event is not subject to materiality, or determines such occurrence is subject to materiality and would be material under applicable federal securities laws, the Issuer shall promptly, but not later than 10 Business Days after the occurrence of the event, file a notice of such occurrence with the Municipal Securities Rulemaking Board through the filing with the National Repository.

Section 6: Termination of Reporting Obligation. The Issuer's obligations under this Disclosure Certificate with respect to each Series of Bonds shall terminate upon the legal defeasance, prior redemption or payment in full of all of the Notes of that Series or upon the Issuer's receipt of an opinion of nationally recognized bond counsel to the effect that, because of legislative action or final judicial action or administrative actions or proceedings, the failure of the Issuer to comply with the terms hereof will not cause Participating Underwriters to be in violation of the Rule or other applicable requirements of the Securities Exchange Act of 1934, as amended.

Section 7: Dissemination Agent. The Issuer may, from time to time, appoint or engage a Dissemination Agent to assist it in carrying out its obligations under this Disclosure Certificate, and may discharge any such Agent, with or without appointing a successor Dissemination Agent. The Dissemination Agent shall not be responsible in any manner for the content of any notice or report prepared by the Issuer pursuant to this Disclosure Certificate. The initial Dissemination Agent shall be the Issuer.

Section 8: Amendment; Waiver. Notwithstanding any other provision of this Disclosure Certificate, the Issuer may amend this Disclosure Certificate, and any provision of this Disclosure Certificate may be waived, provided that the following conditions are satisfied:

h) If the amendment or waiver relates to the provisions of Section 3(a), 4, or 5(a), it may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature or status of an obligated person with respect to the Notes, or the type of business conducted;

i) The undertaking, as amended or taking into account such waiver, would, in the opinion of nationally recognized bond counsel, have complied with the requirements of the Rule at the time of the original issuance of the Notes, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

j) The amendment or waiver either (i) is approved by the Holders of the Notes in the same manner as provided in the Resolution for amendments to the Resolution with the consent of Holders, or (ii) does not, in the opinion of nationally recognized bond counsel, materially impair the interests of the Holders or Beneficial Owners of the Notes.

In the event of any amendment or waiver of a provision of this Disclosure Certificate, the Issuer shall describe such amendment in the next Annual Financial Information filing, and shall include, as applicable, a narrative explanation of the reason for the amendment or waiver and its impact on the type (or in the case of a change of accounting principles, on the presentation) of financial information or operating data being presented by the Issuer. In addition, if the amendment relates to the accounting principles to be followed in preparing financial statements, (i) notice of such change shall be given in the same manner as for a Listed Event under Section 5(c), and (ii) the Annual Financial Information filing for the year in which the change is made will present a comparison or other discussion in narrative form (and also, if feasible, in quantitative form) describing or illustrating the material differences between the financial statements as prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles.

Section 9: Additional Information. Nothing in this Disclosure Certificate shall be deemed to prevent the Issuer from disseminating any other information, using the means of dissemination set forth in this Disclosure Certificate or any other means of communication, or including any other information in any Annual Financial Information filing or notice of occurrence of a Listed Event, in addition to that which is required by this Disclosure Certificate. If the Issuer chooses to include any information in any Annual Financial Information filing or notice of occurrence of a Listed Event in addition to that which is specifically required by this Disclosure Certificate, the Issuer shall have no obligation under this Certificate to update such information or include it in any future Annual Financial Information filing or notice of occurrence of a Listed Event.

Section 10: Default. In the event of a failure of the Issuer to comply with any provision of this Disclosure Certificate, any Holder or Beneficial Owner of the Notes may take such actions as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause the Issuer to comply with its obligations under this Disclosure Certificate. Direct, indirect, consequential and punitive damages shall not be recoverable by any person for any default hereunder and are hereby waived to the extent permitted by law. A default under this Disclosure Certificate shall not be deemed an event of default under the Resolution, and the sole remedy under this Disclosure Certificate in the event of any failure of the Issuer to comply with this Disclosure Certificate shall be an action to compel performance.

Section 11: Duties, Immunities and Liabilities of Dissemination Agent. The Dissemination Agent shall have only such duties as are specifically set forth in this Disclosure Certificate, and the Issuer agrees to indemnify and save the Dissemination Agent, its officers, directors, employees and agents, harmless against any loss, expense and liabilities which it may incur arising out of or in the exercise or performance of its powers and duties hereunder, including the costs and expenses (including attorneys' fees) of defending against any claim of liability, but excluding liabilities due to the Dissemination Agent's negligence or willful misconduct. The obligations of the Issuer under this Section shall survive resignation or removal of the Dissemination Agent and payment of the Notes.

Section 12: Beneficiaries. This Disclosure Certificate shall inure solely to the benefit of the Issuer, the Dissemination Agent, the Participating Underwriters and Holders and Beneficial Owners from time to time of the Notes, and shall create no rights in any other person or entity.

Date: __________ day of _______________, 2018.

By: ____________________________________________
Mayor

ATTEST:

By: ____________________________________________
City Clerk

EXHIBIT A - NOTICE TO NATIONAL REPOSITORY OF FAILURE TO FILE ANNUAL FINANCIAL INFORMATION

Name of Issuer: City of Storm Lake, Iowa.

Name of Note Issue: $_____________ General Obligation Capital Loan Notes, Series 2018A
$_____________ Taxable General Obligation Refunding Capital Loan Notes, Series 2018B

Dated Date of Issue: _____________, 2018

NOTICE IS HEREBY GIVEN that the Issuer has not provided Annual Financial Information with respect to the above-named Notes as required by Section 3 of the Continuing Disclosure Certificate delivered by the Issuer in connection with the Notes. The Issuer anticipates that the Annual Financial Information will be filed by ___________________.

Dated: __________ day of ______________, 20___.

CITY OF STORM LAKE, STATE OF IOWA

By: ____________________________________________
Its: ____________________________________________

**APPENDIX E – ISSUE PRICE CERTIFICATES**

**[ISSUE PRICE CERTIFICATE IF COMPETITIVE SALE REQUIREMENTS ARE MET]**

**EXHIBIT A**

**PURCHASER'S CERTIFICATE**

General Obligation Capital Loan Notes, Series 2018A

The undersigned, on behalf of ______________ ("Purchaser"), hereby certifies as set forth below with respect to the sale of the above-captioned obligations (the "Bonds").

1. Reasonably Expected Initial Offering Price.

(a) As of the Sale Date, the reasonably expected initial offering prices of the Bonds to the Public by Purchaser are the prices listed in Schedule A (the "Expected Offering Prices"). The Expected Offering Prices are the prices for the Maturities of the Bonds used by Purchaser in formulating its bid to purchase the Bonds. Attached as Schedule B is a true and correct copy of the bid provided by Purchaser to purchase the Bonds.

(b) Purchaser was not given the opportunity to review other bids prior to submitting its bid.

(c) The bid submitted by Purchaser constituted a firm offer to purchase the Bonds.

2. Defined Terms.

(a) Maturity means Bonds with the same credit and payment terms. Bonds with different maturity dates, or Bonds with the same maturity date but different stated interest rates, are treated as separate Maturities.

(b) Public means any person (including an individual, trust, estate, partnership, association, company, or corporation) other than an Underwriter or a related party to an Underwriter. The term "related party" for purposes of this certificate generally means any two or more persons who have greater than 50 percent common ownership, directly or indirectly.

(c) Sale Date means the first day on which there is a binding contract in writing for the sale of a Maturity of the Bonds. The Sale Date of the Bonds is ________________.

(d) Underwriter means (i) the Purchaser or any person that agrees pursuant to a written contract with the Issuer (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Bonds to the Public, and (ii) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (i) of this paragraph to participate in the initial sale of the Bonds to the Public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Bonds to the Public).

The representations set forth in this certificate are limited to factual matters only. Nothing in this certificate represents Purchaser's interpretation of any laws, including specifically Sections 103 and 148 of the Internal Revenue Code of 1986, as amended, and the Treasury Regulations thereunder. The undersigned understands that the foregoing information will be relied upon by the Issuer with respect to certain of the representations set forth in the Tax Certificate and with respect to compliance with the federal income tax rules affecting the Bonds, and by Bond Counsel in connection with rendering its opinion that the interest on the Bonds is excluded from gross income for federal income tax purposes, the preparation of the Internal Revenue Service Form 8038-G and other federal income tax advice that it may give to the Issuer from time to time relating to the Bonds.

PURCHASER

By:________________________________
Name:______________________________

Dated: __________________

SCHEDULE A
EXPECTED OFFERING PRICES
(Attached)

SCHEDULE B

COPY OF UNDERWRITER'S BID

(Attached)

**[ISSUE PRICE CERTIFICATE IF COMPETITIVE SALE REQUIREMENTS ARE NOT MET]**

**EXHIBIT A**

**PURCHASER'S CERTIFICATE**

General Obligation Capital Loan Notes, Series 2018A

The undersigned, on behalf of _____________ ("Purchaser"), [on behalf of itself and [NAMES OF OTHER UNDERWRITERS] (together, the "Underwriting Group"),] hereby certifies as set forth below with respect to the sale and issuance of the above-captioned obligations (the "Bonds").

1. Sale of the Bonds. As of the date of this certificate, for each Maturity of the Bonds, the first price at which at least 10% of such Maturity of the Bonds was sold to the Public is the respective price listed in Schedule A.

2. Defined Terms.

a) Issuer means the City of Storm Lake, Iowa.

b) Maturity means Bonds with the same credit and payment terms. Bonds with different maturity dates, or Bonds with the same maturity date but different stated interest rates, are treated as separate Maturities.

c) Public means any person (including an individual, trust, estate, partnership, association, company, or corporation) other than an Underwriter or a related party to an Underwriter. The term "related party" for purposes of this certificate generally means any two or more persons who have greater than 50 percent common ownership, directly or indirectly.

d) Underwriter means (i) the Purchaser or any person that agrees pursuant to a written contract with the Issuer (or with the lead underwriter to form an underwriting syndicate) to participate in the initial sale of the Bonds to the Public, and (ii) any person that agrees pursuant to a written contract directly or indirectly with a person described in clause (i) of this paragraph to participate in the initial sale of the Bonds to the Public (including a member of a selling group or a party to a retail distribution agreement participating in the initial sale of the Bonds to the Public).

The representations set forth in this certificate are limited to factual matters only. Nothing in this certificate represents Purchaser's interpretation of any laws, including specifically Sections 103 and 148 of the Internal Revenue Code of 1986, as amended, and the Treasury Regulations thereunder. The undersigned understands that the foregoing information will be relied upon by the Issuer with respect to certain of the representations set forth in the Tax Certificate and with respect to compliance with the federal income tax rules affecting the Bonds, and by Bond Counsel in connection with rendering its opinion that the interest on the Bonds is excluded from gross income for federal income tax purposes, the preparation of the Internal Revenue Service Form 8038-G, and other federal income tax advice that it may give to the Issuer from time to time relating to the Bonds.

PURCHASER

By:________________________________

Name:______________________________

Dated: _____________

SCHEDULE A
SALE PRICES
(Attached)

## Staff Summary

**3/19/2018**
**Agenda Item # 6.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** David Derragon, Assistant City Manager

**SUBJECT:** **Motion to Approve and Submit Transportation Alternative Project Application For North Central Shared Use Path and Approve Resolution No. 75-R-2017-2018**

**BACKGROUND:** This project will provide alternative access along 590th Street (CH C49) then turning south along a former Rail Road right of way connecting to on-street trail on 13th Street. The project will continue the existing shared use path trail bringing an alternative access between residential and commercial areas of town. The trail will be approximately 3,800 feet, 10 feet wide, 5" thick PCC pavement. The total project cost is approximately $454,226 with the city applying for 50% STP funding for grant eligible costs. All improvements with this project are related to the shared use path.

**FISCAL IMPACT:**

| | |
|---|---|
| Construction | $345,816 |
| Engineering | $ 76,080 |
| Admin & Legal | $ 32,330 |
| Total | $454,226 |

Requested funding is for 50% of eligible costs for $172,908. With the city portion being $172,908, plus Engineering, Admin & Legal of $108,410, for a total city cost of $281,318, or 62% of total project costs. This project is included in the City's Capital Improvement Program.
Eligible costs are only the construction costs related to the replacement of roads, sub-base, and sidewalks. Engineering and utility work, including storm water utilities, are not grant eligible funds.

**RECOMMENDATION:** Authorize the Mayor to sign the grant application and authorize the Mayor and City Clerk to sign Resolution No. 75-R-2017-2018

**ATTACHMENTS:**

| Description | Type |
|---|---|
| Grant Application | Application |

Resolution No. 75-R-2017-2018 Resolution

IOWADOT
Form 240004 (11-17)

# APPLICATION FORM FOR IOWA'S TRANSPORTATION ALTERNATIVES PROGRAM (TAP) FUNDS

## General information

Regional planning affiliation (RPA)/
Metropolitan planning organization (MPO) Northwest Iowa Planning and Development

Eligible sponsor/
applicant agency City of Storm Lake

Contact person
(name and title) David M Derragon, Asst City Mgr

Street address and/or
box number PO Box 1086

City Storm Lake State IA ZIP code 50588

Phone number 712-732-8000 Email Derragon@stormlake.org

If more than one agency or organization is involved in this project, please state the name, contact person, mailing address, and telephone number of the second agency. *(Attach an additional page if more than two agencies are involved.)*

Applicant agency

Contact person
(name and title)

Street address and/or
box number

City State ZIP code

Phone number Email

## Project information

Project title North Central Shared Use Path

Project description (Provide summary details of only the project scope that is the subject of the funding request. Do not provide details of completed or future phases of a larger project.)

This project will provide alternative access along 590th Street (CH C49) then turning South along a former Rail Road right of way connecting to on-street trail on 13th Street. The project will continue the existing shared use path trail bringing an alternative access between residential and commercial areas of town. The trail will be approximately 3,800 feet, 10 feet wide, 5" thick PCC pavement. The total project cost is approximately $454,226, including $108,410 engineering cost. The city is applying for 50% funding for eligible project costs, or $172,908. All improvements with this project are related to the shared use path.

If this project includes construction of a trail, what is the length of the trail in miles? 0.72

If this project includes land acquisition, how many acres?

☐ **Safe Routes to School (SRTS)** project (All information required by Attachment B must be included with this application.)

If a construction project, is this project located within 2 miles of a primary or middle school (grades K-8)? ☐ Yes ☐ No

☐ **Iowa Byways** project

Is this project located within a designated scenic or historic byway corridor? ☐ Yes ☐ No

If yes, has the project been endorsed by the appropriate byway board? ☐ Yes ☐ No

Will this project be open to the public? ☒ Yes ☐ No

Do you intend to charge a fee to users? ☐ Yes ☒ No If yes, how much will the fee be and how will the revenue be used?

## Estimated project costs

Provide summary details of only the project scope that is the subject of the funding request. Do not provide details of completed or future phases of a larger project.

| | |
|---|---|
| Right of way acquisition cost | $0.00 |
| Preliminary design/engineering cost | $108,410.00 |
| Utility relocation cost | |
| Construction engineering cost | $0.00 |
| Construction cost | $345,816.00 |
| Indirect cost (if applicable) | |
| Noninfrastructure cost (SRTS only) | |
| Other (please specify) | |
| Total cost | $454,226.00 |
| Iowa's TAP program funding request | $172,908.00 |
| Applicant match (20 percent minimum) | $281,318.00 |

| | Applicant match source | Amount | Assured or anticipated (date anticipated) |
|---|---|---|---|
| 1. | City Funds | $281,318.00 | Assured |
| 2. | | | |
| 3. | | | |

Are any state funds involved in this project? ☐ Yes ☒ No

If yes, please explain the source and conditions.

Are any other federal funds involved in this project? ☐ Yes ☒ No

If yes, please explain the source and conditions. (Please note here if you have previously been awarded funding for this project from the Statewide TAP program or from a Local Project TAP program administered by an MPO or RPA.)

## Estimated project development schedule

| | | | | |
|---|---|---|---|---|
| Design | Start date | May 4, 2020 | Completion date | Oct 15, 2020 |
| Land acquisition | Start date | | Completion date | |
| Construction | Start date | Apr 5, 2021 | Completion date | Dec 17, 2021 |
| Noninfrastructure | Start date | | Completion date | |

Has any part of this project been started? ☐ Yes ■ No

If yes, please explain.

## Documentation and narrative information

The following documents and narratives must be submitted with this application. In the upper right corner of each document or narrative write the corresponding letter shown below.

☒ A. A **narrative** discussion of the project. Please **limit to five pages** in length. Your narrative should incorporate answers to the following questions.

1. What is the project? Provide a clear description of the concept of the proposed project, including such information as existing site conditions, trail length, number/acreage of parcels to be acquired, general construction activities planned, etc. For a nonconstruction project, provide a summary of the planned activities to be part of the project with a description of each. Remember to provide summary details of only the project scope that is the subject of the funding request. Do not provide details of completed or future phases of a project.
2. Why is the project needed? Provide adequate project justification based on existing or estimated future use of the facility. If the project is a SRTS project, your discussion should address the existing hazards to walking or biking to school and how your project will mitigate these hazards.
3. If your project is a trail or sidewalk project, how will it enhance connectivity to other existing transportation facilities or provide linkages with local amenities, activity nodes, or points of interest? This may include a description of how the project will assist older citizens, the economically disadvantaged, persons with disabilities, nondrivers, or other special populations or groups to access the transportation system.
4. How does your project relate to the transportation system and what is its functional relationship, proximity, or impact to an existing or planned transportation facility? If this is a regional project, what is its value to your region and how will it be a functional addition to the transportation system and region as a whole if no additional development funds are received? If this is a statewide or multiregional project, assess the value of this project from a statewide or multiregional perspective.
5. If this project is part of a larger multiphase project, how will your project complement the phases already completed or planned for the future? Keep in mind that the discussion of other completed or future phases of your project should not be the focus of your application or this narrative.
6. How ready is your project to begin? For example, is all funding in place or are some initial steps completed (e.g., environmental studies, preliminary design)? If some parts of the project have already been started, describe how that head start will allow your project to move quickly once awarded.
7. Are there environmentally sensitive or culturally significant areas that may be affected by your project? If so, how might those areas influence your project's ability to gain compliance with Section 106 or National Environmental Policy Act of 1969 requirements?
8. To what degree will the proposed project fulfill the goals and/or priorities of the most recent MPO or RPA long-range transportation plan?

☒ B. A **detailed map** identifying the location of the project. The project scope should be clear and the map may also include other important information referred to in the narrative such as important transportation linkages, clearly marked completed or future project phases, etc. If the project is a SRTS project, the map shall indicate the K-8 school(s) to be served by the project, show a 2-mile radius of the school, identify neighborhoods served by the school, and hazards for children to walk or bike to school. More than one map may be submitted if the scope of the project is such that the desired detail is not feasible to be included on just one map. **Limit map sizes to no larger than 8.5-by-11-inches.**

☒ C. A **sketch plan** of the project, including cross section for bicycle or pedestrian facilities. If the cross section of your facility varies across the project (width, number of lanes, etc.) include a cross section for each situation and identify its location. (Required for construction projects only.)

☒ D. **Digital photographs (limit to five)** that will help to explain the existing site conditions of the proposed facility. It is not necessary to include photographs of all aspects or the entire route of a project. Photos submitted should be representative of the project as a whole or should support any particularly compelling or complex description includec in the narrative provided in item A above.

☒ E. An **itemized breakdown** of the total project costs. This documentation does not need to be a detailed, line-item type estimate or formal engineer's opinion of probable cost. However, it must accomplish two objectives: 1) it must show the method by which the cost estimate was prepared; and 2) it must enable a reviewer to determine if the cost estimate is reasonable. The manner in which these objectives are achieved may vary widely depending on the type, scope, and complexity of the project. Absent a fully itemized list of costs, some general guidelines for possible methods of estimating each type of project cost are provided on Attachment A. The itemized breakdown should reflect costs in the planned project execution year estimated in your time schedule provided as part of item F below. It is preferable that this breakdown be provided by a licensed professional. If not, it is the responsibility of the applicant to explain the rationale and source of the assumptions used to develop the cost breakdown to allow a reviewer to have confidence in their accuracy.

☒ F. An estimated **time schedule** for the total project development. Local Project TAP program funded projects will be required to be programmed within the next four-year Transportation Improvement Program (TIP) window. Once programmed, a project funding agreement will be executed and projects will be required to submit a concept statement and initiate preliminary plans within the programmed year. Projects will be required to be let within two years of funds being available (programmed) to the project. Upon award and execution of a project funding agreement, projects that fail to make satisfactory progress may be terminated by the Iowa Department of Transportation.

☒ G. An **official endorsement** of the project from the authority to be responsible for the project's maintenance and operation. The authority must provide written assurance it will adequately maintain the completed project for its intended public use following project completion. For most construction projects, this will be a minimum of 20 years. The endorsement must also acknowledge the intent of the authority to provide the match funds required for the project. For cities, counties, or other political subdivisions, this should be in the form of a fully executed resolution by the elected body or board, as applicable.

☐ H. If applicable, a **letter of support** of the project from the scenic or heritage byway board. The board's letter should also address the project's relationship to the byway's intrinsic qualities, how the project will also have a statewide or multiregional impact, and whether the project is included in the byway's current corridor management plan.

☐ I. If applicable, the **items listed in Attachment B** shall be provided. If this project application is for a SRTS project, the applicant will complete and address the items provided in Attachment B, which are required only if the project is applying as a SRTS project. Failure to provide this information may result in the project not being considered as a SRTS project under the Statewide TAP program.

☒ J. A **narrative** discussing the public input process that was followed and the extent to which adjacent property owners and others have been informed of the proposed project and an assessment of their acceptance. As part of this narrative, also describe local and regional planning efforts related to the project, including whether it is listed in a long-range plan. Also include discussion of any partnerships among local organizations and stakeholders that this project may help to facilitate or how these entities or individuals have contributed to the development of the project concept or have committed financial or other support to the project.

☐ K. A **letter of support** from the Iowa DOT's district office if the project will include construction within Iowa DOT right of way.

☒ L. A completed **Minority Impact Statement**.

The award of Iowa's TAP program funds; any subsequent funding or letting of contracts for design, construction, reconstruction, improvement, or maintenance; or the furnishing of materials shall not involve direct or indirect interest, prohibited by Iowa Code 314.2, 362.5, or 331.342, of any state, county, or city official, elective or appointive. Any award of funding or any letting of a contract in violation of the foregoing provisions shall invalidate the award of funding and authorize a complete recovery of any funds previously disbursed.

**Certification**

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local authority. I understand that the attached **official endorsement(s)** binds the participating authority to assume responsibility for adequate maintenance of any new or improved facilities.

I understand that, although this information is sufficient to secure a commitment of funds, an executed contract between the applicant and the Iowa DOT is required prior to the authorization of funds.

Representing the City of Storm Lake

Michael Porsch, Mayor

Typed name and title

IOWA DOT
Form 105101 (1-18)

# Minority Impact Statement

Pursuant to 2008 Iowa Acts, HF 2393, Iowa Code 8.11, all grants applications submitted to the State of Iowa that are due beginning Jan. 1, 2009, shall include a Minority Impact Statement. This is the state's mechanism for requiring grant applications to consider the potential impact of the grant project's proposed programs or policies on minority groups.

**Please choose the statement(s) that pertains to this grant application. Complete all the information requested for the chosen statement(s). Submit additional pages as necessary.**

☐ The proposed grant project programs or policies could have a disproportionate or unique **positive** impact on minority persons.

Describe the positive impact expected from this project.

---

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other________________

☐ The proposed grant project programs or policies could have a disproportionate or unique **negative** impact on minority persons.

Describe the negative impact expected from this project.

---

Present the rationale for the existence of the proposed program or policy.

---

Provide evidence of consultation with representatives of the minority groups impacted.

---

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other ____________

☒ The proposed grant project programs or policies are **not expected to have** a disproportionate or unique impact on minority persons.

Present the rationale for determining no impact.

Storm Lake, over many decades, has become a very diverse city with multiple ethnicities represented in our community. The City routinely performs community outreach to our many neighborhoods through various city departments and through local nonprofit groups. Communication through major employers occurs on a routine basis as well.

Today, the outcome of efforts over time have produced an inclusive community with a very diverse ethnic fabric. With that in mind, the shared use path project would not be expected to have a disproportionate impact on the minority population of the community.

---

I hereby certify that the information on this form is complete and accurate, to the best of my knowledge.

Name Michael Porsch

Title Mayor

## Definitions

"Minority Persons," as defined in Iowa Code 8.11, means individuals who are women, persons with a disability, Blacks, Latinos, Asians or Pacific Islanders, American Indians, and Alaskan Native Americans.

"Disability," as defined in Iowa Code 15.102, subsection 7, paragraph "b," subparagraph (1):
*b.* As used in this subsection:

(1) *"Disability"* means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of the individual, a record of physical or mental impairment that substantially limits one or more of the major life activities of the individual, or being regarded as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of the individual.

*"Disability"* does not include any of the following:

(a) Homosexuality or bisexuality.
(b) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments or other sexual behavior disorders.
(c) Compulsive gambling, kleptomania, or pyromania.
(d) Psychoactive substance abuse disorders resulting from current illegal use of drugs.

"State Agency," as defined in Iowa Code 8.11, means a department, board, bureau, commission, or other agency or authority of the State of Iowa.

# Narrative – A

The proposed project will result in the extension of the City of Storm Lake's existing on-street trail and shared use path system. The project will originate at the existing shared use path located at the Lake Avenue/590$^{th}$ Street (Farm-to-Market Road C49) intersection and extend eastward along the roadway for nearly 1400 feet where it will connect to a Buena Vista County trailhead. From this location, the proposed path will turn south for approximately 1600 feet within former railroad right-of-way before traversing westward to existing Seneca Street and then south to 13$^{th}$ Street where it will connect to the existing on-street trail (reference Exhibit B/C *Detailed Map & Sketch Plan*). The total length of the proposed shared use path is approximately 3800 feet and will provide a safer pedestrian/recreation route for users.

As a majority of the project will be located within former railroad right-of-way that has since been converted to farmland, no significant construction obstacles are anticipated. Given the location of the project with respect to previous development, environmentally sensitive and/or culturally significant areas are not expected to be encountered. With that in mind, a typical sequence of construction for such a project will include clearing of trees/shrubs and the stripping of soil within the proposed corridor. Installation of 6" thick modified subbase would then ensue followed by the placement of 5" thick concrete surfacing. Upon completion of the paving, final grading and turf restoration would commence within the disturbed areas of the project's footprint. A preliminary assessment of the project within previously developed areas (590$^{th}$ and Seneca Streets) has been performed and it is envisioned that a similar construction process will occur within these portions; utility relocations are not anticipated.

This project has been previously prioritized by the City in 2017 and has established its long-term budget to accommodate the design in 2020 and construction during 2021. In addition, the City has identified easement needs within the 590$^{th}$ Street portion of the project. Specifically, the shared use path is to be adjacently located north of the existing 590$^{th}$ Street right-of-way and a total of 11,378 square feet (0.26 acres) of construction and permanent easements needs have been determined. The City had previously acquired right-of-way within the existing agricultural use portion and the path will be located within existing Seneca Street right-of-way; land acquisition is not anticipated within these areas of the project.

This project is central to the City's efforts to provide safer connectivity for users in the northern portion of the community. Currently, single-family and multi-family residential neighborhoods exist and as the City continues to grow, these neighborhoods are the focal residential growth locations. Similarly, the Lake Avenue commercial corridor is a primary destination for retail within the City and many employees/shoppers are traveling to and from these areas routinely. The current state of the network requires residents to utilize non-ADA compliant facilities that also cross/are adjacent to highly trafficked roadways within this portion of Storm Lake. Providing safer connection between these retail and residential areas as well as connection to the City's existing trail network is paramount.

In particular, many of the residents that will be impacted by the project are classified as low- to moderate-income families. It is not uncommon to see residents walking/bicycling in the area as a significant portion of the impacted populous is classified as non-driving. This project will allow these individuals safer passage to their work and shopping environments as well as enhance their connectivity to other City amenities such as parks and schools within the northern portion of the community. In addition, through the connection to the Buena Vista County trail network, residents will also benefit from having direct access to regional amenities that the County network provides.

To that end, the project is in harmony with future initiatives established by the City, County, and the regional planning affiliation (Northwest Iowa Planning & Development Commission). The City in particular has identified future extensions of the trail network and upon completion of this project and as funding is secured for the future segments, residents will ultimately benefit in having safe and amenable means of accessing primary destinations throughout the City without the need to utilize a motorized vehicle. Relatedly, this project is in accord with RPA goals associated with accessibility and connectivity, environment, fiscal responsibility, and safety.

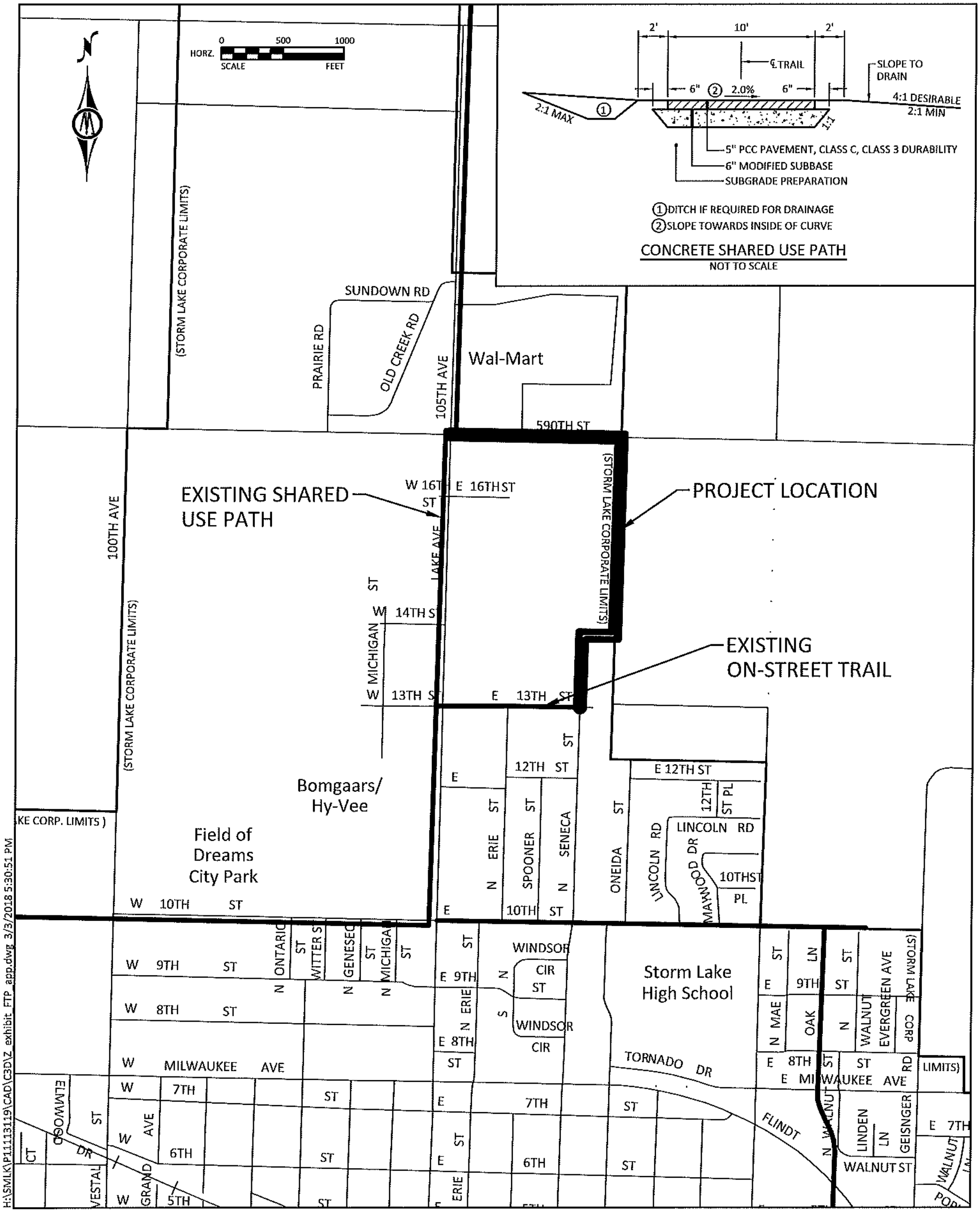
## North Central Shared Use Path

City of Storm Lake, Iowa

## Detailed Map & Sketch Plan - B/C

March 2018

BOLTON & MENK

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# Narrative – D

Digital Photos

BOLTON & MENK
Real People. Real Solutions.

*ITEMIZED BREAKDOWN OF PROJECT COST - E*
**Concrete Shared Use Path**
North Central Shared Use Path
City of Storm Lake, Iowa
Project No. P11.113319

**TRAIL IMPROVEMENTS** 3/3/2018

| ITEM NO. | IDOT SPEC NO. | ITEM | UNIT | UNIT PRICE | QTY | TOTAL |
|---|---|---|---|---|---|---|
| 1 | 2102-2713070 | EXCAVATION, CLASS 13, ROADWAY AND BORROW | CY | $20.00 | 933.00 | $18,660.00 |
| 2 | 2105-8425005 | TOPSOIL, FURNISH AND SPREAD | CY | $30.00 | 375.00 | $11,250.00 |
| 3 | 2115-0100000 | MODIFIED SUBBASE, 6 IN. | CY | $55.50 | 350.00 | $19,425.00 |
| 4 | 2301-1033080 | STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 5 IN. | SY | $48.00 | 4200.00 | $201,600.00 |
| 5 | 2515-2475006 | DRIVEWAY, P.C. CONCRETE, 6 IN. | SY | $50.00 | 111.00 | $5,550.00 |
| 6 | 2515-6745600 | REMOVAL OF PAVED DRIVEWAY | SY | $15.00 | 111.00 | $1,665.00 |
| 7 | 2528-8445110 | TRAFFIC CONTROL | LS | $6,015.00 | 1.00 | $6,015.00 |
| 8 | 2533-4890005 | MOBILIZATION | LS | $22,120.00 | 1.00 | $22,120.00 |
| 9 | 2601-2636044 | SEEDING AND FERTILIZING (URBAN) | ACRE | $4,750.00 | 1.30 | $6,175.00 |
| 10 | 2602-0000020 | SILT FENCE | LF | $2.50 | 1500.00 | $3,750.00 |
| 11 | 2602-0000071 | REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS | LF | $1.00 | 1500.00 | $1,500.00 |
| 12 | 2602-0000101 | MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHE( | LF | $1.00 | 1500.00 | $1,500.00 |
| 13 | 2602-0010010 | MOBILIZATIONS, EROSION CONTROL | EACH | $500.00 | 3.00 | $1,500.00 |
| | | CONSTRUCTION COST CONTINGENCY | LS | $45,106.00 | 1.00 | $45,106.00 |

| SUMMARY OF IMPROVEMENTS | Total Cost |
|---|---|
| TOTAL ESTIMATED CONSTRUCTION COSTS | $345,816.00 |
| DESIGN AND CONSTRUCTION ENGINEERING | $76,080.00 |
| ADMINISTRATION AND LEGAL | $32,330.00 |
| TOTAL ESTIMATED NORTH CENTRAL PATH PROJECT COSTS | $454,226.00 |

# Narrative – F

TIME SCHEDULE

The proposed schedule for the improvements anticipated to be constructed in CY 2021 is as follows:

Design phase May-October 2020

Letting December 2020- January 2021

Construction April 2021-September 2021

Project Closeout October 2021-December 2021

# NARRATIVE G

RESOLUTION NO. __________

RESOLUTION SUPPORTING THE NORTH CENTRAL SHARED USE PATH

BE IT RESOVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA

WHEREAS, the City Council considers bicycle and pedestrian transportation to be of importance to the city by providing the community with recreation and transportation opportunities as well as the possibilities of economic and community development; and

WHEREAS, the City's Comprehensive Plan supports creation and development of bicycle and pedestrian transportation paths in the community; and

WHEREAS, the Mayor's Advisory Committee for Parks, Trails, and Urban Forest is in support of this project; and

IT IS THEREFORE RESOLVED that the City Council of Storm Lake, IA endorses the North Central Shared Use Path project, and will provide maintenance and operation of for a minimum of twenty (20) years.

PASSED AND APPROVED this 19th day of March, 2018.

______________________________
Michael Porsch, Mayor

ATTEST:

______________________________
Mayra Martinez, City Clerk

# Narrative – J

The proposed project results from public input and information gathered through development of the City of Storm Lake Comprehensive Plan.

Throughout the comprehensive planning process, one of the most frequently discussed topics was the need for additional trails in the community. While the historic core around Downtown and the lakefront have sidewalks and trails, connectivity is lacking in newer areas of the community and among major destinations within the community. The popularity and demand for trails and bikeways has increased with community interest in health, fitness, and sustainability.

The discussion of trails in Storm Lake has been included within the Parks, Recreation, and Trails chapter of the comprehensive plan but it also has a strong relationship to the Transportation chapter of the plan. The transportation on plan addresses the roadway needs of the community while the trail plan focuses on the non-motorized means of travel throughout the community, as well as connections outward throughout Buena Vista County.

Additional discussions of trails in the community occurs at the regularly held meetings of the Mayor's Advisory Committee for Parks, Trails, and Urban Forest. Recommendations from the Committee are forwarded to the City Council for consideration and inclusion in annual budgets.

## REQUEST FOR IOWA'S TRANSPORTATION ALTERNATIVES PROGRAM (TAP) FUNDS

### ATTACHMENT A

Itemized breakdown of total project costs guidelines.

**Construction costs**
These may be based on historical averages for entire projects of similar size and scope. Examples include:

- Typical cost per mile of trail (e.g., $XXX,XXX per mile for moderate terrain and limited number of structures).
- Typical cost per square foot of bridge deck.
- Typical cost per square foot of new or renovated building space.
- Typical cost per lineal foot of sidewalk.

**Design/Inspection costs**
These may be estimated based on the following typical percentages of construction costs, such as:

- 8 to 10 percent for preliminary up through final design and letting activities.
- 12 to 15 percent for construction inspection activities.

**Right of way acquisition costs**
These may be estimated based on:

- Impact and description of impact.
- Typical cost per square foot for permanent right of way.
- Typical cost per square foot for temporary easements.

**Utility and railroad costs**
These may be estimated based on:

- Impact and description of impact.
- Typical cost per linear foot of relocated or reconstructed facility (i.e., track, pipe, electrical lines).
- Typical cost per installation (i.e., railroad switches, utility poles, transformers, control boxes).

**Indirect costs**
If indirect costs are involved (e.g., wages):

- Estimated hours.
- Estimated hourly rate, salary.
- Estimated fringe, direct.
- Other direct cost estimate.
- Other indirect cost estimate.

## REQUEST FOR IOWA'S TRANSPORTATION ALTERNATIVES PROGRAM (TAP) FUNDS

### ATTACHMENT B

For Safe Routes to School (SRTS) projects only.

1. Provide the following information about the affected school and student population. (To answer items f, g, h, and i below, use the data collection forms, tips, and instructions provided at http://www.saferoutesinfo.org/data-central/data-collection-forms to gather the necessary data. **Do not** send your survey forms with this application.)

   a) School name
   b) Grades of students at school
   c) Number of students at school
   d) Number of K-8 students at school
   e) Distance eligibility for riding a bus (radius) in miles
   f) Number of K-8 students who currently walk to school
   g) Number of K-8 students who currently bicycle to school
   h) Number of K-8 students currently driven to school
   i) Number of K-8 students currently bused to school
   j) Number of K-8 children eligible for busing
   k) Number of K-8 students who attend this school and live within 2 miles of the school

2. A narrative discussing your plans for evaluating the success of the project. The SRTS program goal is to enable and encourage more children to walk and bicycle to school. How will you measure your success? What method will you use to determine whether more children are walking and bicycling to school? What are your specific user goals for this project? Your plans for measurement should minimally include using the student survey forms provided at http://www.saferoutesinfo.org/data-central/data-collection-forms **to gather before and after figures for the number of K-8 students who are:**

   a) Walking to school.
   b) Bicycling to school.
   c) Driven to school.
   d) Bused to school.

**RESOLUTION NO. 75-R-2017-2018**

RESOLUTION SUPPORTING THE NORTH CENTRAL SHARED USE PATH

BE IT RESOVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA

WHEREAS, the City Council considers bicycle and pedestrian transportation to be of importance to the city by providing the community with recreation and transportation opportunities as well as the possibilities of economic and community development; and

WHEREAS, the City's Comprehensive Plan supports creation and development of bicycle and pedestrian transportation paths in the community; and

WHEREAS, the Mayor's Advisory Committee for Parks, Trails, and Urban Forest is in support of this project; and

IT IS THEREFORE RESOLVED that the City Council of Storm Lake, IA endorses the North Central Shared Use Path project, and will provide maintenance and operation of for a minimum of twenty (20) years.

PASSED AND APPROVED this 19th day of March, 2018.

________________________________
Michael Porsch, Mayor

ATTEST:

________________________________
Mayra A. Martinez, City Clerk

## Staff Summary

**3/19/2018**
**Agenda Item # 7.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

| | |
|---|---|
| **REPORT TO:** | Honorable Mayor and City Council |
| **FROM:** | Keri Navratil, City Manager |
| **SUBJECT:** | **Motion to Approve Northwest Iowa Planning and Development Commission Agreement** |
| **BACKGROUND:** | The Northwest Iowa Planning Commission performs the necessary services required to implement our Workforce Safety and Compliance program. The program includes OSHA/IOSH inspections and findings, ADA related findings, legal actions, and other safety and personnel compliance and training activities. |
| **FISCAL IMPACT:** | The fee for Fiscal Year 2018-2019 is $10,776.92. |
| **RECOMMENDATION:** | Approve agreement with Northwest Iowa Planning and Development Commission |

# Staff Summary

**3/19/2018**
**Agenda Item # 8.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Keri Navratil, City Manager

**SUBJECT:** **Setting Public Hearing for Plans, Specifications, Form of Contract and Engineer's Estimate for Airport Rehabilitation Apron and Connector Taxiway Project**

**BACKGROUND:** The public hearing that was scheduled for March 19, 2018 should have been scheduled for April 2.

The existing taxiway and apron are in need of pavement maintenance to help prolong the life of the pavement. The project will consist of joint and crack sealing over the entire area. Full depth patching is proposed in the area adjacent to the fuel system. This area was originally constructed in 1968. Engineer's estimate for the project is $135,240.

A public hearing is scheduled for 5:00 p.m. April 2, 2018 in City Council Chambers.

Bids will be opened 2:00 p.m. on March 26, 2018.

**FISCAL IMPACT:** The project is funded 90% by FAA funds. The balance of the project will be funded by Local Option Sales Tax.

**RECOMMENDATION:** Approve setting a public hearing for 5:00 p.m. April 2, 2018 in City Council Chambers.

**ATTACHMENTS:**

| Description | Type |
|---|---|
| Estimate | Backup Material |
| Plans | Backup Material |
| Specs | Backup Material |
| Public Hearing | Backup Material |

**STORM LAKE MUNICIPAL AIRPORT**
**Rehabilitate Apron & Connector Taxiway**
**AIP #3-19-0088-13**

H:\SMLK\T51115389\3_Design\A_Calculations\[115389_OPC.xls]OPC 27-Feb-18

# OPINION OF PROBABLE COST

| ITEM NO. | ITEM CODE | ITEM | UNIT | TOTAL | UNIT PRICE | TOTAL |
|---|---|---|---|---|---|---|
| 1 | GP-105-5.1 | MOBILIZATION | LS | 1 | $18,000.00 | $18,000.00 |
| 2 | ------ | TRAFFIC CONTROL | LS | 1 | $12,000.00 | $12,000.00 |
| 3 | P-101-5.1 | PAVEMENT REMOVAL | SY | 150 | $25.00 | $3,750.00 |
| 4 | P-152-4.1 | SUBGRADE - TRIM, SHAPE AND COMPACT | SY | 150 | $20.00 | $3,000.00 |
| 5 | P-209-5.1 | CRUSHED AGGREGATE BASE COURSE | SY | 150 | $16.00 | $2,400.00 |
| 6 | M-361-5.1 | JOINT SEALANT | LF | 20,170 | $3.00 | $60,510.00 |
| 7 | M-361-5.2 | CRACK SEALANT | LF | 520 | $4.00 | $2,080.00 |
| 8 | M-564-5.1 | CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT) | SY | 150 | $110.00 | $16,500.00 |
| 9 | M-564-5.2 | CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR) | EA | 20 | $850.00 | $17,000.00 |
| | | | | | **Base Bid Total** | **$135,240.00** |
| | | | | | **ESTIMATED COST OPINION:** | **$135,240.00** |

CONSTRUCTION PLANS FOR

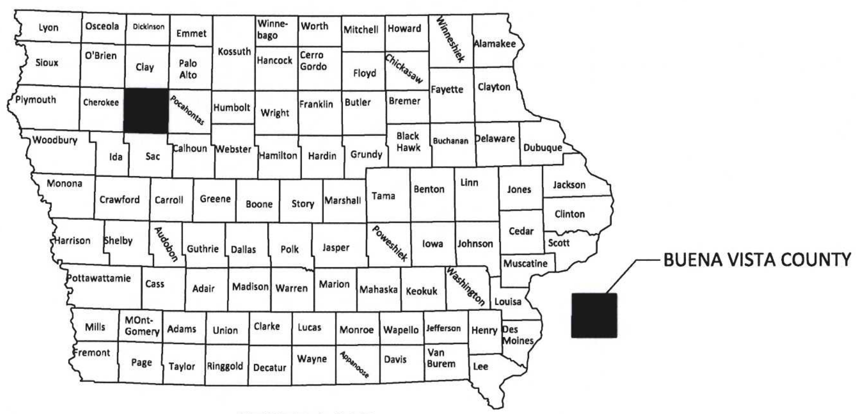
# REHABILITATE APRON & CONNECTOR TAXIWAY

## STORM LAKE MUNICIPAL AIRPORT

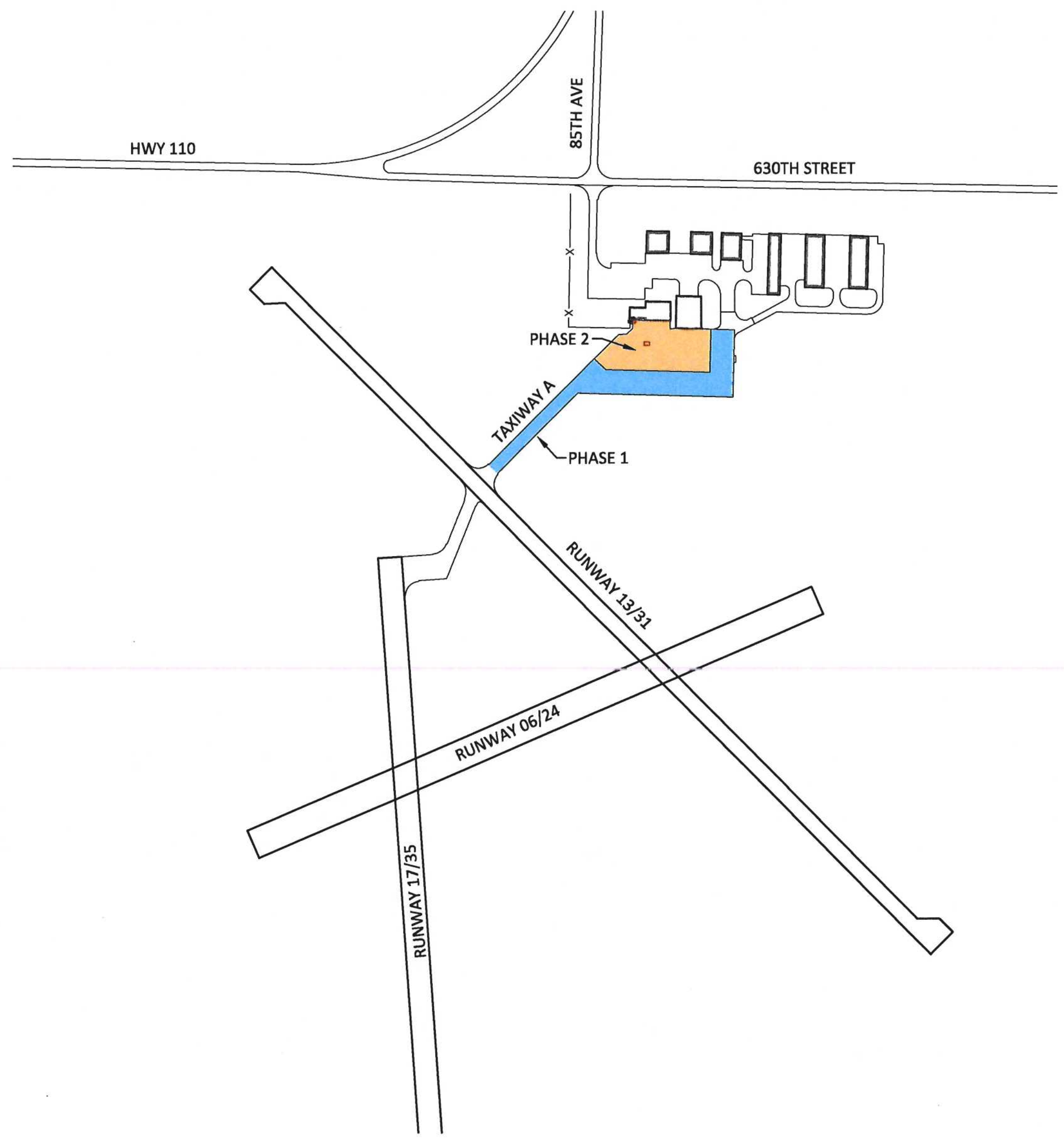
AIP #3-19-0088-013
STORM LAKE, IOWA
T51.115389
FEBRUARY 2018

### GOVERNING SPECIFICATIONS

FEDERAL AVIATION ADMINISTRATION'S AC 150/5370-10G, DATED JULY 21, 2014 "STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS" AND ALL SUPPLEMENTS.




STATE MAP




| Sheet List Table | |
|---|---|
| Sheet Number | Sheet Title |
| 1 | TITLE SHEET |
| 2 | QUANTITIES & ESTIMATE REFERENCE NOTES |
| 3 | CSPP - OVERALL LAYOUT |
| 4 | CSPP - PHASE 1 |
| 5 | CSPP - PHASE 2 |
| 6 | TYPICAL SECTIONS & DETAILS |
| 7 | TAXIWAY PLAN |
| 8 | APRON PLAN |

### RESOURCE LIST

CITY OF STORM LAKE

CITY HALL
620 ERIE ST.
P.O. BOX 1086
STORM LAKE, IOWA 50588

CITY MANAGER: JAMES PATRICK

MAYOR: JON KRUSE

AIRPORT COMMISSION MEMBERS:
BOB ANSORGE
DOUG WHITE
MAXINE LAMPE
SARA HUDDLESTON
DAN RICHARDSON

CITY ENGINEER:
(CONSULTANT)
GREG BROUSSARD
BOLTON & MENK, INC.
2730 FORD STREET
AMES, IA 50010

UTILITIES

GAS
ALLIANT ENERGY
STORM LAKE, IA 50588
1-800-822-4348

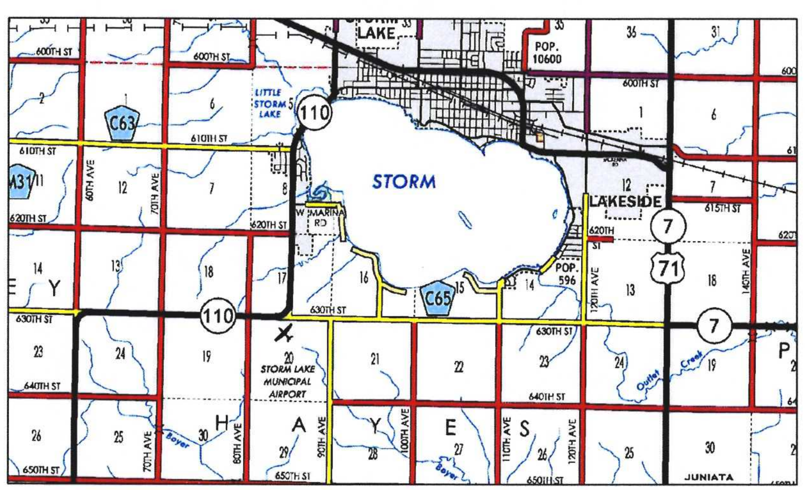
TELEPHONE/CABLE
KNOLOGY
118 E. 5TH ST.
STORM LAKE, IA 50588
712-213-7425

MEDIACOM
720 LAKE AVE
STORM LAKE, IA 50588
712-213-5527

CENTURY LINK
426 LAKE AVE
STORM LAKE, IA 50588
712-732-8348

LOCAL
CITY OF STORM LAKE
433 VILAS ROAD
STORM LAKE, IA 50588
712-732-8029

ELECTRIC
MID AMERICAN
1016 VESTAL ST.
STORM LAKE, IA 50588
1-888-427-111




VICINITY MAP
NOT TO SCALE

IOWA ONE CALL
1-800-292-8989
811
www.iowaonecall.com

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

LICENSED PROFESSIONAL ENGINEER
GREGORY A. BROUSSARD
21974
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Gregory Broussard
GREGORY A. BROUSSARD, P.E.

REG. NO. 21974 DATE: 2/27/18

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2019

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL SHEETS


BOLTON & MENK
2730 FORD ST, P.O. BOX 668
AMES, IOWA 50010
Phone: (515) 233-6100
Email: Ames@bolton-menk.com
www.bolton-menk.com


| REV | ISSUED FOR | DATE |
|---|---|---|

STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
TITLE SHEET

SHEET 1 OF 8

| STATEMENT OF ESTIMATED QUANTITIES | | | | | |
|---|---|---|---|---|---|
| ITEM | ITEM CODE | ITEM | UNIT | QUANT | AS BUILT QUANT. |
| 1 | GP-105-5.1 | MOBILIZATION | LS | 1 | |
| 2 | ------ | TRAFFIC CONTROL | LS | 1 | |
| 3 | P-101-5.1 | PAVEMENT REMOVAL | SY | 150 | |
| 4 | P-152-4.1 | SUBGRADE - TRIM, SHAPE AND COMPACT | SY | 150 | |
| 5 | P-209-5.1 | CRUSHED AGGREGATE BASE COURSE | SY | 150 | |
| 6 | M-361-5.1 | JOINT SEALANT | LF | 20170 | |
| 7 | M-361-5.2 | CRACK SEALANT | LF | 520 | |
| 8 | M-564-5.1 | CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT) | SY | 150 | |
| 9 | M-564-5.2 | CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR) | EA | 20 | |
| | | | | | |

GENERAL NOTES:

1. FOREIGN OBJECT DEBRIS (FOD) WILL NOT BE ALLOWED ON ACTIVE AREAS. PRIOR TO CONSTRUCTION AREAS BEING OPENED TO TRAFFIC THE OWNER, FBO, ENGINEER, AND CONTRACTOR SHALL PERFORM A FOD INSPECTION AND ALL FOD REMOVED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH AIRPORT FBO TO ISSUE NOTAMS FOR RUNWAY CLOSURES.
3. BARRICADES SHALL BE WEIGHTED DOWN TO PREVENT MOVEMENT FROM NATURAL OR AIRCRAFT WINDS.
4. CONSTRUCTION ACTIVITIES SHALL BE CONFINED TO THE CONSTRUCTION LIMITS SHOW.
5. CONTRACTOR SHALL PROVIDE ON CONCRETE WASH OUT BIN FOR PROJECT.

| ESTIMATE REFERENCE NOTES | | |
|---|---|---|
| ITEM NO. | ITEM CODE | |
| 1 | GP-105-5.1 | **MOBILIZATION** |
| | | A. THIS ITEM SHALL INCLUDE ALL COSTS ASSOCIATED WITH PREPARATION FOR ALL WORK ITEMS. ITEM INCLUDES COSTS FOR BONDING, PERMITTING, MAINTAINING HAUL ROADS AND ALL NECESSARY EQUIPMENT. |
| 2 | ------ | **TRAFFIC CONTROL** |
| | | A. THIS ITEM SHALL INCLUDE ALL SIGNS AND BARRICADES AS DETAILED HERE IN AND AS REQUIRED BY THE ENGINEER AND ALL OTHER WORK NECESSARY TO CONTROL TRAFFIC DURING CONSTRUCTION. |
| | | B. SIGNS AND BARRICADES SHOULD BE SUFFICIENTLY SECURED TO PREVENT MOVEMENT BY NATURAL AND AIRCRAFT WINDS AT ALL TIMES. |
| | | C. ALL COST ASSOCIATED WITH TRAFFIC CONTROL PLAN IMPLEMENTATION AND SIGNAGE ARE INCIDENTAL TO THIS ITEM. |
| 3 | P-101-5.1 | **PAVEMENT REMOVAL** |
| | | A. FULL DEPTH SAW CUTS SHALL BE INCIDENTAL TO THIS ITEM. |
| | | B. PAVEMENT SHALL BE DISPOSED OF OFF AIRPORT PROPERTY. |
| 4 | P-152-4.1 | **SUBGRADE - TRIM, SHAPE AND COMPACT** |
| | | A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED. |
| 5 | P-209-5.1 | **CRUSHED AGGREGATE BASE COURSE** |
| | | A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED. |
| 6 | M-361-5.1 | **JOINT SEALANT** |
| | | A. AGGREGATE BASE SHALL MEET THE REQUIREMENTS OF IOWA DOT SECTION 4123 - MODIFIED SUBBASE MATERIAL, GRADATION 14. |
| 7 | M-361-5.2 | **CRACK SEALANT** |
| | | A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED. |
| 8 | M-564-5.1 | **CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT)** |
| | | A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED. |
| 9 | M-564-5.2 | **CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR)** |
| | | A. THIS ITEM INCLUDES ALL LABOR AND MATERIAL NEEDED. |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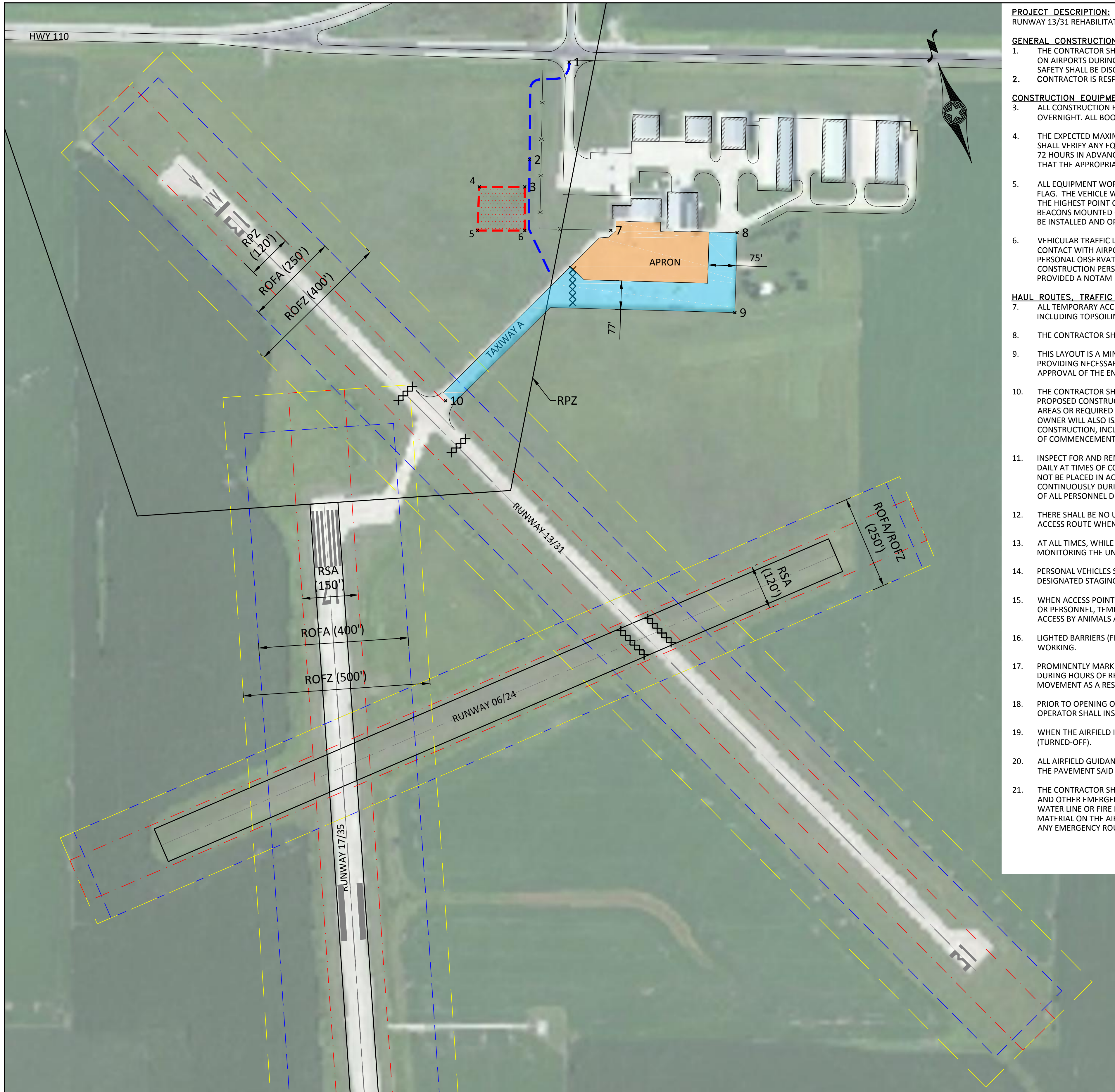
STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
QUANTITIES & ESTIMATE REFERENCE NOTES

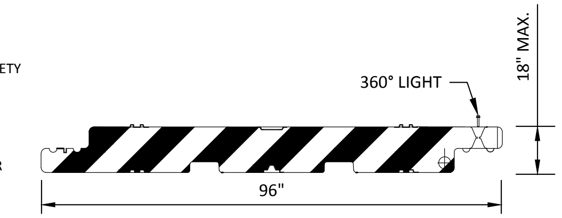



**PROJECT DESCRIPTION:**
RUNWAY 13/31 REHABILITATION.

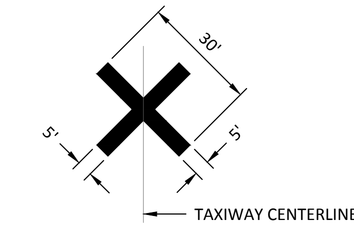
**GENERAL CONSTRUCTION SAFETY:**
1. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH IN FAA AC 150/5370-2G "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", WHICH IS INCLUDED IN THE PROJECT MANUAL APPENDIX. CONSTRUCTION SAFETY SHALL BE DISCUSSED DURING THE PRE CONSTRUCTION MEETING AND AT WEEKLY PROJECT MEETING
2. CONTRACTOR IS RESPONSIBLE FOR ALL PUBLIC AND PRIVATE UTILITY LOCATIONS DURING CONSTRUCTION.

**CONSTRUCTION EQUIPMENT:**
3. ALL CONSTRUCTION EQUIPMENT SHALL BE PARKED IN DESIGNATED STAGING/STORAGE AREAS WHEN NOT IN USE OR OVERNIGHT. ALL BOOMS SHALL BE LOWERED WHEN NOT IN USE.
4. THE EXPECTED MAXIMUM HEIGHT OF CONSTRUCTION EQUIPMENT IS 20 FEET AT ANY LOCATION. THE CONTRACTOR SHALL VERIFY ANY EQUIPMENT HEIGHT MORE THAN 20 FEET AND NOTIFY THE ENGINEER AND OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY CONSTRUCTION THAT REQUIRES EQUIPMENT WITH HEIGHTS OF MORE THAN 20 FEET SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED.
5. ALL EQUIPMENT WORKING ON THE AIRPORT CONSTRUCTION SITE MUST HAVE A ROTATING BEACON AND/OR WARNING FLAG. THE VEHICLE WARNING FLAGS SHALL BE AS PER DETAIL ON SHEET. THE FLAG SHALL BE SECURELY ATTACHED TO THE HIGHEST POINT ON THE CONSTRUCTION EQUIPMENT OR VEHICLE AND BE VISIBLE AT ALL TIMES. AMBER FLASHING BEACONS MOUNTED ON THE HIGHEST POINT OF THE CONSTRUCTION EQUIPMENT OR VEHICLE ARE ALSO REQUIRED TO BE INSTALLED AND OPERATIONAL.
6. VEHICULAR TRAFFIC LOCATED IN OR CROSSING ACTIVE MOVEMENT AREAS MUST HAVE A WORKING TWO-WAY RADIO CONTACT WITH AIRPORT OPERATIONS OR BE ESCORTED BY A PERSON IN RADIO CONTACT. THE DRIVER, THROUGH PERSONAL OBSERVATION, SHOULD CONFIRM THAT NO AIRCRAFT ARE APPROACHING THE VEHICLES POSITION. CONSTRUCTION PERSONNEL MAY OPERATE IN A MOVEMENT AREA WITHOUT TWO-WAY RADIO COMMUNICATION PROVIDED A NOTAM IS ISSUED CLOSING THE AREA AND THE AREA IS PROPERLY MARKED TO PREVENT INCURSIONS.

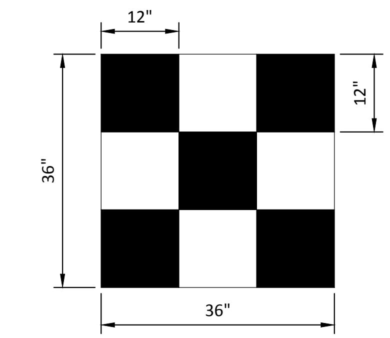
**HAUL ROUTES, TRAFFIC CONTROL & ACCESS CONTROL**
7. ALL TEMPORARY ACCESS, STORAGE/STAGING AREAS AND ROADS SHALL BE RESTORED TO ORIGINAL CONDITION, INCLUDING TOPSOILING, RESEEDING, IF NECESSARY, AFTER USE BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS NECESSARY.
9. THIS LAYOUT IS A MINIMUM REQUIREMENT NECESSARY TO ASSIST THE CONTRACTOR IN DETERMINING THE COST FOR PROVIDING NECESSARY TRAFFIC CONTROL. THE CONTRACTOR MAY ADD ADDITIONAL WARNING DEVICES UPON APPROVAL OF THE ENGINEER.
10. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY PROPOSED CONSTRUCTION WITHIN THE APRON OR TAXIWAY SAFETY AREAS, RUNWAY PROTECTION ZONES, APPROACH AREAS OR REQUIRED CLOSURE AREAS SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED. THE OWNER WILL ALSO ISSUE TIMELY NOTAMS WHICH SPECIFICALLY DETAIL THE CURRENT STATUS OF THE AIRPORT DURING CONSTRUCTION, INCLUDING CLOSURE STATUS. THE NOTAM SHALL INCLUDE THE PROPOSED LOCATION, TIME AND DATE OF COMMENCEMENT OF CONSTRUCTION.
11. INSPECT FOR AND REMOVE FOREIGN OBJECT DEBRIS (FOD) ON OR NEAR AIRCRAFT MOVEMENT AREAS BY SWEEPING DAILY AT TIMES OF CONCURRENT CONSTRUCTION AND AIRCRAFT OPERATIONS. WASTE AND LOOSE MATERIAL MUST NOT BE PLACED IN ACTIVE MOVEMENT AREAS. MATERIALS TRACKED ONTO THESE AREAS MUST BE REMOVED CONTINUOUSLY DURING THE PROJECT. THE CONSTRUCTION SITE, INCLUDING THE STAGING AREA, SHALL BE KEPT CLEAN OF ALL PERSONNEL DEBRIS.
12. THERE SHALL BE NO UNAUTHORIZED PERSONNEL ON AIRFIELD. CONTRACTOR SHALL USE THE DESIGNATED AIRPORT ACCESS ROUTE WHEN ENTERING AIRPORT PROPERTY. NO GATES ARE TO BE LEFT OPENED AND UNATTENDED.
13. AT ALL TIMES, WHILE CONSTRUCTION IS IN PROGRESS, THE CONTRACTOR SHALL HAVE A DESIGNATED PERSON MONITORING THE UNICOM OR CTAF.
14. PERSONAL VEHICLES SHALL NOT BE ALLOWED ON THE AIRFIELD. ALL PERSONAL VEHICLES SHOULD BE PARKED IN A DESIGNATED STAGING/STORAGE AREA OR ANOTHER AREA AS DESIGNATED BY THE AIRPORT MANAGER.
15. WHEN ACCESS POINTS ARE CREATED IN THE SECURITY FENCING TO PERMIT THE PASSAGE OF CONSTRUCTION VEHICLES OR PERSONNEL, TEMPORARY GATES SHOULD BE EQUIPPED SO THEY CAN BE SECURELY CLOSED AND LOCKED TO PREVENT ACCESS BY ANIMALS AND PEOPLE.
16. LIGHTED BARRIERS (FLASHERS) SHALL BE INSPECTED AT DUSK EACH DAY TO ENSURE ALL FLASHERS ARE PROPERLY WORKING.
17. PROMINENTLY MARK OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIALS AND LIGHT THESE OBSTACLES DURING HOURS OF RESTRICTED VISIBILITY AND DARKNESS. CONSTRAIN STOCKPILED MATERIAL TO PREVENT ITS MOVEMENT AS A RESULT OF THE MAXIMUM ANTICIPATED AIRCRAFT BLAST AND FORECAST WIND CONDITIONS.
18. PRIOR TO OPENING OR RE-OPENING ANY CLOSED PAVEMENT AREA, THE CONTRACTOR, TOGETHER WITH THE AIRPORT OPERATOR SHALL INSPECT THE PAVEMENT, SAFETY AREAS AND PRIMARY SURFACE FOR ANY OBSTRUCTION OR FOD.
19. WHEN THE AIRFIELD IS CLOSED FOR CONSTRUCTION (RUNWAY CLOSURES), THE BEACON SHALL BE DISENGAGED (TURNED-OFF).
20. ALL AIRFIELD GUIDANCE SIGNS (INCLUDING HOLD SIGNS) SHALL BE COVERED OR OTHERWISE REMOVED FROM SERVICE IF THE PAVEMENT SAID SIGNS ARE IDENTIFYING ARE CLOSED FOR CONSTRUCTION.
21. THE CONTRACTOR SHALL NOTIFY AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) PERSONNEL, MUTUAL AID PROVIDERS AND OTHER EMERGENCY SERVICES IF CONSTRUCTION REQUIRES SHUTTING OFF OR OTHERWISE DISTRUPTING ANY WATER LINE OR FIRE HYDRANT ON THE AIPORT OR ADJOINING AREAS AND IF CONTRACTORS WORK WITH HAZARDOUS MATERIAL ON THE AIRFIELD. NOTIFICATION MUST ALSO BE MADE WHEN THE WORK PERFORMED WILL CLOSE OR AFFECT ANY EMERGENCY ROUTES. ALSO MAKE NOTIFICATION WHEN SERVICES ARE RESTORED.




A 3 LOW PROFILE AIRPORT BARRICADE
NOT TO SCALE




B 3 TAXIWAY CLOSURE MARKER
NOT TO SCALE




NOTE: FLAG SHALL HAVE A CHECKERED PATTERN OF INTERNATIONAL ORANGE AND WHITE SQUARES

C 3 VEHICLE WARNING FLAG
NOT TO SCALE

7460 POINT TABLE

| POINT NUMBER | LATITUDE | LONGITUDE | DESCRIPTION | ELEVATION |
|---|---|---|---|---|
| 1 | N42°36'15.60" | W95°14'23.46" | HAUL ROUTE | 1479 |
| 2 | N42°36'13.01" | W95°14'24.80" | HAUL ROUTE | 1472 |
| 3 | N42°36'12.29" | W95°14'24.95" | STAGING AREA | 1472 |
| 4 | N42°36'12.26" | W95°14'26.58" | STAGING AREA | 1472 |
| 5 | N42°36'11.11" | W95°14'26.61" | STAGING AREA | 1471 |
| 6 | N42°36'11.13" | W95°14'24.92" | STAGING AREA | 1471 |
| 7 | N42°36'11.19" | W95°14'21.85" | CONSTRUCTION AREA | 1472 |
| 8 | N42°36'11.19" | W95°14'17.33" | CONSTRUCTION AREA | 1474 |
| 9 | N42°36'09.08" | W95°14'17.35" | CONSTRUCTION AREA | 1471 |
| 10 | N42°36'06.60" | W95°14'27.62" | CONSTRUCTION AREA | 1474 |

LEGEND
PHASE 1 CONSTRUCTION
PHASE 2 CONSTRUCTION

HORIZ. 0 150 300
SCALE FEET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STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
CSPP - OVERALL LAYOUT


PHASE 1 NOTES:

PHASE 1 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PANEL REPLACEMENT

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 17/35 SHALL BE CLOSED FOR PHASE 1.
- TAXIWAY A SHALL BE CLOSED DURING PHASE 1.

PHASE DURATION
- PHASE 1 SHALL BE COMPLETED IN 7 WORKING DAYS. PHASE 1 CAN BE COMPLETED AT THE SAME TIME AT PHASE 2 WITH THE RUNWAY CLOSURE LIMITED TO A MAXIMUM OF 7 DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING TAXIWAY A.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 1.
- LIGHT ON RUNWAY 17/35 SHALL BE DISCONNECTED OR COVERED DURING PHASE 1
- TAXIWAY LIGHT SHALL BE DISCONNECTED OR COVERED DURING PHASE 1

LEGEND

- PHASE 1 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

HORIZ. SCALE 0 150 300 FEET


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STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
CSPP - PHASE 1


PHASE 2 NOTES:

PHASE 2 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PARTIAL DEPTH PATCHING
- PANEL REPLACEMENTS

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL REMAIN OPEN DURING PHASE 2.
- RUNWAY 06/24 SHALL REMAIN OPEN DURING 2.
- RUNWAY 17/35 SHALL REMAIN OPEN DURING PHASE 2.
- TAXIWAY A SHALL REMAIN OPEN DURING PHASE 2.
- PARKING ON THE APRON WILL NOT BE AVAILABLE DURING PHASE 2 CONSTRUCTION. APRON AREA WILL BE USED AS A TAXIWAY FOR HANGAR ACCESS DURING THIS PHASE.
- PHASE 2 SHALL BE CONSTRUCTED TO ALLOW AIRCRAFT ACCESS TO TAXIWAY A AT ALL TIMES. IF AIRPORT ACTIVITY IS PRESENT, A FLAGGER SHALL BE PRESENT TO DIRECT AIRPORT TRAFFIC FROM CONSTRUCTION ACTIVITY.

PHASE DURATION
- PHASE 2 SHALL BE COMPLETED IN 8 WORKING DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER FOR ISSUANCE OF NOTAM's.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL REMAIN ON DURING PHASE 2
- LIGHT ON RUNWAY 17/35 SHALL REMAIN ON DURING PHASE 2.
- TAXIWAY LIGHT SHALL REMAIN ON DURING PHASE 2.

LEGEND

PHASE 2 CONSTRUCTION
CONTRACTORS ACCESS ROUTE
CONSTRUCTION LIMITS
LOW PROFILE BARRICADES
RUNWAY/TAXIWAY CLOSURE MARKER
CONSTRUCTION STAGING/STORAGE

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SCALE FEET


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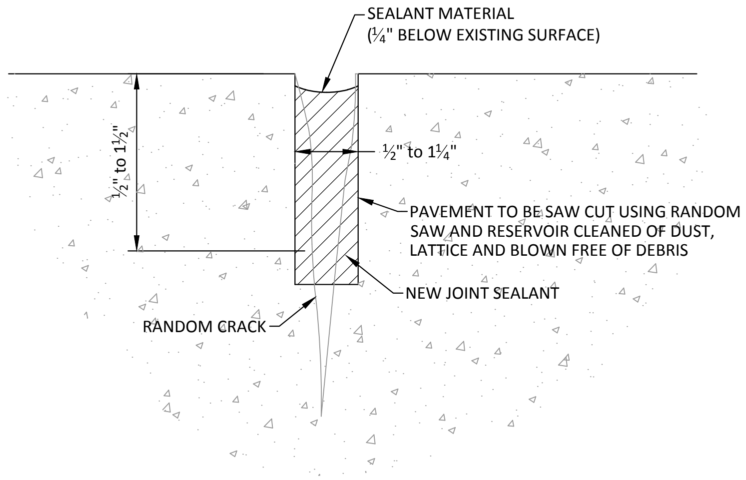
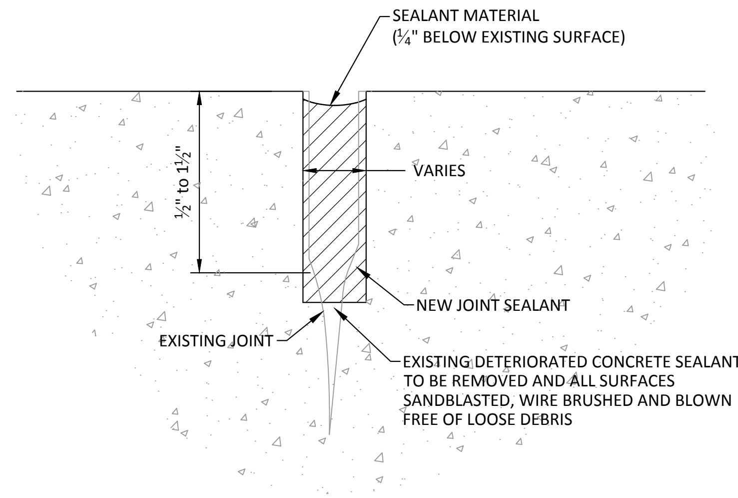
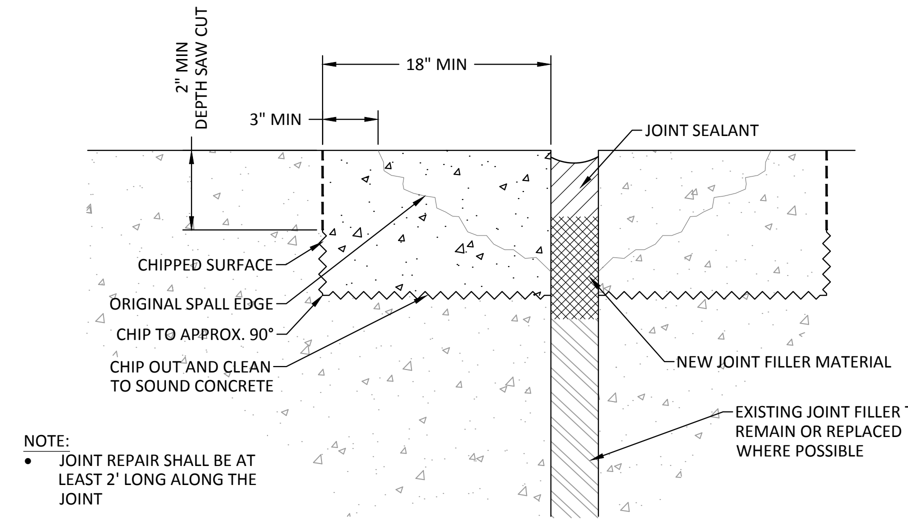
STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
CSPP - PHASE 2




A
6
RANDOM CRACK ROUTE & SEAL
NOT TO SCALE

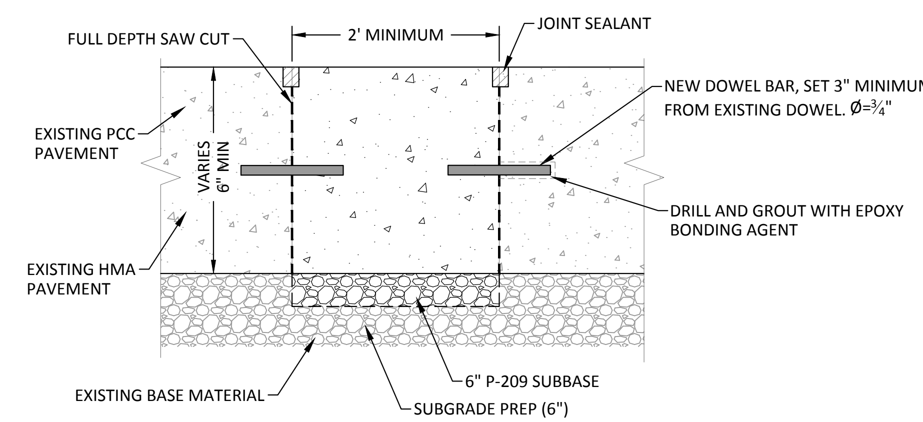



B
6
EXISTING JOINT ROUTE & SEAL
NOT TO SCALE

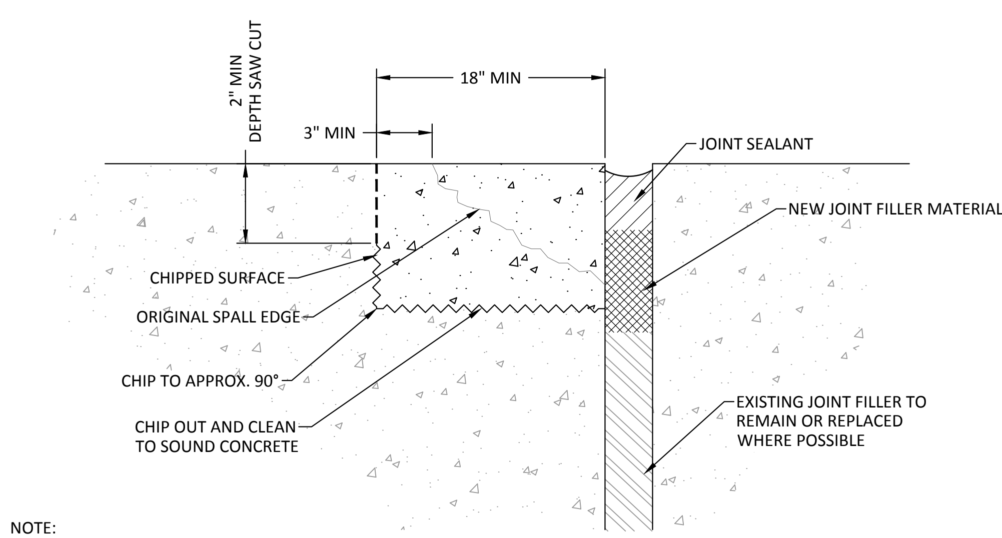



NOTE:
- JOINT REPAIR SHALL BE AT LEAST 2' LONG ALONG THE JOINT
- SAW AND SEAL EXISTING JOINT TO 1" MIN BELOW SPALLED AREA

C
6
PARTIAL DEPTH REPAIR - DOUBLE JOINT FACE
NOT TO SCALE

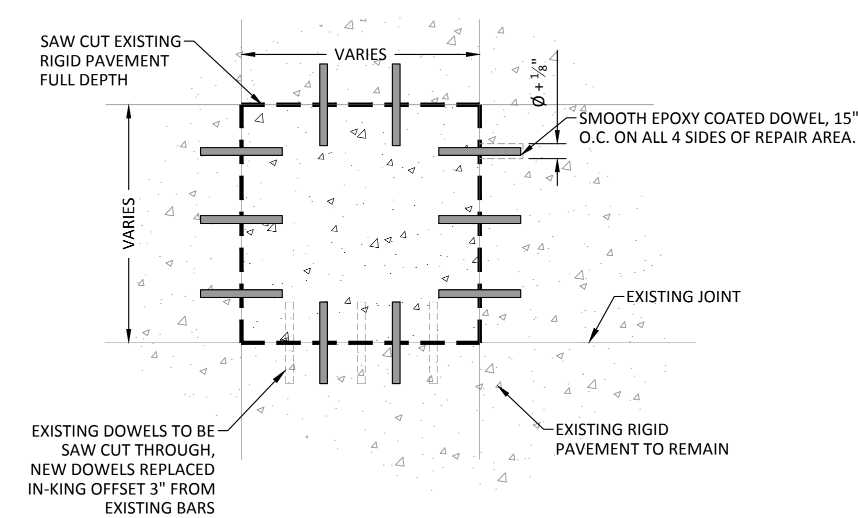



TYPICAL SECTION




NOTE:
- JOINT REPAIR SHALL BE AT LEAST 2' LONG ALONG THE JOINT
- SAW AND SEAL EXISTING JOINT TO 1" MIN BELOW SPALLED AREA

D
6
PARTIAL DEPTH REPAIR - SINGLE JOINT FACE
NOT TO SCALE




PLAN VIEW

E
6
FULL DEPTH RIGID PAVEMENT REPAIR
NOT TO SCALE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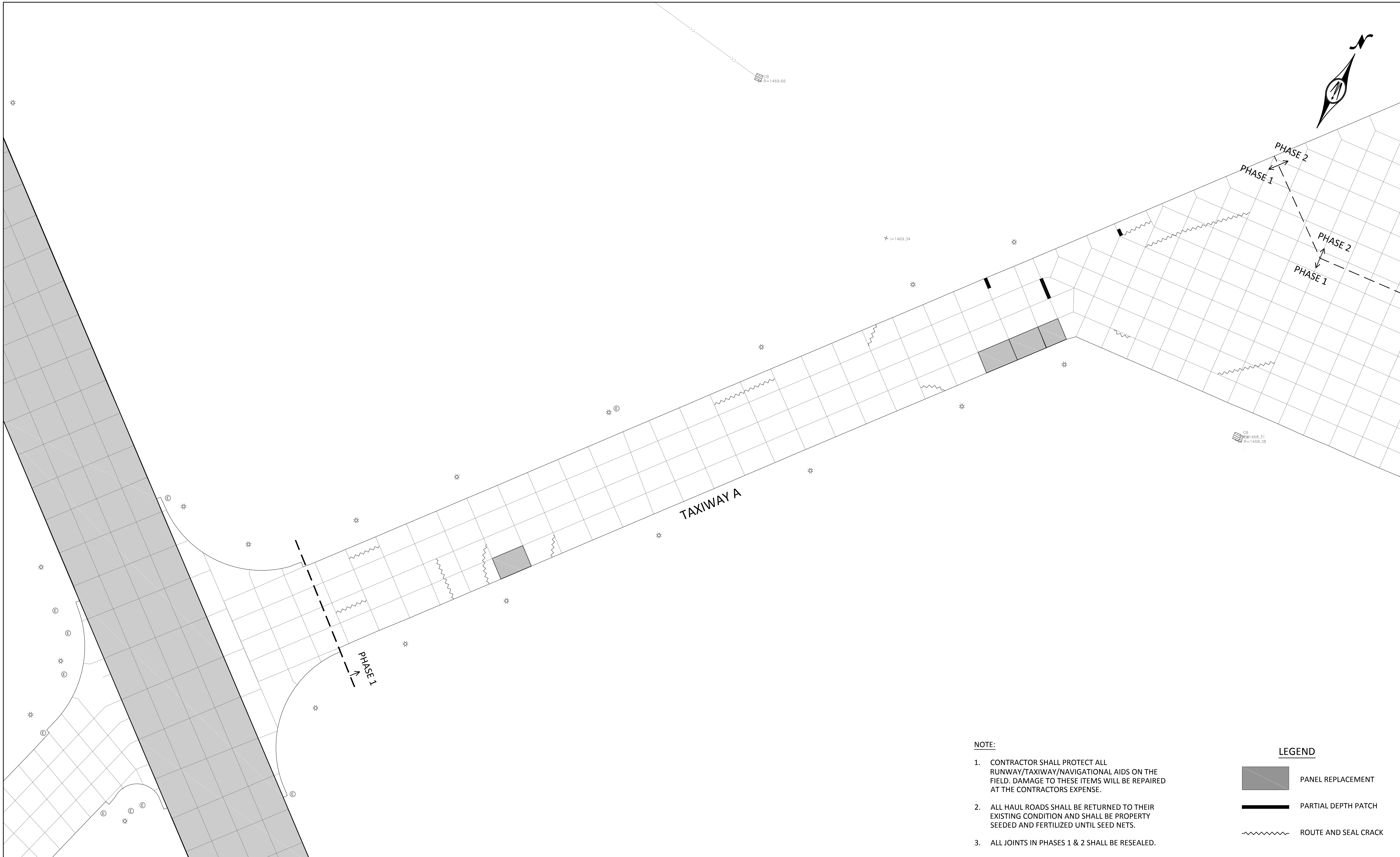
STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
TYPICAL SECTIONS & DETAILS




NOTE:

1. CONTRACTOR SHALL PROTECT ALL RUNWAY/TAXIWAY/NAVIGATIONAL AIDS ON THE FIELD. DAMAGE TO THESE ITEMS WILL BE REPAIRED AT THE CONTRACTORS EXPENSE.
2. ALL HAUL ROADS SHALL BE RETURNED TO THEIR EXISTING CONDITION AND SHALL BE PROPERTY SEEDED AND FERTILIZED UNTIL SEED NETS.
3. ALL JOINTS IN PHASES 1 & 2 SHALL BE RESEALED.

LEGEND

- PANEL REPLACEMENT
- PARTIAL DEPTH PATCH
- ROUTE AND SEAL CRACK

HORIZ. 0 20 40 SCALE FEET

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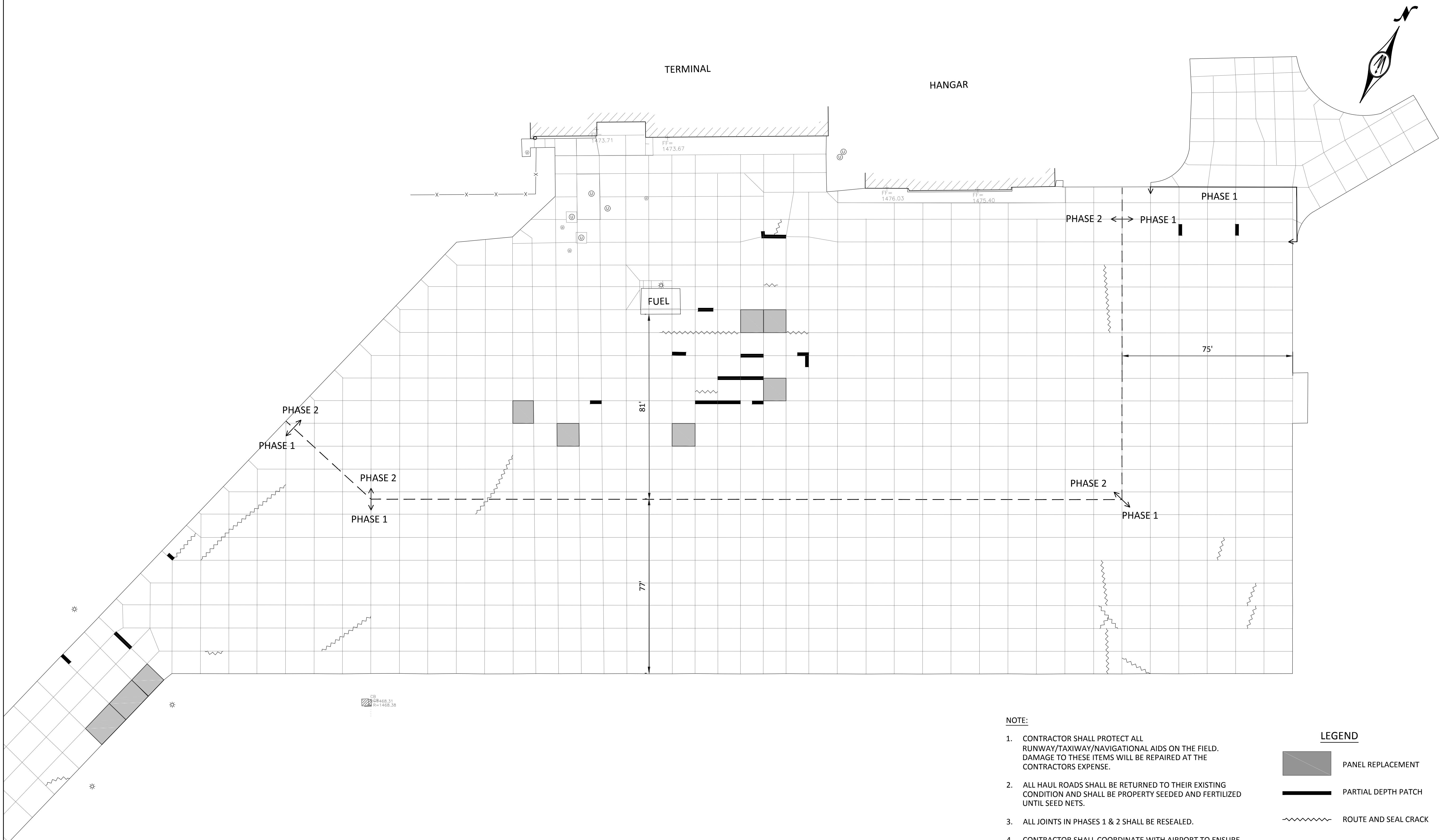
STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
TAXIWAY PLAN

SHEET 7 OF 8




NOTE:

1. CONTRACTOR SHALL PROTECT ALL RUNWAY/TAXIWAY/NAVIGATIONAL AIDS ON THE FIELD. DAMAGE TO THESE ITEMS WILL BE REPAIRED AT THE CONTRACTORS EXPENSE.
2. ALL HAUL ROADS SHALL BE RETURNED TO THEIR EXISTING CONDITION AND SHALL BE PROPERTY SEEDED AND FERTILIZED UNTIL SEED NETS.
3. ALL JOINTS IN PHASES 1 & 2 SHALL BE RESEALED.
4. CONTRACTOR SHALL COORDINATE WITH AIRPORT TO ENSURE FUEL SALES AREA ALWAYS AVAILABLE DURING PHASE 2.

LEGEND

- PANEL REPLACEMENT
- PARTIAL DEPTH PATCH
- ROUTE AND SEAL CRACK

HORIZ. 0 20 40 SCALE FEET

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STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
APRON PLAN

SHEET 8 OF 8

# PROJECT MANUAL

Rehabilitate Apron & Connector Taxiway

Storm Lake Municipal Airport

City of Storm Lake

AIP #3-19-0088-013

T51.115389

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**CERTIFICATION**

PROJECT MANUAL

for

Rehabilitate Apron & Connector Taxiway

Storm Lake Municipal Airport

City of Storm Lake

AIP #3-19-0088-013

T51.115389


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Gregory Broussard    Date: 2/27/18

Gregory Broussard
License No. 21974
My renewal date is December 31, 2019
Pages or sheets covered by this seal:

All Sheets

## TABLE OF CONTENTS

Rehabilitate Apron & Connector Taxiway

BMI # T51.115389

AIP #3-19-0088-013

CONTRACT DOCUMENTS:

PROJECT MANUAL:

**DRAWINGS (UNDER SEPARATE COVER):**

8 sheets numbered 1 through 8, inclusive, dated February 2018, and with each sheet bearing the following general title:

Rehabilitate Apron & Connector Taxiway

City of Storm Lake

**APPENDICES**

- Construction Safety and Phasing Plan (CSPP)
- Soil Report
- AC 150/5370-2G - Operational Safety Airports During Construction

******END OF SECTION****

# NOTICE TO BIDDERS

## CITY OF STORM LAKE

## STORM LAKE MUNICIPAL AIRPORT

AIP Project No.: **3-19-0088-13**

Sealed bids subject to the conditions and provisions presented herein will be received by the Owner until ***2:00 p.m. (Central) on March 26, 2018*** and then publicly opened and read at **City Hall,** for furnishing all labor, materials and equipment and performing all work necessary to complete: **Rehabilitate Apron & Connector Taxiway**

Copies of the bid documents including project drawings and technical specifications are on file and may be inspected at:

**1519 Baltimore Drive, Ames, IA 50010-0688, (515) 233-6100, fax (515)233-4430**

TO OBTAIN BID DOCUMENTS: Complete digital project bidding documents are available at www.bolton-menk.com or www.questcdn.com. You may view the digital plan documents for free by entering **Quest project #5598937** on the website's Project Search page. Documents may be downloaded for $0.00. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, viewing, downloading, and working with this digital project information. An optional paper set of project documents is also available for a refundable price of $20.00 per set (refundable), which includes applicable sales tax and shipping. Any addendums will be mailed or faxed to all planholders. Please make your check to payable to Bolton & Menk, Inc. and send it to 1519 Baltimore Drive, Ames, IA 50010-8783, (515) 233-6100, fax (515) 233-4430

*No prebid conference is scheduled for this project*

**Contract Work Items:** This project will involve the following work items and estimated quantities. Prospective bidders are hereby advised that the quantities indicated herein are approximate and are subject to change per the Section 40 of the General Provisions.

| ITEM | DESCRIPTION | QUANTITY | UNIT |
|---|---|---|---|
| 1 | MOBILIZATION | 1 | LS |
| 2 | TRAFFIC CONTROL | 1 | LS |
| 3 | PAVEMENT REMOVAL | 150 | SY |
| 4 | SUBGRADE - TRIM, SHAPE AND COMPACT | 150 | SY |
| 5 | CRUSHED AGGREGATE BASE COURSE | 150 | SY |
| 6 | JOINT SEALANT | 20170 | LF |
| 7 | CRACK SEALANT | 520 | LF |
| 8 | CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT) | 150 | SY |
| 9 | CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR) | 20 | EA |

**Contract Time**

The owner has established a contract performance time of ***15 Working*** days from the date of the Notice-to-Proceed. All project work shall be substantially completed within the stated timeframe. This project is subject to liquidated damages as prescribed within the project manual.

**Bid Security**
Each proposal must be accompanied by a bid guaranty in the amount of **5%** of the total amount of the bid. The bid guaranty may be by certified check or bid bond made payable to **City of Storm Lake**.

**Bonding Requirements**
The successful bidder will be required to furnish separate performance and payment bonds each in the amount equal to 100% of the contract price at the time of contract execution.

**Public Hearing**
A public hearing will be held by the *City of Storm Lake* City Council on the proposed contract documents (plans, specifications and form of contract) and estimated cost for the improvement at its meeting at Storm Lake City Hall, 620 Erie Street, Storm Lake, IA 50588 on April 2nd, 2017 @ 5:00pm.

**Award of Contract**
All proposals submitted in accordance with the instructions presented herein will be subject to evaluation. Bids may be held by the *City of Storm Lake* for a period not to exceed ***90*** days from the date of the bid opening for the purpose of conducting the bid evaluation.

The Owner will base the award of contract upon the lowest aggregate sum proposal submitted from those bidders the Owner confirms as being responsive and responsible. The right is reserved, as the *City of Storm Lake* may require, to reject any and all bids and to waive any informality in the bids received.

Prospective Bidders are hereby advised that award of contract is contingent upon the owner receiving Federal funding assistance under the Airport Improvement Program.

**Federal Provisions**
This project is subject to the following Federal provisions, statutes and regulations:

Equal Employment Opportunity - Executive Order 11246 and 41 CFR Part 60: The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth within the supplementary provisions. The successful Bidder shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin.

Goals for Minority and Female Participation – Executive Order 11246 and 41 CFR Part 60:

1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth within the supplementary provisions.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables:

| | |
|---|---|
| Goals for minority participation for each trade: | 0.4% |
| Goals for female participation in each trade: | 6.9% |

These goals are applicable to all of the contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its Federally involved and non-federally involved construction.

Certification of Nonsegregated Facilities – 41 CFR Part 60: A certification of Nonsegregated Facilities must be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

Contractors receiving federally assisted construction contract awards exceeding $10,000, which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause. The penalty for making false statements in offers in prescribed in 18 U.S.C. 1001.

Disadvantaged Business Enterprise – 49 CFR Part 26: The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contracts. In accordance with 49 CFR Part 26.45, the sponsor has established a contract goal of 0.0 percent participation for small business concerns owned and controlled by certified socially and economically disadvantaged enterprise (DBE). The bidder shall make and document good faith efforts, as defined in Appendix A of 49 CFR Part 26, to meet this established goal.

Davis-Bacon Act, as amended – 29 CFR Part 5: The Contractor is required to comply with wage and labor provisions and to pay minimum wages in accordance with the current schedule of wage rates established by the United States Department of Labor.

Debarment, Suspension, Ineligibility and Voluntary Exclusion – 49 CFR Part 29: The bidder certifies, by submission of a proposal or acceptance of a contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. Individuals or companies listed in the General Services Administration's "Excluded Parties Listing System" will not be considered for award of contract.

Foreign Trade Restriction – 49 CFR Part 30
The Bidder and Bidder's subcontractors, by submission of an offer and/or execution of a contract, is required to certify that it:

a. Is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. Has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

c. Has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Buy American Certificate – Aviation Safety and Capacity Act of 1990:
This contract is subject to the "Buy American Preferences" of the Aviation Safety and Capacity Act of 1990. Per Title 49 U.S.C. Section 50101, all steel and manufactured products installed under an AIP assisted project must be produce in the United States unless the Federal Aviation Administration has granted a formal waiver.

As a condition of bid responsiveness, Bidders must complete and submit as part of their proposal the enclosed Buy American certification. Bidder must indicate whether it intends to meet Buy America preferences by only installing steel and manufactured products produced with the United State of America; or if it intends to seek a permissible waiver to the Buy America requirements.

## ADDITIONAL PROVISIONS

Modification to the project documents may only be made by written addendum as issued by the Owner or Owner's authorized Representative.

The bidder's proposal must be made on the forms provided within the bound project manual. Bidders must supply all required information prior to the time of bid opening.

## SUBMITTAL OF PROPOSALS

Additional information and instruction for submittal of a proposal are provided within the Instructions-to-Bidders. Envelopes containing bids must be sealed and addressed to:

Storm Lake City Hall
620 Erie Street
Storm Lake, IA 50588

The upper left hand corner of the sealed envelope must identify the following information:

## CONTRACT PROPOSAL

Bid of ______________________________________
for construction improvements at Storm Lake Municipal Airport
AIP Project No. : 3-19-0088-13
To be opened at: 2:00 p.m. on March 26, 2018

# INSTRUCTIONS TO BIDDERS

**Owner and Owner's Representative**
The Owner as stated herein refers to the following agency: **City of Storm Lake.**
The Owner's authorized representative as stated herein refers to the Owner's Consultant **Bolton & Menk** herein referred to as Engineer.

**Bidder Representations**
By submittal of a proposal (bid), the BIDDER represents the following:

- The Bidder has read and thoroughly examined the project documents
- The Bidder has a complete understanding of the terms and conditions required for the satisfactory performance of project work.
- The Bidder has fully informed themselves of the project site, the project site conditions and the surrounding area.
- The Bidder has familiarized themselves of the requirements of working on an operating airport and understands the site conditions that may in any manner affect cost, progress or performance of the work
- The Bidder has correlated their observations with that of the project documents.
- The Bidder has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.
- The Bidder is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.
- The Bidder has complied with all requirements of these instructions and the associated bid documents.

**Bid Documents/Project Manual**
The bid documents are comprised of the following; Notice-to-Bidders, Instructions-to-Bidders, General Provisions, Supplementary Provisions, Technical Specifications, Project Drawings, Construction Safety and Phasing Plan, Proposal Form with attachments, Form of Contract Agreement, any authorized addenda issued by the Owner and any document incorporated in whole or in part by reference therein.

All documents comprising the Bid Documents are complementary to one another and together establish the complete terms, conditions and obligations of the successful bidder.

Those individual elements of the Contract Documents that are bound together shall also be referred to as the Project Manual. No part of the project manual that is bound may be removed or detached.

Prospective bidders may obtain a copy of the project manual and project drawings from the designated office identified within the Notice-to-Bidders.

**Modifications to Project Documents**
Modifications to the project documents may only be made by written addendum issued by the Owner or the Engineer. Verbal explanations, interpretations or comments made by the Owner or Owner's representative shall not be binding. Addenda will be transmitted to all known official plan holders. Each bidder shall certify at the time of bid submittal that they acknowledge receipt of all issued addenda.

**Errors and Discrepancies in Project Documents**
Should Bidder find an error, discrepancy, ambiguity or omission in the project documents prior to submittal of a proposal, the Bidder is obligated to contact the Owner or Engineer with written notice of the error, discrepancy, ambiguity or omission. The written notice shall identify the nature and location of the error, discrepancy, ambiguity or omission. Corrections or modifications to the project documents will only be made by written addendum as prescribed herein. By submittal of a Bid Proposal, Bidder represents that they have thoroughly reviewed the project documents and that they have not identified any error, discrepancy, ambiguity or omission that would affect cost, progress or performance of the project work.

**Clarifications and Interpretations**
A bidder requiring a clarification or interpretation of the project documents shall make a written request to the Owner or Engineer. The Owner or Engineer must receive the written request a minimum of seven (7) calendar days prior to the date of the bid opening.

**Interpretations of Estimated Proposal Quantities**
An estimate of quantities of work to be accomplished and materials to be furnished under these specifications is stated within the project manual. This estimate is a result of careful calculations and is believed to be correct. The estimated quantities

are given only as a basis for comparison of proposals and the award of contract. The Owner does not expressly or impliedly agree that the actual quantities involved will correspond exactly with the estimated quantities.

The Bidder shall not plead misunderstandings or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in the subsection titled "Alteration of Work and Quantities" of the general provisions without in any way invalidating the unit bid prices.

**Examination of Plans, Specifications and Site Conditions**
As stated within the "Bidder Representations" and reaffirmed herein, the Bidder is expected to carefully examine the site of the proposed work, the proposal, drawings, specifications, terms and conditions of the proposed agreement and the form of agreement. The Bidder shall satisfy themselves as to the character, quality, and quantities of work to be performed, materials to be furnished and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans and specifications.

Boring logs and other records of subsurface investigations and tests, as appropriate may be available for inspection by the Bidder. It is understood and agreed that such subsurface information, whether included in the project drawings, specifications or otherwise made available to the Bidder, was obtained and is intended for the owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that Bidder is solely responsible for all assumptions, deductions, or conclusions which he or she may make from his or her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

**Issuance of Proposal Forms**
The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should the bidder be in default for any of the following reasons:

a. Failure to comply with any pre-qualification regulations of the owner, if such regulations are cited or otherwise included, in the proposal as a requirement for bidding.
b. Failure to pay, or satisfactory settle, all bills due for labor and materials on former contracts in force (with the owner) at the time the owner issues the proposal to a prospective bidder.
c. Contractor default under previous contracts with the owner
d. Unsatisfactory work on previous contracts with the owner

**Form of Proposal**
All bid proposals shall be made on the forms provided by the Owner within the bound Project Manual. No bidder may submit more than one proposal. All proposals are to be written in ink and shall be clearly legible. All blank spaces in the proposal forms shall be legibly completed for each and every bid item. The Bidder shall not qualify any bid item. The Bidder shall initial any erasures and alterations made on the proposal form by the bidder.

The Bidder shall state the price of their bid in U.S. dollars and cents in both written and numeral format. In the event of a discrepancy, the written value will take precedence.

**Signature of Proposal**
An authorized representative of the Bidder must sign and date the proposal. The Bidder's authorized representative shall use an ink pen when applying their signature to the proposal. The Bidder's representative shall have the legal authority to obligate and bind the Bidder to the terms and conditions of the contract. The Bidder shall legibly state the name of the Bidder's representative, the legal name of the Bidder, the address of the Bidder including City, State and Zip Code, and the telephone number of the Bidder.

- For bids by corporations, an officer of the corporation shall sign the bid; Bidder shall identify the State of incorporation and affix their corporate seal.
- For bids submitted by an agent, Bidder shall attach to the proposal evidence of the power of attorney.
- For bids submitted by a partnership or joint venture, the proposal shall identify the name of all firms and the authorized parties of all firms. The bidder shall attach a copy of the partnership/joint-venture agreement to the proposal.

**Modification or Withdrawal of Bid Proposal**
Bidder may modify or withdraw their proposal at any point up to the specified time and date identified for receipt of proposals. Any request for bid withdrawal or modification by the Bidder that is received after the specified time and date for receipt of proposals will be returned unopened to the sender.

Any modification a Bidder desires to make to their proposal, subject to the time constraint noted herein, must be made on the proposal forms contained in the project manual. The Bidder's authorized representative must sign the modification. The modification shall be placed in a sealed envelope and the statement "Modification to Proposal" shall be legibly marked in the upper left hand corner. Withdrawal of a proposal may be made, subject to the time constraint noted herein, only with written confirmation under signature of the Bidder.

**Bid Guaranty**
Each bid proposal must include a bid guaranty in the amount of five percent (5%) of the total amount of the bid. The bid guaranty may be by bid bond or certified check made payable to the Owner. The bid bond shall be from a responsible surety qualified to conduct business within the State of **Iowa** If Bidder uses a certified check, the certified check must be issued from a responsible and solvent bank or trust company.

**Buy America Preference**
As a matter of bid responsiveness, Bidder must indicate within their proposal how they intend to comply with the Buy America preferences established by Title 49 USC 50101. The bidder may choose to certify it will comply with Buy America preferences by only installing steel and manufactured products that are 100% made in the United States; or the bidder may choose to certify that they cannot fully comply with Buy America preferences and thus requests a waiver to Buy America preferences.

A bidder that certifies they will meet Buy America preferences by requesting a waiver also agrees to prepare and submit a formal waiver request and the associated component cost calculation if selected by the owner as the bidder with the apparent low bid. The successful bidder must submit their formal waiver request and component cost calculation to the owner within the timeframe prescribed on the Buy America certification.

**Disadvantage Business Enterprise (DBE)**
The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the City of Storm Lake, Iowa to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders, including those who qualify as a Disadvantaged Business Enterprise.

The Owner has established a DBE contract goal of **0.0%** percent for this contract. The Bidder/Offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26, to subcontract ***0.0%*** of the dollar value of the prime contract to certified DBE firms as defined in 49 CFR Part 26.

All bidders shall submit the following information with their proposal on the forms provided:

(1) The names and addresses of DBE firms that will participate in the contract;
(2) A description of the work that each DBE firm will perform;
(3) The dollar amount of the participation of each DBE firm participating;
(4) Written documentation of the Bidder/Offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
(5) Evidence of good faith efforts undertaken by the bidder, as described in appendix A to 49 CFR Part 26.

The successful Bidder will be required to provide written confirmation from the participating DBE firms verifying their intent to participate as in the project. This written confirmation shall be submitted prior to execution of the contract.

**Good Faith Efforts (DBE)**
Bidder must demonstrate that they made good faith efforts to achieve participation with DBE firms. This requires that the bidder show that it took all necessary and reasonable steps to secure participation by certified DBE firms. The owner will not consider mere pro forma efforts as a good faith effort.

Actions constituting evidence of good faith efforts are described in appendix A to 49 CFR Part 26. Such actions include but are not limited to:

- Soliciting DBE participation through all reasonable and available means. This may include public advertisements and phone calls/faxes to known certified DBE firms.
- Consult State Department of Transportation office to obtain a list of certified DBE firms.
- Selecting portions of work that increases the likelihood that DBE firms will be available to participate

- Providing DBE firms with sufficient information and time to review the project plans and specifications.
- Documenting all contacts with DBE firms. This includes name, address, phone number, date of contact and record of conversation/negotiation.

**Bidder Qualifications**
Each Bidder shall furnish the owner satisfactory evidence of their competency and financial capability to perform the proposed work. The Bidder shall demonstrate that they are a responsible firm that possesses the skills, abilities, and integrity to faithfully perform the project work. To be determined responsible, a prospective contractor must:

- Have adequate resources (financial, technical, etc.) to perform the contract, or the ability to obtain them;
- Be able to comply with the required or proposed delivery or performance schedule, considering all existing business commitments;
- Have a satisfactory performance record;
- Have a satisfactory record of integrity and business ethics; and
- Be otherwise qualified and eligible to receive an award under applicable laws and regulations.

Evidence of competency shall consist of statements covering the Bidder's past experience on similar work, a listing of plant and equipment immediately available for use on the project, and a listing of key personnel that are available for the project. The listing for plant and equipment shall identify the type, the capacity and the present condition of the item.

Evidence of financial responsibility shall consist of a confidential statement or report of the Bidder's financial resources and liabilities as of the last calendar year. A public accountant must certify such statements and reports. If the Bidder is presently pre-qualified with the State Highway agency, evidence of this pre-qualification may serve as evidence of financial responsibility in lieu of the certified financial statements and reports.

**Alternate Bids**
Bidder shall complete all blanks provided on the proposal forms. When so permitted by the Owner, the Bidder shall legibly write the statement "No Bid" for those alternate bid options that the Bidder elects not to submit a proposal.

**Submission of Bid Proposal**
Prospective bidders must submit their proposal to arrive at the office location identified within the Notice-to-bidders at the specified time and date for receipt of bids. The owner will not give consideration to any proposal received after the specified time. Owner will return late proposals in an unopened manner to the return address identified on the envelope.

Prospective bidders shall enclose their proposal in a sealed opaque envelope. The upper left hand corner of the envelope shall be marked as follows:

**Sealed Bid Proposal**

Bid of ______________________________________

For construction improvements at **Storm Lake Municipal Airport**

AIP Project No.: **3-19-0088-13**

To be opened at: **2:00 p.m. Central Time, on March 26, 2018**

For a modification to a previously submitted proposal, insert "Modification to Proposal" in place of "Sealed Bid Proposal"

**Bid Protest Procedure**
Any potential bidder wishing to file a protest concerning alleged improprieties with this solicitation must submit the protest in written format 72 hours prior to the specified time of the bid opening. The formal written protest must identify the name of vendor contesting the solicitation, the project name and number, and the specific grounds for the protest. All determinations made by the Owner are final. Bidders desiring a complete copy of the Owners protest procedures must make a written request to the Owner.

**Bid Opening**
The Owner or the Owner's representative will publicly open and read aloud all proposals submitted prior to the stated time and date for receipt of bids. Bidders, their authorized agents, and other interested parties may attend the bid opening. Owner will automatically reject any proposal without consideration that arrives after the stated time and date for receipt of bids. Owner will return late proposals in an unopened manner to the return address indicated on the envelope.

**Evaluation of Proposals**
The Owner reserves the rights to hold all proposals for purpose of review and evaluation by the Owner for a period not to exceed **Rehabilitate Apron & Connector Taxiway** calendar days from the stated date for receipt of bids. The Owner will tabulate all bids and verify proper extension of unit costs. The Bidder shall honor their proposal for the duration of this period

of review and evaluation. The bid guaranty will be held by the Owner until this period of review has expired or a contract has been formally executed or a purchase order has been issued.

**Bid Informalities and Irregularities**

The Owner reserves the right to waive any informality or irregularity discovered in any proposal, which in the owner's judgment best serves the Owner's interest. In the situation where an extension of a unit price is found to be incorrect, the stated unit price and correct extension will govern. In the event of a discrepancy between the written and numeral values, the written value shall take precedence.

**Irregular Proposals**

Proposals meeting the following criteria are subject to consideration as being irregular:

1. If the proposal is on a form other than that furnished by the Owner or Owner's representative.
2. If the form furnished by the Owner or Owner's representative is altered or detached from the original document.
3. If there are unauthorized additions, conditional or alternate pay items or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
4. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized pay items, for which the Bidder is not required to furnish a unit price.
5. If the proposal contains unit prices that are obviously unbalanced.
6. If the proposal is not accompanied by the bid guarantee specified herein.

**Disqualification of Bid Proposals**

The Owner reserves the right to reject any or all bids, as determined to be in the best interest of the Owner.
Causes for rejection of proposals include but are not limited to:

- Submittal of an irregular proposal;
- Submittal of more than one proposal from the same partnership, firm or corporation;
- Failure by Bidder to submit the bid prior to the stated time and date for receipt of bids;
- Failure by Bidder to furnish satisfactory bid guarantee;
- Failure by Bidder to provide all information required of the bid forms;
- Failure by Bidder to comply with the requirements of bid instructions;
- Failure by the Bidder to demonstrate good faith efforts in obtaining participation by certified DBE firms;
- Failure by the Bidder to certify how it intends to meet Buy America requirements (Buy America Certification);
- Determination by the Owner that Bidder is not qualified to accomplish the project work;
- Determination by the Owner that the Bidder has placed conditions on or qualified their proposal;
- Discovery of any alteration, interlineations or erasure of any project requirement by the Bidder;
- Inclusion of the Bidder on the "Excluded Parties Listing System" as maintained and published by the General Services Administration;
- Evidence of collusion among bidders.

**Cancellation of Award**

At any time prior to execution of a contract agreement, the Owner reserves the right to cancel the award for any reason without liability to the Bidder, with the exception of the return of the bid guaranty, at any time prior to execution of the contract.

**Notice of Award of Contract**

It is the intent of the Owner, after a period of review and evaluation, to award a contract to the responsible bidder that submits the lowest responsive proposal. The owner will notify the successful bidder their bid is acceptable through the Owner's issuance of a Notice-of-Award. The successful Bidder shall not construe issuance of the Notice-of-Award as a binding agreement. The proper execution of a contract agreement shall serve as the binding agreement.

**Federal Funding Assistance**

It is the intent of the Owner to seek Federal participation assistance for this project under the Airport Improvement Program (AIP). The Owner's Award of Contract is contingent upon the FAA concurrence with the award and the formal establishment of Federal assistance.

**Award of Alternates**

Unless specifically stated, the Owner reserves the right to accept alternates in any order or combination, which in the judgment of the Owner, best serves the Owner's interest.

**Return of Bid Guaranty**

The Owner will return the bid guaranty of the successful Bidder upon successful execution of the contract agreement or issuance of a purchase order. Failure by the successful Bidder to execute the contract documents or commence with the purchase order within the specified time shall result in forfeiture of the bid guaranty.

The Owner will retain the bid guaranty of the second and third lowest responsible bidders for a period of Sixty (60) days after bid opening pending the execution of the contract documents by the successful bidder or the acceptance of the purchase order. Except as noted above, the bid guaranty of unsuccessful bidders will be returned at the point the Owner rejects their proposal.

**Contract Agreement**

The successful Bidder shall execute the contract agreement in accordance with the accepted bid proposal within thirty (30) days of the date of the Notice-of-Award. Failure to execute the contract agreement within the specified time frame may result in the bid being awarded to the next low bidder and shall result in the forfeiture of the Bidder's bid guarantee as a liquidated damage.

**Performance and Payment Bonds**

The successful Bidder shall furnish separate performance and payment bonds each in the amount of 100% of the contract price. The bonds shall be made payable to the Owner as security for faithful performance of the contract and for the payment of all persons, firms or corporations to whom the Bidder may become legally indebted for labor, materials, tools, equipment or services in the performance of the project work. The form of the bond shall be that provided within the project manual. The current power of attorney for the person signing the bond as a representative of the surety shall be attached to the bonds.

The successful bidding must deliver the executed bonds to the Owner within fifteen (15) calendar days from the date of contract execution. Bonds should not be executed prior to execution of the contract agreement. Owner will only accept bonds issued by a solvent Surety, which is certified to operate within the State the project work is located and which is listed in the current issue of the U.S. Treasury Circular 570. If specifically requested by the Owner, the successful Bidder shall obtain and submit information on the surety's financial strength rating.

**Certificates of Insurance**

The successful Bidder shall furnish to the Owner all required certificates of insurance as specified with the project manual.

**DBE Affirmation**

If not submitted with the proposal, the successful Bidder shall furnish, prior to execution of the contract agreement, written affirmation from each identified Disadvantaged Business Enterprise (DBE) firm of their intent to participate in the project.

**Buy America Waiver**

If the successful bidder submits a Buy America Certification that indicates they can only meet AIP Buy America preference by requesting a waiver, the bidder must submit to the owner a formal waiver request that indicates the specific percentage of components and subcomponents produced in the United States and whether final assembly occurs within the United States. The successful bidder must also attach to the waiver request a copy of the component cost calculation that demonstrates how the bidder derived the noted percentage value.

**Approval of the Contract**

The Owner will not enter into a contract with the successful bidder until Owner approves the Bidder's proposed DBE participation and the FAA concurs with any waiver request to Buy America preferences made by the Bidder

Upon receipt of the Contract Agreement, Contract Bonds and Certificate of Insurance as executed from the successful Bidder, the Owner will complete execution of the contract conditioned upon the Owner's judgment that it remains in their best interest to enter into the Agreement.

Delivery of the fully executed Contract Agreement to the successful Bidder shall constitute the Owner's approval to be bound by the successful Bidder's proposal and all terms and conditions of the Contract Agreement. Upon satisfactory execution of the contract by the successful Bidder and the Owner, all references to "Bidder" in the bid documents become equivalent to the term "Contractor".

## ELECTRONIC/DIGITAL DOCUMENTS

### PART 1 -- GENERAL

1.1 SUMMARY

A. The Owner or Engineer may elect to provide copies of the contract documents or supplemental information to the Contractor in electronic/digital media format. This section governs the availability, use and limitations of information provided in electronic/digital format.

1.2 FORMAT OF DOCUMENTS AND CONTROLLING CRITERIA

A. The Agreement identifies the contract documents upon which the Bidder or Contractor may rely. The General Conditions set forth the provisions governing the intent, interpretation and use of the contract documents. This section is intended to augment the Agreement and General Conditions and to clarify limitations on the use of electronic/digital documents.

B. “Hard Copies” of the Contract Documents consist of complete sets of those documents specifically listed in the Agreement including the version of the plans and specifications that are signed and sealed with original signature (or unalterable and legally acceptable facsimile copy of said signature) denoting the designer’s final intent for bidding purposes. Electronic/digital files in the “Native File Format” are saved in the default file format used by a specific software application. The native file format of an application is proprietary and these types of files are not meant to be transferred to other applications. Electronic/digital files in the native file format may be altered and may not be representative of the paper copies of the documents

C. For bidding purposes only, Hard Copies of the Contract Documents shall be construed to include electronic/digital files of the Bidding Documents (as defined in Section 00200), prepared by Engineer and provided under direction of Engineer in a Portable Document Format (PDF) format or other file format that is intended by the Engineer and Owner to be unalterable and exactly representative of the information contained in the paper copies of the documents.

D. The project plans graphically set forth design requirements for the project. These plans are a two-dimensional representation of three-dimensional existing conditions and proposed improvements. Because it is generally impossible to economically or graphically duplicate real world conditions on a two-dimensional plan format, certain approximations, graphical simplifications, intentional or unintentional inaccuracies must generally be used to adequately describe the existing conditions and work to be done on the plans. Because of these graphical compromises, certain dimensions and other supplementary notes and information may be added to the plans to control the specific requirements of the design. Electronic/digital versions of the plans in PDF format, native file format or other electronic file format may imply a spatial accuracy that exceeds the graphical limitations of the original plan set. This is also true of supplementary electronic/digital information developed from the plans or underlying support data (such as layers, hidden lines, survey points or topographic computational networks).

E. In the event of a conflict between an electronic/digital version of a Contract Document and the Hard Copy of the document, the Hard Copy shall be deemed to govern. Bidders, by submitting a bid, and the Contractor by executing the contract, acknowledge these graphical limitations to the plan development process and accept the controlling nature of the Hard Copies of all project documents as set forth in the General Conditions.

1.3 AVAILABILITY AND USE OF DIGITAL/ELECTRONIC DOCUMENTS

A. When the Advertisement for Bids or Project Manual indicate that electronic/digital copies of the Plans and Specifications are available, such documents shall be made available to the Bidder or Contractor upon request in PDF format or other file format that is intended by the Engineer and Owner to be unalterable and exactly representative of the information contained in the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of electronic/digital documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that electronic/digital versions and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Except as otherwise advised, the Bidder may use and rely upon complete sets of the PDF or other electronic/digital version of the Bidding Documents, prepared by the Engineer and provided under direction of the Engineer, for preparation of its bid. However, Contractor assumes all risks associated with differences arising from transmission/receipt of electronic/digital versions and reproductions prepared from those versions and, further, assumes all risks, costs and responsibility associated with use of the electronic/digital versions to derive information that is not explicitly contained in the paper copies of the documents and for Bidder's reliance upon such derived information.

C. When using PDF versions of the bidding documents, the Contractor shall prepare its Bid on a printed paper copy of the Bid Form from the PDF file; submit its bid together with all required submittals; and deliver the Bid in the manner described in the bidding documents. The printed copy of the Bid Form shall be clearly legible, printed on 8 ½ inch by 11 inch paper and as closely identical in appearance to the PDF Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the Hard Copy of the Bid Form, providing that all required information and submittals are included with the bid.

D. After a Contract is awarded, the Owner may provide or direct the Engineer to provide for the use of the Contractor such electronic/digital copies of the contract documents or other support documents in native file formats as may have been previously developed as part of the Project design process. Release of such information, if available, shall be deemed to be solely for the convenience of the Contractor. Unless the Contract Documents explicitly identify that such information shall be available to the successful Bidder, nothing herein shall create an obligation on the part of the Owner or Engineer to provide or create such information and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital data is appropriate and adequate for the Contractor's specific purposes. In no case shall the Contractor be entitled to extra compensation or adjustment in contract time due to claims arising from any differences between the Hard Copies of the Contract Documents and electronic/digital data.

E. Release of all electronic/digital information requested by the Contractor shall be at the sole discretion of the Owner or Engineer and a separate charge will be made to the Contractor for creation or preparation of such information.

F. Release of electronic/digital data shall be subject to the herein accompanying form, entitled "REQUEST TO PROJECT ENGINEER FOR ELECTRONIC/DIGITAL DATA AND CONDITIONS OF USE," together with such other limitations as the Owner or Engineer may deem appropriate for the Project. In the event of questions, conflicts, inconsistencies between any the electronic/digital data, the Hard Copies of the Contract Documents shall govern unless otherwise directed in writing by the Owner and Engineer.

G. In the event that Owner elects to provide or directs the Engineer to provide to the Contractor any Contractor-requested electronic/digital data that is not explicitly identified in the Contract Documents as being available to the successful bidder, the Engineer shall be reimbursed by the Contractor on an hourly basis (at $120 per hour) for all engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by the Engineer.

******END OF SECTION******

REQUEST TO PROJECT ENGINEER (BOLTON & MENK, INC. "BMI")
FOR ELECTRONIC/DIGITAL DATA AND CONDITIONS OF USE

| | |
|---|---|
| Project Contractor ("USER"): | |
| Project Owner | City of Storm Lake |
| Project Name | Rehabilitate Apron & Connector Taxiway |
| Description of Data/Files To Be Provided | |

A. The electronic/digital data covered by this Request was prepared by BMI as an internal working document for its purposes solely and is being provided to USER on an "AS IS" basis without any warranties of any kind, including, but not limited to implied warranties of fitness for any purpose. As such, the USER is advised and acknowledges that the information may not be suitable for the USER's application or may require substantial modification and independent verification by the USER. Information may include intentional or unintentional inaccuracies, approximations, graphical simplifications, undocumented intermediate revisions and other devices that may affect subsequent reuse.

B. The electronic/digital data may not accurately reflect the printed products (also known as Hard Copies) that are signed or sealed by BMI. In the case of conflicts between the signed or sealed documents and electronic/digital data, the Hard Copies shall control. Files in electronic/digital media format of text, data, graphics, or of other types that are provided by BMI to USER are only for convenience of USER. Any conclusion or information obtained or derived from such electronic/digital data will be at the USER's sole risk and the USER waives any claims against BMI or PROJECT OWNER arising from use of electronic/digital data.

C. USER shall indemnify and hold harmless PROJECT OWNER and BMI and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from USER's use, adaptation or distribution of any electronic/digital data provided under this Request.

D. All Documents provided in electronic/digital format are instruments of service and, unless otherwise specifically identified in the Contract between the USER and PROJECT OWNER, are not Contract Documents. BMI shall retain all ownership, copyrights and property interests therein, subject to any agreement between BMI and the PROJECT OWNER. Nothing herein shall be deemed to bea transfer of the ownership rights of BMI or those of the PROJECT OWNER to the USER and USER's rights regarding any information shall be limited those explicitly described in this Request.

E. Although BMI may advise the USER of known errors or required updates in electronic/digital data provided to the USER upon discovery by BMI or notice to BMI of such conditions, the USER agrees that BMI and PROJECT OWNER are under no obligation to notify USER or correct, revise, update or otherwise maintain any electronic/digital data provided to the USER, nor shall the USER be entitled to make any claim for extra compensation or other consideration on account of using such data.

F. USER agrees not to sell, copy, transfer, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of BMI, unless such distribution is specifically identified in this request and is limited to USER's subcontractors. USER warrants that subsequent use by USER'S subcontractors shall comply with all terms of this Request.

G. Provision of this information does not include any license of software or other systems necessary to read, use or reproduce the information. USER assumes all responsibility to obtain any necessary software and appropriate licenses to utilize the information in any format or application.

H. The USER shall compensate BMI in the amount of $120.00/per hour for all labor and expenses associated with the handling, processing and delivery of the information in an "as is" form or to adapt such information into a form which BMI, in its sole discretion, deems to reasonably reflect the limits of the accuracy or usability of the information. USER acknowledges such compensation shall be deemed to be a data processing fee and is not a design fee or part of the design fees paid by the PROJECT OWNER to BMI.

Accepted by: USER

Printed Name of "USER"

Date

Name and Title of Authorized Representative of USER

Signature of Authorized Representative of USER

Approved: Project Engineer:
(BMI)

Signature of Project Engineer's Representative

Version 04/11/0

# Items to be Submitted With the Bid

## Rehabilitate Apron & Connector Taxiway

## Storm Lake Municipal Airport

## T51.115389

## 3-19-0088-13

## City of Storm Lake

**Intentionally Left Blank**

## PROPOSAL FORM

AIP Project: 3-19-0088-13

**TO:** City/County Manager
City/County of ***Storm Lake, Iowa***

The undersigned, in compliance with the request for bids for construction of the following Project:

**Rehabilitate Apron & Connector Taxiway**

hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment to faithfully perform all work required for construction of the Project in accordance with the project manual, project drawings and issued Addenda within the specified time of performance for the following prices:

| **BASE BID** | | | | | | |
|---|---|---|---|---|---|---|
| **ITEM** | **ITEM CODE** | **DESCRIPTION** | **QUANTITY** | **UNIT** | **UNIT PRICE** | **EXTENSION** |
| 1 | GP-105-5.1 | MOBILIZATION | 1 | LS | $________________ | $________________ |
| 2 | ------ | TRAFFIC CONTROL | 1 | LS | $________________ | $________________ |
| 3 | P-101-5.1 | PAVEMENT REMOVAL | 150 | SY | $________________ | $________________ |
| 4 | P-152-4.1 | SUBGRADE - TRIM, SHAPE AND COMPACT | 150 | SY | $________________ | $________________ |
| 5 | P-209-5.1 | CRUSHED AGGREGATE BASE COURSE | 150 | SY | $________________ | $________________ |
| 6 | M-361-5.1 | JOINT SEALANT | 20170 | LF | $________________ | $_______________ |
| 7 | M-361-5.2 | CRACK SEALANT | 520 | LF | $________________ | $_______________ |
| 8 | M-564-5.1 | CONCRETE REPAIR - TYPE 1 (PANEL REPLACEMENT) | 150 | SY | $________________ | $_______________ |
| 9 | M-564-5.2 | CONCRETE REPAIR - TYPE 2B (PARTIAL DEPTH REPAIR) | 20 | EA | $________________ | $_______________ |
| | | | | | | |
| **TOTAL BASE BID (Numeral Format) …………………………………………………………..** | | | | | **$______________________________** | |
| **TOTAL BASE BID (Written Format):** | | | **________________________________________________** | | | |

## ACKNOWLEDGEMENTS BY BIDDER

a. By submittal of a proposal, the BIDDER acknowledges and accepts that the quantities established by the OWNER are an approximate estimate of the quantities required to fully complete the Project and that the estimated quantities are principally intended to serve as a basis for evaluation of bids. The BIDDER further acknowledges and accepts that payment under this contract will be made only for actual quantities and that quantities will vary in accordance with the General Provisions subsection entitled “Alteration of Work and Quantities”.

b. The BIDDER acknowledges and accepts that the Bid Documents are comprised of the documents identified within the Instructions to Bidders. The BIDDER further acknowledges that each the individual documents that comprise the Bid Documents are complementary to one another and together establishes the complete terms, conditions and obligations of the successful BIDDER.

c. As evidence of good faith in submitting this proposal, the undersigned encloses a bid guaranty in the form of a certified check or bid bond in the amount of 5% of the bid price. The BIDDER acknowledges and accepts that refusal or failure to accept award and execute a contract within the terms and conditions established herein will result in forfeiture of the bid guaranty to the owner as a liquidated damage.

d. The BIDDER acknowledges and accepts the OWNER’S right to reject any or all bids and to waive any minor informality in any Bid or solicitation procedure.

e. The BIDDER acknowledges and accepts the OWNER’S right to hold all Proposals for purposes of review and evaluation and not issue a notice-of-award for a period not to exceed **Rehabilitate Apron & Connector Taxiway** calendar days from the stated date for receipt of bids.

f. The undersigned agrees that upon written notice of award of contract, he or she will execute the contract within thirty (30) days of the notice-of-award and furthermore and provide executed payment and performance bonds within fifteen (15) days from the date of contract execution. The undersigned accepts that failure to execute the contract and provide the required bonds within the stated timeframe shall result in forfeiture of the bid guaranty to the owner as a liquidated damage.

g. Time of Performance: By submittal of this proposal, the undersigned acknowledges and agrees to commence work within ten (10) calendar days of the date specified in the written “Notice-to-Proceed” as issued by the OWNER. The undersigned further agrees to complete the Project within **15 Working** days from the commencement date specified in the Notice-to-Proceed.

h. The undersigned acknowledges and accepts that for each and every Calendar/Working day the project remains incomplete beyond the contract time of performance, the Contractor shall pay the non-penal amount of Rehabilitate Apron & Connector Taxiway per Calendar/Working day as a liquidated damage to the OWNER.

i. The BIDDER acknowledges that the OWNER has established a contract Disadvantaged Business Enterprise goal of 0.0% for this project. The BIDDER acknowledges and accepts the requirement to apply and document good faith efforts, as defined in Appendix A, 49 CFR Part 26, for subcontracting a portion of the prime contract to certified Disadvantaged Business Enterprises (DBE), as defined in 49 CFR Part 26 for purposes of meeting the OWNER’S established goal. The BIDDER, in complying with this requirement, proposes participation by Disadvantaged Business Enterprises as stated on the attached forms, “Utilization Statement” and “Letter of Intent”

j. The BIDDER, by submission of a proposal, acknowledges that award of this contract is subject to the provisions of the Davis-Bacon Act. The BIDDER accepts the requirement to pay prevailing wages for each classification and type of worker as established in the attached wage rate determination as issued by the United States Department of Labor. The BIDDER further acknowledges and accepts their requirement to incorporate the provision to pay the established prevailing wages in every subcontract agreement entered into by the Bidder under this project.

k. Compliance Reports (41 CFR Part 60-1.7): Within 30 days after award of this contract, the Contractor/Subcontractor shall file a compliance report (Standard Form 100) if s/he has not submitted a complete compliance report within 12 months proceeding the date of award. This report is required if the Contractor/Subcontractor meets all of the following conditions:
   1. Contractors/Subcontractors are not exempt based on 41 CFR 60-1,5.
   2. Has 50 or more employees.
   3. Is a prime contractor or first tier subcontractor.
   4. There is a contract, subcontract, or purchase order amounting to $50,000 or more

l. The undersigned acknowledges receipt of the following addenda:

Addendum Number ___ dated ________ Received________________

Addendum Number ___ dated ________ Received________________

Addendum Number ___ dated ________ Received________________

**a. <u>REPRESENTATIONS BY BIDDER</u>**

By submittal of a proposal (bid), the BIDDER represents the following:

a. The BIDDER has read and thoroughly examined the bid documents including all authorized addenda.

b. The BIDDER has a complete understanding of the terms and conditions required for the satisfactory performance of project work.

c. The BIDDER has fully informed themselves of the project site, the project site conditions and the surrounding area.

d. The BIDDER has familiarized themselves of the requirements of working on an operating airport and understands the conditions that may in any manner affect cost, progress or performance of the work

e. The BIDDER has correlated their observations with that of the project documents.

f. The BIDDER has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.

g. The BIDDER is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.

h. The BIDDER has complied with all requirements of these instructions and the associated project documents.

**b. <u>CERTIFICATIONS BY BIDDER</u>**

a. The undersigned hereby declares and certifies that the only parties interested in this proposal are named herein and that this proposal is made without collusion with any other person, firm or corporation. The undersigned further certifies that no member, officer or agent of OWNER'S has direct or indirect financial interest in this proposal.

b. **Certification of Non-Segregated Facilities:** (41 CFR Part 60-1.8)
The BIDDER, as a potential federally-assisted construction contractor, certifies that it <u>does not</u> maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it <u>will not</u> maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

c. **Trade Restriction Certification:** (49 CFR Part 30)
The Bidder, by submission of an offer certifies that it:

1. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
2. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
3. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

d. **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion:** (49 CFR Part 29)
The Bidder certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the Bidder or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

e. **Buy American Certification:** (Title 49 U.S.C. Chapter 501)
As a condition of bid responsiveness, the bidder must how it intend to comply with the Buy American preferences established under Title 49 U.S.C. Section 50101. Bidder must complete the attached Buy American certification. If the bidder requests a permissible waiver to the Buy America requirements, the Bidder identified as with the successful bid must submit a formal waiver request and component cost calculation within the prescribed time identified on the Buy America certification.

**c.** **ATTACHMENTS TO THIS BID**

The following documents are attached to and made a part of this Bid:

1. Bid Guaranty in the form of ____________________________________________________________;
2. Evidence of BIDDER'S qualifications per the requirements of the Instructions-to-Bidders.

**d.** **SIGNATURE OF BIDDER**

**IF AN INDIVIDUAL:**

Name: ________________________________________

By: ____________________________________________
*(Signature of Individual)*

Doing Business as: ________________________________________

Business Address: ________________________________________

________________________________________

Telephone Number: ____________________________________________

**IF A PARTNERSHIP:**

Partnership Name: ________________________________________

By: ________________________________________
*(Authorized Signature)*
*(Attach Evidence of Authority to sign as a Partnership)*

Name and Title: ________________________________________

Business Address: ________________________________________

________________________________________

Telephone Number: ___________________

**IF A CORPORATION:**

Corporation Name: ________________________________________

By: ________________________________________
*(Authorized Signature)*
*(Attach Evidence of Authority to sign)*

Name and Title: ________________________________________

Business Address: ________________________________________ (CORPORATE SEAL)

________________________________________

Telephone Number: ____________________

ATTEST:

By: ________________________________________
*(Authorized Signature)*

Name and Title: ________________________________________

**IF A JOINT VENTURE:** *(Attach copy of Joint Venture Agreement)*

Joint Venture Name: ________________________________________

By: ________________________________________
*(Authorized Signature)*
*(Attach Evidence of Authority to sign)*

Name and Title: ________________________________________

Business Address: ________________________________________

________________________________________

Telephone Number: ______________________

Joint Venture Name: ________________________________________

By: ____________________________________________
*(Authorized Signature)*
*(Attach Evidence of Authority to sign)*

Name and Title: ________________________________________

Business Address: ________________________________________

________________________________________

Telephone Number: ____________________

## Buy America Waiver Request

Title 49 U.S.C Section 50101 (b)

### *For Airfield Development Projects funded under the Airport Improvement Program*

**Type of Waiver Request:**

The bidder may request a waiver subject to the provisions of Section 50101(b)(3) or Section 50101(b)(4). The bidder may not request a waiver under Section 50101(b)(1) or Section 50101(b)(2). Bidder is hereby advised that the Owner's approval with the bidder's waiver request is contingent upon FAA approval. The bidder must select one of the following applicable waiver provisions:

❒ Section 50101(b)(3): Bidder hereby requests a waiver to Buy America preferences based upon Section 50101(b)(3) for the equipment identified below. The bidder certifies that _____ % of the cost of components and subcomponents comprising the equipment are produced in the United States and that final assembly occurs within the United States. *(Bidder must attach a copy of the component cost calculation table)*

Equipment: ______________________________________________________

❒ Section 50101(b)(4). Bidder hereby requests a waiver to Buy America preferences based upon Section 50101(b)(4). The bidder asserts provision of domestic material increases the cost of the overall project by more than 25%. *(Note: This type of waiver is very rare)*

**Certification Signature**

In accordance with Section 50101(b), we request a waiver to the Buy America provisions based on the above certification and attached documentation.

_____________________________________________ ___________________

*Bidder's Firm Name* *Date*

_____________________________________________

*Signature*

**e. Instructions for Section 50101(b)(3) Waiver:**

1. "Equipment" in Section 50101 shall mean the following:
   a) Individual type "L" items (Airfield Lighting Equipment) as listed in FAA Advisory Circular 150/5345-53.
   b) Individual bid items as established within FAA Advisory Circular 150/5370-10. The bid item application may not be applied for the type "L" items listed in AC 150/5345-53.
   c) A waiver request may only address one specific equipment item. Submit separate requests for each equipment item for which a waiver.
   d) Items listed under the Nationwide Waiver do not require further review. Please refer to the following webpage: http://www.faa.gov/airports/aip/procurement/federal_contract_provisions/media/buy_american_waiver.xls
2. The bidder must base the U.S. percentage upon the value that results from completing a component cost calculation table similar to the attached format. Bidder shall avoid mere pro forma efforts to establish the waiver request percentage. The Bidder must submit the component cost calculation table as an attachment to the waiver request.
3. Components/subcomponents are the material and products composing the "equipment".
4. The final assembly of the AIP-funded "equipment" must be within the USA *(Section 50101(b)(3)(B)).* Final assembly is the substantial transformation of the components and subcomponents into the end product.
5. All steel used in the "Equipment" must be produced in the United States.
6. The Buy American requirements apply to all tier contractors and subcontractors. All contractors/subcontractors are required to provide appropriate documentation that indicates origin of manufacturer and percentage of domestic made product.
7. The bidder is hereby advised there is no implied or expressed guarantee that a requested waiver will be issued by the Federal Aviation Administration (FAA). Less than 60% USA component/subcomponent proposed for this facility CANNOT be waived. Products made with foreign steel are not eligible for a waiver.

**f. Instructions for Section 50101(b)(4) Waiver:**

1. The 25% cost increase waiver is rarely applicable. Consult Owner before making this request.

**g. North America Free Trade Act (NAFTA)**

The NAFTA **does not** apply to the AIP. Products and material made in Canada or Mexico must be considered as foreign made products.

## COMPONENT COST CALCULATION TABLE

- *In lieu of completing this table, bidder may prepare a spreadsheet that addresses the same information and calculations as presented herein.*
- *An authorized person shall attest under signature and date that the submitted information is accurate and complete.*
- *The bidder/contractor shall submit the signed component cost calculation table to the Owner as an attachment to the waiver request*
- *The component breakout shall be along major components of the equipment.*
- *Submit separate calculation for each different equipment types. Do not combine the component cost calculations of different types of equipment.*
- *For Airfield development projects, equipment is defined as the "L" items (Airfield Lighting Equipment) as listed in FAA Advisory Circular 150/5345-53 and the b) individual bid items as established within FAA Advisory Circular 150/5370-10. The individual bid item method may not be applied to the "L" type items.*

**Equipment Type: ________________________________**

| Component/Subcomponents | Name of Manufacturer | Country of Origin | Cost of Foreign Manufactured Components/Subcomponents | Cost of USA Manufactured Components/Subcomponents |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Sum of US Manufactured Component/Subcomponent Costs:** ____________________

**Sum of all Equipment Components and Subcomponents:** ____________________

**Percentage of Equipment Components Manufactured in the United States:** ____________________

**Place of Final Assembly:___________________**

**Certification Signature**

**I hereby certify the above information is accurate and complete.**

______________________ ______________

*Bidder's Firm Name* *Date*

__________________________________________________

*Signature*

**Buy America Conformance Listing**

Title 49 U.S.C Section 50101 (b)

**For Airfield Development Projects funded under the Airport Improvement Program**

- *Preparation of a Component Cost Calculation Table is not necessary for equipment listed on the FAA national listing: http://www.faa.gov/airports/aip/procurement/federal_contract_provisions/media/buy_american_waiver.xls*
- *Bidder shall submit a listing of equipment it proposes to install on the project that is included on the current National Buy American conformance list.*

| Equipment Type | Name of Manufacturer | Product Number |
|---|---|---|
| | | |
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**Certification Signature:**

**Bidder hereby certifies that the above listed equipment, which we propose for installation on the subject project, are on the current National Buy America Conformance list on the website listed above.**

**I hereby certify the above information is accurate and complete.**

_______________________________ ___________________

*Bidder's Firm Name* *Date*

_________________________________________________

*Signature*

## IDENTITY OF BIDDER

The bidder shall indicate whether the bid is Submitted by a/an:

- □ Individual, Sole Proprietorship
- □ Partnership
- □ Corporation
- □ Limited Liability Company
- □ Joint-venture; all parties must join-in and execute all documents
- □ Other

The bidder shall enter its Public Registration Number __ __ __ __ __ - __ __ issued by the Iowa Commissioner of Labor Pursuant Section 91C.5 of the Iowa Code.

Failure to provide said Registration Number shall result in the bid being read under advisement. A contract will not be executed until the Contractor is registered.

______________________________
Bidder

______________________________
Signature

By ______________________________
Name (Print/Type)

______________________________
Title

______________________________
Street Address

______________________________
City, State, Zip Code

______________________________
Telephone Number

**Type or print the name and title of the company's owner, president, CEO, etc. if a different person than entered above**

______________________________
Name

______________________________
Title

**NOTE: The signature on this proposal must be an original signature in ink; copies, facsimiles, or electronic signatures will not be accepted.**

All bidders must submit the following completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156.

## Bidder Status Form

To be completed by all bidders **Part A**

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No My company has an office to transact business in Iowa.

☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a non-resident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders **Part B**

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: ____________ to ____________ Address: ____________________

(mm/dd/yyy) City, State, Zip: ____________________

Dates: ____________ to ____________ Address: ____________________

(mm/dd/yyy) City, State, Zip: ____________________

Dates: ____________ to ____________ Address: ____________________

(mm/dd/yyy) City, State, Zip: ____________________

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders **Part C**

1. Name of home state or foreign country reported to the Iowa Secretary of State: ____________________
2. Does your company's home state or foreign country offer preferences to bidders who are residents? ☐ Yes ☐ No
3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

____________________

____________________

You may attach additional sheet(s) if needed.

To be completed by all bidders **Part D**

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be reason to reject my bid.

Firm Name: ____________________

Signature: ____________________ Date: ____________

## WORKSHEET: AUTHORIZATION TO TRANSACT BUSINESS

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.

☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes

☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa Secretary of State, has filed its most recent biennial report with the Secretary of State, and has neither received a certificate of withdrawal from the Secretary of state nor had its authority revoked.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa Secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

**BID BOND**

Rehabilitate Apron & Connector Taxiway
City of Storm Lake
Storm Lake, Iowa

KNOW ALL BY THESE PRESENTS:
That we, ____________________________________________________________, as Principal, and
____________________________________________________________________________________________
______________________, as Surety, are held and firmly bound unto, City of Storm Lake as Obligee, (hereinafter referred to as "the Jurisdiction"), in the penal sum of _______________________________________________________________
______________________________dollars ($_______________), lawful money of the United States, for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the Jurisdiction a certain proposal, in a separate envelope, and hereby made a part hereof, to enter into a contract in writing, for the following described improvements;

PROJECT DESCRIPTION: Apron and Taxiway Rehabilitation

The Surety hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Jurisdiction may accept such bid or execute such Contract; and said Surety does hereby waive notice of any such extension.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Buena Vista County, State of Iowa. If legal action is required by the Jurisdiction against the Surety or Principal to enforce the provisions of the bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Surety or Principal agrees to pay the Jurisdiction all damages, costs, and attorney fees incurred by enforcing any of the provisions of this Bond. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against Surety for any amount guaranteed hereunder whether action is brought against Principal or whether Principal is joined in any such action or actions or not.

NOW, THEREFORE, if said proposal by the Principal be accepted, and the Principal shall enter into a contract with Jurisdiction in accordance with the terms of such proposal, including the provision of insurance and of a bond as may be specified in the contract documents, with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void; otherwise, the Principal shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _______________ day of ______________________________, 20____.

| | SURETY: | | PRINCIPAL: |
|---|---|---|---|
| | Surety Company | | Bidder |
| By | Signature Attorney-in-Fact/Officer | By | Signature |
| | Name of Attorney-in-Fact/Officer | | Name (Print/Type) |
| | Company Name | | Title |
| | Company Address | | Address |
| | City, State, Zip Code | | City, State, Zip Code |
| | Company Telephone Number | | Telephone Number |

**NOTE: All signatures on this bid bond must be original signatures in ink; copies or facsimile of any signature will not be accepted. This bond must be sealed with the Surety's raised, embossing seal or official adhesive seal. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal or official adhesive seal.**

# Items to be Executed After Award of Contract

## Rehabilitate Apron & Connector Taxiway

## Storm Lake Municipal Airport

T51.115389

3-19-0088-13

Storm Lake, Iowa

# Form of
## CONTRACT AGREEMENT
## <u>Rehabilitate Apron & Connector Taxiway</u>
AIP Project No.: **3-19-0088-13**

**THIS AGREEMENT,** made as of ________________________ is

**BY AND BETWEEN**

the OWNER: *The City of Storm Lake, 620 Erie Street, Storm Lake, Iowa*

And the CONTRACTOR:

**WITNESSETH:**

WHEREAS it is the intent of the Owner to make improvements at City of Storm Lake generally described as follows;

***Rehabilitate Apron & Connector Taxiway***

hereinafter referred to as the Project.

NOW THEREFORE in consideration of the mutual covenants hereinafter set forth, OWNER and CONTRACTOR agree as follows:

**Article 1 - Work**

It is hereby mutually agreed that for and in consideration of the payments as provided for herein to the CONTRACTOR by the OWNER, CONTRACTOR shall faithfully furnish all necessary labor, equipment, and material and shall fully perform all necessary work to complete the Project in strict accordance with this Contract Agreement and the Contract Documents.

**Article 2 – Contract Documents**

CONTRACTOR agrees that the Contract Documents consist of the following: this Agreement, General Provisions, Supplementary Provisions, Specifications, Drawings, all issued addenda, Notice-to-Bidders, Instructions-to-Bidders, Proposal and associated attachments, Performance Bond, Payment Bond, Wage Rate Determination, Insurance certificates, documents incorporated by reference, documents incorporated by attachment, and all OWNER authorized change orders issued subsequent to the date of this agreement. All documents comprising the Contract Documents are complementary to one another and together establish the complete terms, conditions and obligations of the CONTRACTOR. All said Contract Documents are incorporated by reference into the Contract Agreement as if fully rewritten herein or attached thereto.

**Article 3 – Contract Price**

In consideration of the faithful performance and completion of the Work by the CONTRACTOR in accordance with the Contract Documents, OWNER shall pay the CONTRACTOR an amount equal to:

$________________________________________ ($____________________)

*(Amount in Written Words)* *(Amount in Numerals)*

subject to the following:

a. Said amount is based on the schedule of prices and estimated quantities stated in CONTRACTOR'S Bid Proposal, which is attached to and made a part of this Agreement;
b. Said amount is the aggregate sum of the result of the CONTRACTOR'S stated unit prices multiplied by the associated estimated quantities;
c. CONTRACTOR and OWNER agree that said estimated quantities are not guaranteed and that the determination of actual quantities is to be made by the OWNER'S ENGINEER;
d. Said amount is subject to modification for additions and deductions as provided for within the Contract General Provisions.

**Article 4 – Payment**

Upon the completion of the work and its acceptance by the OWNER, all sums due the CONTRACTOR by reason of faithful performance of the work, taking into consideration additions to or deductions from the Contract price by reason of alterations or modifications of the original Contract or by reason of "Extra Work" authorized under this Contract, will be paid to the CONTRACTOR by the OWNER after said completion and acceptance.

The acceptance of final payment by the CONTRACTOR shall be considered as a release in full of all claims against the OWNER, arising out of, or by reason of, the work completed and materials furnished under this Contract.

OWNER shall make progress payments to the CONTRACTOR in accordance with the terms set forth in the General Provisions. Progress payments shall be based on estimates prepared by the ENGINEER for the value of work performed and materials completed in place in accordance with the Contract Drawings and Specifications.

Progress payments are subject to retainage requirements as set forth in the General Provisions.

**Article 5 – Contract Time**

The CONTRACTOR agrees to commence work within ten (10) calendar days of the date specified in the OWNER'S Notice-to-Proceed. CONTRACTOR further agrees to complete said work within **15 Working Days** of the commencement date stated within the Notice-to-Proceed.

It is expressly understood and agreed that the stated Contract Time is reasonable for the completion of the Work, taking all factors into consideration. Furthermore, extensions of the Contract Time may only be permitted by execution of a formal modification to this Contract Agreement in accordance with the General Provisions and as approved by the OWNER.

**Article 6 – Liquidated Damages**

The CONTRACTOR and OWNER understand and agree that time is of essence for completion of the Work and that the OWNER will suffer additional expense and financial loss if said Work is not completed within the authorized Contract Time. Furthermore, the CONTRACTOR and OWNER recognize and understand the difficulty, delay, and expense in establishing the exact amount of actual financial loss and additional expense. Accordingly, in place of requiring such proof, the CONTRACTOR expressly agrees to pay the OWNER as liquidated damages the non-penal sum of $500 per day for each Working day required in excess of the authorized Contract Time.

Furthermore, the CONTRACTOR understands and agrees that;

a. the OWNER has the right to deduct from any moneys due the CONTRACTOR, the amount of said liquidated damages;
b. the OWNER has the right to recover the amount of said liquidated damages from the CONTRACTOR, SURETY or both.

**Article 7 – CONTRACTOR'S Representations**

The CONTRACTOR understands and agrees that all representations made by the CONTRACTOR within the Proposal shall apply under this Agreement as if fully rewritten herein.

**Article 8 – CONTRACTOR'S Certifications**

The CONTRACTOR understands and agrees that all certifications made by the CONTRACTOR within the Proposal shall apply under this Agreement as if fully rewritten herein. The CONTRACTOR further certifies the following;

a. Certification of Eligibility (29 CFR Part 5.5)
    i. By Entering into this contract, the CONTRACTOR certifies that neither he or she nor any person or firm who has an interest in the CONTRACTOR'S firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1);
    ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1);
    iii. The penalty for making false statements is prescribed in the U.S. Criminal Code 18 U.S.C.

b. Certification of Non-Segregated Facilities (41 CFR Part 60-1.8)
   The federally-assisted construction CONTRACTOR, certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

   As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

**Article 9 – Miscellaneous**

a. CONTRACTOR understands that it shall be solely responsible for the means, methods, techniques, sequences and procedures of construction in connection with completion of the Work;

b. CONTRACTOR understands and agrees that it shall not accomplish any work or furnish any materials that are not covered or authorized by the Contract Documents unless authorized in writing by the OWNER or ENGINEER;

c. The rights of each party under this Agreement shall not be assigned or transferred to any other person, entity, firm or corporation without prior written consent of both parties;

d. OWNER and CONTRACTOR each bind itself, their partners, successors, assigns and legal representatives to the other party in respect to all covenants, agreements, and obligations contained in the Contract Documents.

**Article 10 – OWNER'S Representative**

The OWNER'S Representative, herein referred to as ENGINEER, is defined as follows:

*BOLTON & MENK INC*
*2730 FORD STREET*
*AMES, IA*

Said ENGINEER will act as the OWNER'S representative and shall assume all rights and authority assigned to the ENGINEER as stated within the Contract Documents in connection with the completion of the Project Work.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have executed five (5) copies of this Agreement on the day and year first noted herein.

**OWNER**

Name: ________________________________

Address: ________________________________

________________________________

________________________________

By: ______________________________________

*Signature*

______________________________________

*Title of Representative*

ATTEST

By: ______________________________________

*Signature*

______________________________________

*Title*

**CONTRACTOR**

Name: ________________________________

Address: ________________________________

________________________________

________________________________

By: ______________________________________

*Signature*

______________________________________

*Title of Representative*

ATTEST

By: ______________________________________

*Signature*

______________________________________

*Title*

# PERFORMANCE BOND

| Bond Number |
|---|
| |

| PRINCIPAL *(Legal Name and Business Address)* | STATE OF INCORPORATION |
|---|---|
| | |

| SURETY *(Legal Name and Business Address)* | CONTRACT NO. | CONTRACT DATE |
|---|---|---|
| | | |

PENAL SUM OF BOND *(Expressed in words and numerals)*

**OBLIGATION**

KNOW ALL PERSONS BY THESE PRESENTS, that the above named PRINCIPAL, hereinafter referred to and called CONTRACTOR, and the above named SURETY hereby bind themselves unto **The City of Storm Lake, 620 Erie Street, Storm Lake, Iowa** as OBLIGEE, hereinafter referred to and called OWNER, in the penal sum stated above, in lawful money of the United States of America to be paid to OWNER. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS,**

CONTRACTOR has entered into the written contract agreement identified hereinabove with the OWNER for the following project:

Project Name: Rehabilitate Apron & Connector Taxiway

Project Location: Storm Lake Municipal Airport

which said contract and associated contract documents, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

**CONDITION**

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform all undertakings, covenants, terms, conditions and agreements of the Contract during the original term of the Contract and any extensions thereof that are granted by the OWNER, with or without notice to the SURETY, and during the period of any guarantee or warranties required under the Contract, and if CONTRACTOR shall perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of the Contract that hereafter are made, then this obligation shall be void; otherwise it shall remain in full force and effect subject to the following additional conditions:

1. SURETY, for value received, hereby stipulates and agrees that no change, extension of time, modification, omission, addition or change in or to the Contract, or the work performed thereunder or the specifications accompanying the same, shall in any way affect the SURETY'S obligation on this bond; and SURETY hereby agrees to waive notice of any and all such extensions, modifications, omissions, alterations, and additions to the terms of the Contract, work or specifications.
2. Whenever CONTRACTOR shall be and declared by the OWNER to be in default under the Contract, the Surety shall promptly and at the SURETY'S expense remedy the default by implementing one or more of the following actions:
   a. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or
   b. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
   c. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract; arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER'S concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract; and make available as work progresses (even though there

should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the penal sum of the bond. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by OWNER to CONTRACTOR under the Contract and any amendments thereto, disbursed at the rate provided in the original contract, less the amount properly paid by OWNER to CONTRACTOR.

d. With written consent of the OWNER, SURETY may waive its right to perform and complete, arrange for completion or obtain a new contractor and with reasonable promptness, investigate and determine the amount the SURETY is liable to the OWNER and tender payment therefor to the OWNER.

3. CONTRACTOR and SURETY agree that if in connection with the enforcement of this Bond, the OWNER is required to engage the services of an attorney, that reasonable attorney fees incurred by the OWNER, with or without suit, are in addition to the balance of the contract price.

4. No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the successors or assigns of the OWNER.

**WITNESS**

In witness whereof, this instrument is executed this the _______ day of ___________________, 20___.

**INDIVIDUAL PRINCIPAL:**

Company Name: ______________________________

Signature: ______________________________

Name and Title: ______________________________

**CORPORATE PRINCIPAL:**

ATTEST**:**

Corporate Name: ______________________________

Signature: ______________________________ Signature: ______________________________

Name and Title: ______________________________ Name and Title: ______________________________

(Affix Corporate Seal)

**SURETY:**

ATTEST**:**

Surety Name: ____________________________

Signature: ______________________________ Signature: ____________________________

Name and Title: ______________________________ Name and Title: ____________________________

(Affix Seal) (Attach Power of Attorney)

**OWNER ACCEPTANCE**

The OWNER approves the form of this Performance Bond.

Date: _____________ Signature: ____________________________

Name and Title: ____________________________

ATTEST:

Signature: ______________________________

Name and Title: ______________________________

(Affix Seal)

# PAYMENT BOND

| Bond Number |
|---|
| |

| PRINCIPAL *(Legal Name and Business Address)* | | STATE OF INCORPORATION |
|---|---|---|
| SURETY *(Legal Name and Business Address)* | CONTRACT NO. | CONTRACT DATE |
| PENAL SUM OF BOND *(Expressed in words and numerals)* | | |

**OBLIGATION**
KNOW ALL PERSONS BY THESE PRESENTS, that the above named PRINCIPAL, hereinafter referred to and called CONTRACTOR, and the above named SURETY hereby bind themselves unto **The City of Storm Lake, 620 Erie Street, Storm Lake, Iowa** as OBLIGEE, hereinafter referred to and called OWNER, in the penal sum stated above, in lawful money of the United States of America to be paid to OWNER. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS,**
CONTRACTOR has entered into the written contract agreement identified hereinabove with the OWNER for the following project:

Project Name: **Rehabilitate Apron & Connector Taxiway**

Project Location: **Storm Lake Municipal Airport**

which said contract and associated contract documents, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

**CONDITION**
NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly make payment to all employees, persons, firms or corporations for all incurred indebtedness and just claims for labor, supplies, materials and services furnished for or used in connection with the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect subject to the following additional conditions:

1. CONTRACTOR and SURETY indemnify and hold harmless the OWNER for all claims, demands, liens or suits that arise from performance of the Contract
2. SURETY, for value received, hereby stipulates and agrees that no change, extension of time, modification, omission, addition or change in or to the Contract, or the work performed thereunder or the specifications accompanying the same, shall in any way affect the SURETY'S obligation on this bond; and SURETY hereby agrees to waive notice of any and all such extensions, modifications, omissions, alterations, and additions to the terms of the Contract, work or specifications.
3. No final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.
4. The amount of this bond shall be reduced by and to the extent of any payments made in good faith hereunder.
5. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the SURETY under this Bond, subject to the OWNER'S priority to use the funds for the completion of the project.

**WITNESS**

In witness whereof, this instrument is executed this the _______ day of ___________________, 20___.

**INDIVIDUAL PRINCIPAL:**

Company Name: _____________________________

Signature: _____________________________

Name and Title: _____________________________

**CORPORATE PRINCIPAL:**

ATTEST**:**

Corporate Name: _____________________________

Signature: _____________________________ Signature: _____________________________

Name and Title: _____________________________ Name and Title: _____________________________

(Affix Corporate Seal)

**SURETY:**

ATTEST**:**

Surety Name: _____________________________

Signature: _____________________________ Signature: _____________________________

Name and Title: _____________________________ Name and Title: _____________________________

(Affix Seal) (Attach Power of Attorney)

**OWNER ACCEPTANCE**

The OWNER approves the form of this Payment Bond.

Date: _____________ Signature: _____________________________

Name and Title: _____________________________

ATTEST:

Signature: _____________________________

Name and Title: _____________________________

(Affix Seal)

# FAA SPECIAL PROVISIONS

Rehabilitate Apron & Connector Taxiway

Storm Lake Municipal Airport

T51.115389

FAA AIP No. 3-19-0088-13

City of Storm Lake

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# Supplementary Provisions

## Part A - Federal Contract Provisions for Construction and equipment Contracts

### APPLICATION OF REFERENCES

All references made herein to "Contractor", "Bidder", and "Offeror" shall pertain to the Prime Contractor. All references made herein to "subcontractor" shall pertain to any and all subcontractors under contract with the Prime Contractor or a subcontractor.

All references made herein to "Consultant" shall pertain to Architect/Engineer (A/E) under contract with the Sponsor. All references made herein to "subconsultant" shall pertain to any and all subconsultants under contract with the A/E.

All references made herein to "Sponsor" and "Owner" shall pertain to the state, city, airport authority or other public entity executing contracts with the Prime Contractor and/or the A/E.

### PROVISIONS APPLICABLE TO ALL CONTRACTS



### PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $2,000

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $3,500**



**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $10,000**



**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $25,000**



**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $100,000**



**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $150,000**

## PROVISIONS APPLICABLE TO ALL CONTRACTS

### ACCESS TO RECORDS AND REPORTS

Reference: 2 CFR § 200.333, 2 CFR § 200.336, and FAA Order 5100.38

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives, access to any books, documents, papers, and records of the Contractor, which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

### BUY AMERICAN PREFERENCE

Reference: 49 USC § 50101

The Contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration (FAA) has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A Bidder or Offeror must complete and submit the Buy America certification included herein with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

### CIVIL RIGHTS – GENERAL

Reference: 49 USC § 47123

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

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

### CIVIL RIGHTS – TITLE VI ASSURANCES

*Title VI Solicitation Notice*

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

*Compliance with Nondiscrimination Requirements*

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

1. **Compliance with Regulations:** The Contractor (hereinafter includes Consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts And Authorities and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such

provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

*Title VI List of Pertinent Nondiscrimination Acts and Authorities*

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

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR Part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

**DISADVANTAGED BUSINESS ENTERPRISE**

Reference: 49 CFR Part 26

*Solicitation Language (Project Goal)*

*Information Submitted as a matter of bidder responsiveness:*

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with their proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1)
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) If Bidder or Offeror cannot meet the advertised project DBE goal; evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR Part 26.

*Information submitted as a matter of bidder responsibility:*

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

The successful Bidder or Offeror must provide written confirmation of participation from each of the DBE firms the Bidder or Offeror lists in its commitment within five (5) days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1)
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal; and
5) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26.

*Race/Gender Neutral*

The requirements of 49 CFR Part 26 apply to this contract.  It is the policy of the Owner to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract.  The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

*Contract Assurance (§ 26.13)*

The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of U.S. Department of Transportation-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Owner deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

*Prompt Payment (§26.29)*

The Prime Contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty (30) calendar days from the receipt of each payment the Prime Contractor receives from the Owner.  The Prime Contractor agrees further to return retainage payments to each subcontractor within thirty (30) calendar days after the subcontractor's work is satisfactorily completed.  Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner.  This clause applies to both DBE and non-DBE subcontractors.

## ENERGY CONSERVATION REQUIREMENTS

Reference: 2 CFR § 200 Appendix II(H)

Contractor and Subcontractor(s) agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201 et seq).

## FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

Reference: 29 USC § 201, et seq.

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

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

**OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

Reference: 20 CFR Part 1910

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). The employe must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

**RIGHT TO INVENTIONS**

Reference: 2 CFR § 200 Appendix II(F) and 37 CFR §401

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR Part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

**SEISMIC SAFETY**

Reference: 49 CFR Part 41

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

**TAX DELINQUENCY AND FELONY CONVICTIONS**

Reference: Sections 415 and 416 of Title IV, Division L of the Consolidated Appropriations Act, 2014 (Pub. L. 113-76) and DOT Order 4200.6

The Contractor certifies:

1) It is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) It is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months. A felony conviction is a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts.

**TRADE RESTRICTION CERTIFICATION**

Reference: 49 USC § 50104 and 49 CFR Part 30

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (U.S.T.R.);
2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the U.S.T.R; and
3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or
3) who incorporates in the public works project any product of a foreign country on such U.S.T.R. list;

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a Contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in in all lower tier subcontracts.  The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by U.S.T.R, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award.  If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the Federal Aviation Administration.

**VETERAN'S PREFERENCE**

Reference: 49 USC § 47112(c)

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112.  Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. 632) owned and controlled by disabled veterans.  This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $2,000

### COPELAND "ANTI-KICKBACK' ACT

Reference: 2 CFR § 200 Appendix II(D) and 29 CFR Parts 3 and 5

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 U.S.C. 874 and 40 U.S.C. 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

### DAVIS-BACON REQUIREMENTS

Reference: 2 CFR § 200 Appendix II(D) and 29 CFR Part 5

*1. Minimum Wages*

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii) (A) thru (D)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) days of receipt and so advise the contracting officer or will notify the contracting officer within the thirty (30)-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) days of receipt and so advise the contracting officer or will notify the contracting officer within the thirty (30)-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program: *Provided*, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

*2. Withholding*

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

*3. Payrolls and basic records*

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and that show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) thru (D)

(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at https://www.dol.gov/whd/forms/wh347instr.htm or its successor site. The Prime

Contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a Prime Contractor to require a subcontractor to provide addresses and social security numbers to the Prime Contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) The payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i) and that such information is correct and complete;

(2) Each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) Each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

*4. Apprentices and Trainees*

(i) Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first nintey (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination.

Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

*5. Compliance with Copeland Act Requirements*

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

*6. Subcontracts*

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

*7. Contract Termination: Debarment*

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

*8. Compliance with Davis-Bacon and Related Act Requirements*

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

*9. Disputes Concerning Labor Standards*

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

*10. Certification of Eligibility*

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $3,500

### DISTRACTED DRIVING

Reference: Executive Order 13513 and DOT Order 3902.10

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10 “Text Messaging While Driving” (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or sub-grant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 and involve driving a motor vehicle in performance of work activities associated with the project.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $10,000

### AFFIRMATIVE ACTION REQUIREMENT

Reference: 41 CFR Part 60-4 and Executive Order 11246

1. The Bidder’s or Offeror’s attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

| **Timetables:** | **Goal:** |
|---|---|
| Goals for minority participation for each trade: | 0.40% |
| Goals for female participation in each trade: | 6.9% |

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within ten (10) working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is:

| State | County | City |
|---|---|---|
| Iowa | Buena Vista | Storm Lake |

**EQUAL EMPLOYMENT OPPORTUNITY (EEO)**

Reference: 2 CFR 200, Appendix II(C), 41 CFR § 60-1.4, 41 CFR § 60-4.3, and Executive Order 11246

*Equal Opportunity Clause*

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identify or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, *however*, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

*Standard Federal Equal Employment Opportunity Construction Contract Specifications*

1. As used in these specifications:

    a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

    b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

    c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

    d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7.a through 7.p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the Contractor during the training

period and the Contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or female sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7.a through 7.p). The efforts of a Contractor association, joint Contractor union, Contractor community, or other similar groups of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7.a through 7.p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the

program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally), the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**PROCUREMENT OF RECOVERED MATERIALS**

Reference: 2 CFR § 200.322, 40 CFR Part 247, and Solid Waste Disposal Act

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or,

b) The Contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at:
https://www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the Contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

**PROHIBITION OF SEGREGATED FACILITIES**

Reference: 41 CFR § 60

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(b) “Segregated facilities,” as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

**TERMINATION OF CONTRACT**

Reference: 2 CFR § 200 Appendix II(B) and FAA Advisory Circular 150/5370-10, Section 80-09

*Termination for Convenience (Construction & Equipment Contracts)*

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3) reasonable and substantiated claims, costs and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4) reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

*Termination for Default (Construction)*

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights and remedies associated with Owner termination of this contract due to default of the Contractor.

*Termination for Default (Equipment)*

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract if the Contractor:

1. Fails to commence the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or
6. Becomes insolvent or declares bankruptcy;

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within ten (10) days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the Work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $25,000

### DEBARMENT AND SUSPENSION

Reference: 2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5

*Certification of Bidder/Offerer Regarding Debarment*

By submitting a bid/proposal under this solicitation, the Bidder or Offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

*Certification of Lower Tier Contractors Regarding Debarment*

The successful Bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful Bidder will accomplish this by:

1. Checking the System for Award Management at website: https://www.sam.gov.
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the Federal Aviation Administration (FAA) later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $100,000

### CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

Reference: 2 CFR § 200 Appendix II (E)

1. Overtime Requirements.

No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages.  Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same Prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same Prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts.  The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

**LOBBYING AND INFLUENCING FEDERAL EMPLOYEES**

Reference:  31 U.S.C. § 1352 – Byrd Anti-Lobbying Amendment, 2 CFR part 200, Appendix II(J), and 49 CFR part 20, Appendix A

*CERTIFICATION REGARDING LOBBYING*

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts

under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $150,000

### BREACH OF CONTRACT TERMS

Reference: 2 CFR § 200 Appendix II(A)

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

### CLEAN AIR AND WATER POLLUTION CONTROL

References: 2 CFR § 200 Appendix II(G)

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. § 740-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts that exceed $150,000.

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General Decision Number: IA180001 01/05/2018 IA1

Superseded General Decision Number: IA20170001

State: Iowa

Construction Types: Heavy and Highway

Counties: Iowa Statewide.

STATEWIDE EXCEPT SCOTT COUNTY

HEAVY CONSTRUCTION PROJECTS (Does not include work on or pertaining to the Mississippi or Missouri Rivers or on Water and Sewage Treatment Plants), AND HIGHWAY PROJECTS (does not include building structures in rest areas)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---|---|
| 0 | 01/05/2018 |

* SUIA2017-001 10/18/2017

| | Rates | Fringes |
|---|---|---|
| **CARPENTER & PILEDRIVERMEN** | | |
| ZONE 1 | $ 27.02 | $ 11.88 |
| ZONE 2 | $ 24.93 | $ 11.88 |
| ZONE 3 | $ 24.93 | $11.88 |
| ZONE 4 | $ 24.15 | $ 9.60 |
| ZONE 5 ** | $ 23.25 | $ 8.20 |

| | Rates | Fringes |
|---|---|---|
| **CONCRETE FINISHER** | | |
| ZONE 1 | $ 25.50 | $ 7.10 |
| ZONE 2 | $ 25.50 | $ 7.10 |
| ZONE 3 | $ 25.50 | $ 7.10 |
| ZONE 4 | $ 22.80 | $ 5.55 |
| ZONE 5 | $ 21.20 | $ 6.10 |
| **ELECTRICIANS (STREET AND HIGHWAY LIGHTING AND TRAFFIC SIGNALS)** | | |
| ZONE 1, ZONE 2 AND ZONE 3 | $ 23.55 | $ 5.70 |
| ZONE 4 | $ 22.25 | $ 5.70 |
| ZONE 5 | $ 20.10 | $ 5.70 |
| **IRONWORKERS (SETTING OF STRUCTURAL STEEL)** | | |
| ZONE 1 | $ 29.60 | $ 9.30 |
| ZONE 2 | $ 27.51 | $ 9.30 |
| ZONE 3 | $ 27.51 | $ 9.60 |
| ZONE 4 | $ 25.25 | $ 8.50 |
| ZONE 5 | $ 23.40 | $ 8.05 |
| **LABORERS** | | |
| ZONE 1 AND 2 | | |
| GROUP A | $ 21.73 | $ 8.85 |
| GROUP AA | $ 24.11 | $ 8.85 |
| GROUP B | $ 19.88 | $ 8.85 |
| GROUP C | $ 16.80 | $ 8.85 |
| ZONE 3 | | |
| GROUP A | $ 21.73 | $ 8.85 |
| GROUP AA | $ 24.11 | $ 8.85 |
| GROUP B | $ 19.88 | $ 8.85 |
| GROUP C | $ 19.80 | $ 8.85 |
| ZONE 4 | | |
| GROUP A | $ 19.40 | $ 8.30 |
| GROUP B | $ 18.08 | $ 8.30 |
| GROUP C | $ 15.20 | $ 8.30 |
| ZONE 5 | | |
| GROUP A | $ 19.90 | $ 6.85 |
| GROUP B | $ 17.40 | $ 6.85 |
| GROUP C | $ 16.55 | $ 6.85 |

| | Rates | Fringes |
|---|---|---|
| **POWER EQUIPMENT OPERATORS**: | | |
| ZONE 1 | | |
| GROUP A | $ 29.90 | $ 13.80 |
| GROUP B | $ 28.35 | $ 13.80 |
| GROUP C | $ 25.85 | $ 13.80 |
| GROUP D | $ 25.85 | $ 13.80 |
| ZONE 2 | | |
| GROUP A | $ 29.20 | $ 13.80 |
| GROUP B | $ 27.60 | $ 13.80 |
| GROUP C | $ 25.05 | $ 13.80 |
| GROUP D | $ 25.05 | $ 13.80 |
| ZONE 3 | | |
| GROUP A | $ 28.50 | $ 20.35 |
| GROUP B | $ 26.70 | $ 20.35 |
| GROUP C | $ 25.70 | $ 20.35 |
| GROUP D | $ 25.70 | $ 20.35 |
| ZONE 4 | | |
| GROUP A | $ 29.05 | $ 10.05 |
| GROUP B | $ 27.91 | $ 10.05 |
| GROUP C | $ 25.83 | $ 10.05 |
| GROUP D | $ 25.83 | $ 10.05 |
| ZONE 5 | | |
| GROUP A | $ 25.37 | $ 8.30 |
| GROUP B | $ 24.33 | $ 8.30 |
| GROUP C | $ 22.60 | $ 8.30 |
| GROUP D | $ 21.60 | $ 8.30 |
| **TRUCK DRIVER (AND PAVEMENT MARKING DRIVER/SWITCHPERSON)** | | |
| ZONE 1 | $ 22.25 | $ 10.45 |
| ZONE 2 | $ 22.25 | $ 10.45 |
| ZONE 3 | $ 22.25 | $ 10.45 |
| ZONE 4 | $ 22.25 | $ 6.25 |
| ZONE 5 | $ 20.30 | $ 6.25 |

**ZONE DEFINITIONS**

**ZONE 1 –** The Counties of Polk, Warren, and Dallas for all Crafts, and Linn County Carpenters only.

**ZONE 2 –** The Counties of Dubuque for all Crafts and Linn County for all Crafts except Carpenters.

**ZONE 3 –** The Cities of Burlington, Clinton, Fort Madison, Keokuk, and Muscatine (and abutting municipalities of any such cities).

**ZONE 4 –** Story, Black Hawk, Cedar, Jasper, Jones, Jackson, Louisa, Madison, and Marion Counties; Clinton County (except the City of Clinton), Johnson County, Muscatine County (except the City of Muscatine), the City of Council Bluffs, Lee County and Des Moines County.

**ZONE 5** - All areas of the state not listed above.

**LABORER CLASSIFICATIONS - ALL ZONES**

**GROUP AA Â –** {Skilled pipelayer (sewer, water and conduits) and tunnel laborers; asbestos abatement worker (Zones 1, 2 and 3).

**GROUP A –** Carpenter tender on bridges and box culverts; curb machine (without a seat); deck hand; diamond & core drills; drill operator on air tracs, wagon drills and similar drills; form setter/stringman on paving work; gunnite nozzleman; joint sealer kettleman; laser operator; powderman tender; powderman/blaster; saw operator; {pipelayer (sewer, water, and conduits); tunnel laborer; asbestos abatement worker (Zones 4 and 5).

**GROUP B –** Air, gas, electric tool operator; barco hammer; carpenter tender; caulker; chain sawman; compressor (under 400 cfm); concrete finisher tender; concrete processing materials and monitors; cutting torch on demolition; drill tender; dumpmen; electric drills; fence erectors; form line expansion joint assembler; form tamper; general laborer; grade checker; handling and placing metal mesh, dowel bars, reinforcing bars and chairs; hot asphalt laborer; installing temporary traffic control devices; jackhammerman; mechanical grouter; painter (all except stripers); paving breaker; planting trees, shrubs and flowers; power broom (not self-propelled); power buggyman; rakers; rodman (tying reinforcing steel); sandblaster; seeding and mulching; sewer utility topman/bottom man; spaders; stressor or stretcherman on pre or post tensioned concrete; stringman on re/surfacing/no grade control; swinging stage, tagline, or block and tackle; tampers; timberman; tool room men and checkers; tree climber; tree groundman; underpinning and shoring caissons over twelve feet deep; vibrators; walk behind trencher; walk behind paint stripers; walk behind vibrating compactor; water pumps (under three inch); work from bosun chair.

**GROUP C –** Scale weigh person; traffic control/flagger, surveillance or monitor; water carrier.

**POWER EQUIPMENT OPERATOR CLASSIFICATIONS - ALL ZONES**

**GROUP A –** All terrain (off road) forklift; asphalt breakdown roller (vibratory); asphalt laydown machine; asphalt plant; asphalt screed; bulldozer (finish); central mix plant; concrete pump; crane; crawler tractor pulling scraper; directional drill (60,000 (lbs) pullback and above); dragline and power shovel; dredge engineer; excavator (over Â½ cu. yd.); front end loader (4 cy and over); horizontal boring machine; master mechanic; milling machine (over 350 hp); motor grader (finish); push cat; rubber tired backhoe (over Â½ cu. yd.); scraper (12 cu. yd. and over or finish); Self-propelled rotary mixer/road reclaimer; sidebroom tractor; slipform portland concrete paver; tow or push boat; trenching machine (Cleveland 80 or similar).

**GROUP B –** Articulated off road hauler, asphalt heater/planer; asphalt material transfer vehicle; asphalt roller; belt loader or similar loader; bulldozer (rough); churn or rotary drill; concrete curb machine; crawler tractor pulling ripper, disk or roller; deck hand/oiler; directional drill (less than 60,000 (lbs) pullback); distributor; excavator (1/2 cu. yd. and under); form riding concrete paver; front end loader (2 to less than 4 cu. yd.); group equipment greaser; mechanic; milling machine (350 hp. and less); paving breaker; portland concrete dry batch plant; rubber tired backhoe (1/2 cu. yd. and under); scraper (under 12 cu. yd.); screening, washing and crushing plant (mobile, portable or stationary); shoulder machine; skid loader (l cu. yd. and over); subgrader or trimmer; trenching machine; water wagon on compaction.

**GROUP C** – Boom & winch truck; concrete spreader/belt placer; deep wells for dewatering; farm type tractor (over 75 hp.) pulling disc or roller; forklift; front end loader (under 2 cu. yd.); motor grader (rough); pile hammer power unit; pump (greater than three inch diameter); pumps on well points; safety boat; self-propelled roller (other than asphalt); self-propelled sand blaster or shot blaster, water blaster or striping grinder/remover; skid loader (under 1 cu. yd.); truck mounted post driver.

**GROUP D** – Boiler; compressor; cure and texture machine; dow box; farm type or utility tractor (under 75 hp.) pulling disk, roller or other attachments; group greaser tender; light plants; mechanic tender; mechanical broom; mechanical heaters; oiler; pumps (under three inch diameter); tree chipping machine; truck crane driver/oiler.

**CARPENTERS AND PILEDRIVERMEN, OR IRONWORKERS (ZONE 5)**

Setting of structural steel; any welding incidental to bridge or culvert construction; setting concrete beams.

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**WELDERS –** Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

**Union Rate Identifiers**

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

**Survey Rate Identifiers**

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

**Union Average Rate Identifiers**

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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**WAGE DETERMINATION APPEALS PROCESS**

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

**END OF GENERAL DECISION**

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# Part 1 – General Provisions

## SECTION 10 – DEFINITION OF TERMS

Whenever the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

**10-01 AASHTO**. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

**10-02 Access road**. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

**10-03 Advertisement**. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

**10-04 Airport Improvement Program (AIP)**. A grant-in-aid program, administered by the Federal Aviation Administration (FAA).

**10-05 Air operations area (AOA)**. For the purpose of these specifications, the term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

**10-06 Airport**. Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and airport buildings and facilities located in any of these areas, and includes a heliport.

**10-07 ASTM International (ASTM)**. Formerly known as the American Society for Testing and Materials (ASTM).

**10-08 Award**. The Owner's notice to the successful bidder of the acceptance of the submitted bid.

**10-09 Bidder**. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

**10-10 Building area**. An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.

**10-11 Calendar day**. Every day shown on the calendar.

**10-12 Change order**. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, must be within the scope of the contract.

**10-13 Contract**. The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: Advertisement, Contract Form, Proposal, Performance Bond, Payment Bond, any required insurance certificates, Specifications, Plans, and any addenda issued to bidders.

**10-14 Contract item (pay item)**. A specific unit of work for which a price is provided in the contract.

**10-15 Contract time**. The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.

**10-16 Contractor**. The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

**10-17 Contractor's laboratory.** The Contractor's quality control organization in accordance with the Contractor Quality Control Program.

**10-18 Construction Safety and Phasing Plan (CSPP).** The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.

**10-19 Drainage system**. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

**10-20 Engineer**. The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering observation of the contract work and acting directly or through an authorized representative.

**10-21 Equipment**. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

**10-22 Extra work**. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

**10-23 FAA**. The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his or her duly authorized representative.

**10-24 Federal specifications**. The Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government.

**10-25 Force account.** Force account work is planning, engineering, or construction work done by the Sponsor's employees.

**10-26 Inspector**. An authorized representative of the Engineer assigned to make all necessary observations and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

**10-27 Intention of terms**. Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject in each case to the final determination of the Owner.

Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

**10-28 Laboratory**. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer. Also referred to as “Engineer’s Laboratory” or “quality assurance laboratory.”

**10-29 Lighting**. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

**10-30 Major and minor contract items**. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.

**10-31 Materials**. Any substance specified for use in the construction of the contract work.

**10-32 Notice to Proceed (NTP)**. A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

**10-33 Owner**. The term “Owner” shall mean the party of the first part or the contracting agency signatory to the contract. Where the term “Owner” is capitalized in this document, it shall mean airport Sponsor only.

**10-34 Passenger Facility Charge (PFC).** Per 14 CFR Part 158 and 49 USC § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.”

**10-35 Pavement**. The combined surface course, base course, and subbase course, if any, considered as a single unit.

**10-36 Payment bond**. The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.

**10-37 Performance bond**. The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

**10-38 Plans**. The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications.

**10-39 Project**. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

**10-40 Proposal**. The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

**10-41 Proposal guaranty**. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his or her proposal is accepted by the Owner.

**10-42 Runway**. The area on the airport prepared for the landing and takeoff of aircraft.

**10-43 Specifications**. A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

**10-44 Sponsor**. A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.

**10-45 Structures**. Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; flexible and rigid pavements; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

**10-46 Subgrade**. The soil that forms the pavement foundation.

**10-47 Superintendent**. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

**10-48 Supplemental agreement**. A written agreement between the Contractor and the Owner covering (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25%, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

**10-49 Surety**. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.

**10-50 Taxiway**. For the purpose of this document, the term taxiway means the portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.

**10-51 Work**. The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.

**10-52 Working day**. A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.

**END OF SECTION 10**

## SECTION 20 – PROPOSAL REQUIREMENTS AND CONDITIONS

**20-01 Advertisement (Notice to Bidders).**

**20-02 Qualification of bidders**. Each bidder shall furnish the Owner satisfactory evidence of his or her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the Owner satisfactory evidence of his or her financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether his or her financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that he or she is prequalified with the State Highway Division and is on the current "bidder's list" of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner at the time of bid opening.

**20-03 Contents of proposal forms**. The Owner shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans, specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

**20-04 Issuance of proposal forms**. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:

**a.** Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

**b.** Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

**c.** Documented record of Contractor default under previous contracts with the Owner.

**d.** Documented record of unsatisfactory work on previous contracts with the Owner.

**20-05 Interpretation of estimated proposal quantities**. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in the subsection 40-02 titled ALTERATION OF WORK AND QUANTITIES of Section 40 without in any way invalidating the unit bid prices.

**20-06 Examination of plans, specifications, and site**. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

**Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from his or her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.**

**20-07 Preparation of proposal**. The bidder shall submit his or her proposal on the forms furnished by the Owner. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which they propose to do for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign the proposal correctly and in ink. If the proposal is made by an individual, his or her name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state under the laws of which the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of his or her authority to do so and that the signature is binding upon the firm or corporation.

**20-08 Responsive and responsible bidder.** A responsive bid conforms to all significant terms and conditions contained in the Sponsor's invitation for bid. It is the Sponsor's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 49 CFR § 18.36(b)(8). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

**20-09 Irregular proposals**. Proposals shall be considered irregular for the following reasons:

**a.** If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

**b.** If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

**c.** If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

**d.** If the proposal contains unit prices that are obviously unbalanced.

**e.** If the proposal is not accompanied by the proposal guaranty specified by the Owner.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

**20-10 Bid guarantee**. Each separate proposal shall be accompanied by a certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such check, or collateral, shall be made payable to the Owner.

**20-11 Delivery of proposal.** Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

**20-12 Withdrawal or revision of proposals**. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

**20-13 Public opening of proposals**. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

**20-14 Disqualification of bidders**. A bidder shall be considered disqualified for any of the following reasons:

**a.** Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

**b.** Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

**c.** If the bidder is considered to be in "default" for any reason specified in the subsection 20-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

**END OF SECTION 20**

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# SECTION 30 – AWARD AND EXECUTION OF CONTRACT

**30-01 Consideration of proposals**. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

**a.** If the proposal is irregular as specified in the subsection 20-09 titled IRREGULAR PROPOSALS of Section 20.

**b.** If the bidder is disqualified for any of the reasons specified in the subsection 20-14 titled DISQUALIFICATION OF BIDDERS of Section 20.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

**30-02 Award of contract**. The award of a contract, if it is to be awarded, shall be made within **60** calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

Award of the contract shall be made by the Owner to the lowest, qualified bidder whose proposal conforms to the cited requirements of the Owner.

**30-03 Cancellation of award**. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection 30-07 titled APPROVAL OF CONTRACT of this section.

**30-04 Return of proposal guaranty**. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the subsection 30-01 titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in the subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section.

**30-05 Requirements of contract bonds**. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

**30-06 Execution of contract**. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in the subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

**30-07 Approval of contract**. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner’s approval to be bound by the successful bidder’s proposal and the terms of the contract.

**30-08 Failure to execute contract**. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the 15 calendar day period specified in the subsection 30-06 titled EXECUTION OF CONTRACT of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

**END OF SECTION 30**

# SECTION 40 – SCOPE OF WORK

**40-01 Intent of contract**. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

**40-02 Alteration of work and quantities**. The Owner reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25% (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25% limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations that are for work within the general scope of the contract shall be covered by "Change Orders" issued by the Engineer. Change orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25% limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

Supplemental agreements shall be approved by the FAA and shall include all applicable Federal contract provisions for procurement and contracting required under AIP. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds.

**40-03 Omitted items**. The Engineer may, in the Owner's best interest, omit from the work any contract item, except major contract items. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with the subsection 90-04 titled PAYMENT FOR OMITTED ITEMS of Section 90.

**40-04 Extra work**. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements, the same shall be called "Extra Work." Extra Work that is within the general scope of the contract shall be covered by written change order. Change orders for such Extra Work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such Extra Work.

When determined by the Engineer to be in the Owner's best interest, the Engineer may order the Contractor to proceed with Extra Work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. Extra Work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement as defined in the subsection 10-48 titled SUPPLEMENTAL AGREEMENT of Section 10.

Any claim for payment of Extra Work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

**40-05 Maintenance of traffic**. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration.

**a.** It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to his or her own operations and the operations of all subcontractors as specified in the subsection 80-04 titled LIMITATION OF OPERATIONS of Section 80. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in the subsection 70-15 titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

**b.** With respect to his or her own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport.

**c.** When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall be responsible for the repair of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

**40-06 Removal of existing structures**. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in the subsection 40-07 titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

**40-07 Rights in and use of materials found in the work**. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, the Contractor may at his or her option either:

**a.** Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications applicable to such use; or,

**b.** Remove such material from the site, upon written approval of the Engineer; or

**c.** Use such material for the Contractor's own temporary construction on site; or,

**d.** Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the Engineer's approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his or her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his or her exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

**40-08 Final cleanup**. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property Owner.

**END OF SECTION 40**

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## SECTION 50 – CONTROL OF WORK

**50-01 Authority of the Engineer**. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. The Engineer shall decide all questions that may arise as to the interpretation of the specifications or plans relating to the work. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for the under contract.

The Engineer does not have the authority to accept pavements that do not conform to FAA specification requirements.

**50-02 Conformity with plans and specifications**. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans or specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his or her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the Engineer will advise the Owner of his or her determination that the affected work be accepted and remain in place. In this event, the Engineer will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. The Engineer's determination and recommended contract price adjustments will be based on sound engineering judgment and such tests or retests of the affected work as are, in the Engineer's opinion, needed. Changes in the contract price shall be covered by contract change order or supplemental agreement as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the Engineer's written orders.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the Engineer's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority, after consultation with the FAA, to use sound engineering judgment in his or her determinations as to acceptance of work that is not in strict conformity, but will provide a finished product equal to or better than that intended by the requirements of the contract, plans and specifications.

The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

**50-03 Coordination of contract, plans, and specifications**. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the Engineer for an interpretation and decision, and such decision shall be final.

**LIST OF SPECIAL PROVISIONS**

**50-04 Cooperation of Contractor**. The Contractor will be supplied with five copies each of the plans and specifications. The Contractor shall have available on the work at all times one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the Engineer and his or her inspectors and with other contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as his or her agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Engineer or his or her authorized representative.

**50-05 Cooperation between contractors**. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work so as not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his or her contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his or her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join his or her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

**50-06 Construction layout and stakes**. The Engineer shall establish horizontal and vertical control only. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either their own or the Contractor’s guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or their employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.

The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper execution and control of the work contracted for under these specifications.

The Contractor must give copies of survey notes to the Engineer for each area of construction and for each placement of material as specified to allow the Engineer to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. All surveys must be provided to the Engineer prior to commencing work items that will cover or disturb the survey staking as set by the Contractor's surveyor. Survey(s) and notes shall be provided in the following format(s): Electronic**.** In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

**ON THIS PROJECT, CONSTRUCTION STAKING IS A BID ITEM, AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.**

Construction Staking and Layout includes but is not limited to:

**a.** Clearing and Grubbing perimeter staking

**b.** Rough Grade slope stakes at 100-foot (30-m) stations

**c.** Drainage Swales slope stakes and flow line blue tops at 50-foot (15-m) stations

Subgrade blue tops at 25-foot (7.5-m) stations and 25-foot (7.5-m) offset distance (maximum) for the following section locations:

**a.** Runway – minimum five (5) per station

**b.** Taxiways – minimum three (3) per station

**c.** Holding apron areas – minimum three (3) per station

**d.** Roadways – minimum three (3) per station

Base Course blue tops at 25-foot (7.5-m) stations and 25-foot (7.5-m) offset distance (maximum) for the following section locations:

**a.** Runway – minimum five (5) per station

**b.** Taxiways – minimum three (3) per station

**c.** Holding apron areas – minimum three (3) per station

Pavement areas:

**a.** Edge of Pavement hubs and tacks (for stringline by Contractor) at 100-foot (30-m) stations.

**b.** Between Lifts at 25-foot (7.5-m) stations for the following section locations:

**(1)** Runways – each paving lane width

**(2)** Taxiways – each paving lane width

**(3)** Holding areas – each paving lane width

**c.** After finish paving operations at 50-foot (15-m) stations:

**(1)** All paved areas – Edge of each paving lane prior to next paving lot

**d.** Shoulder and safety area blue tops at 50-foot (15-m) stations and at all break points with maximum of 50-foot (15-m) offsets.

**e.** Fence lines at 100-foot (30-m) stations minimum.

**f.** Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, Visual Approach Slope Indicators (VASIs), Precision Approach Path Indicators (PAPIs), Runway End Identifier Lighting (REIL), Wind Cones, Distance Markers (signs), pull boxes and manholes.

**g.** Drain lines, cut stakes and alignment on 25-foot (7.5-m) stations, inlet and manholes.

**h.** Painting and Striping layout (pinned with 1.5 inch PK nails) marked for paint Contractor. (All nails shall be removed after painting).

**i.** Laser, or other automatic control devices, shall be checked with temporary control point or grade hub at a minimum of once per 400 feet (120 m) per pass (that is, paving lane).

The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor.

Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer without additional cost to the Owner.

**50-07 Automatically controlled equipment**. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the contract.

**50-08 Authority and duties of inspectors**. Inspectors shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors are authorized to notify the Contractor or his or her representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for a decision.

**50-09 Inspection of the work**. All materials and each part or detail of the work shall be subject to inspection. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense unless the Owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

**50-10 Removal of unacceptable and unauthorized work**. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in the subsection 50-02 titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of the subsection 70-14 titled CONTRACTOR’S RESPONSIBILITY FOR WORK of Section 70.

No removal work made under provision of this subsection shall be done without lines and grades having been established by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as established by the Engineer, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor’s expense.

Upon failure on the part of the Contractor to comply with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed and to deduct the costs incurred by the Owner from any monies due or to become due the Contractor.

**50-11 Load restrictions**. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his or her hauling equipment and shall correct such damage at his or her own expense.

**50-12 Maintenance during construction**. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

**50-13 Failure to maintain the work**. Should the Contractor at any time fail to maintain the work as provided in the subsection 50-12 titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the Engineer’s notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be deducted from monies due or to become due the Contractor.

**50-14 Partial acceptance**. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the Engineer may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

**50-15 Final acceptance.** Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

**50-16 Claims for adjustment and disputes.** If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the Engineer in writing of his or her intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the Engineer who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

**END OF SECTION 50**

# SECTION 60 – CONTROL OF MATERIALS

**60-01 Source of supply and quality requirements**. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Engineer's option, materials may be approved at the source of supply before delivery is stated. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

**a.** Listed in advisory circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, and Addendum that is in effect on the date of advertisement; and,

**b.** Produced by the manufacturer as listed in the Addendum cited above for the certified equipment part number.

The following airport lighting equipment is required for this contract and is to be furnished by the Contractor in accordance with the requirements of this subsection:

| FAA SPEC. | EQUIPMENT NAME | FAA ADVISORY CIRCULAR |
|---|---|---|
| **N/A** | **None This Project** | **N/A** |

**Contractor shall reference the most current version of FAA A.C. 150/5345-53D (9/26/2012), "Airport Lighting Equipment Certification Program" (with current Addendum as of December 2017) to verify all equipment is on the current approved certification list.**

**60-02 Samples, tests, and cited specifications**. Unless otherwise designated, all materials used in the work shall be inspected, tested, and approved by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), Federal Specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids, will be made by and at the expense of the Engineer.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel, including the Contractor's representative at his or her request. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the Engineer. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the Engineer.

The Contractor shall employ a testing organization to perform all Contractor required Quality Control tests. The Contractor shall submit to the Engineer resumes on all testing organizations and individual persons who will be performing the tests. The Engineer will determine if such persons are qualified. All the test data shall be reported to the Engineer after the results are known. A legible, handwritten copy of all test data shall be given to the Engineer daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the Engineer showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests. All test data reports shall be submitted to engineer in Electronic PDF format.

**60-03 Certification of compliance**. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

**a.** Conformance to the specified performance, testing, quality or dimensional requirements; and,

**b.** Suitability of the material or assembly for the use intended in the contract work.

Should the Contractor propose to furnish an "or equal" material or assembly, the Contractor shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

**60-04 Plant inspection**. The Engineer or his or her authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

**a.** The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Engineer has contracted for materials.

**b.** The Engineer shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

**c.** If required by the Engineer, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

~~**60-05 Engineer's field office**. The Contractor shall furnish for the duration of the project one building for the use of the field Engineers and inspectors, as a field office. This facility shall be an approved weatherproof building meeting the current State Highway Specifications (for example, Class I Field Office or Type C Structure). This building shall be located conveniently near to the construction and shall be separate from any building used by the Contractor. The Contractor shall furnish facsimile (FAX) machine, photocopy machine, water, sanitary facilities, heat, air conditioning, and electricity. The Contractor and the Contractor's superintendent shall provide all reasonable facilities to enable to the Engineer to inspect the workmanship and materials used into the work.~~ ***An Engineer's field office is not required.***

**60-06 Storage of materials**. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at his or her entire expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

**60-07 Unacceptable materials**. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the Engineer has approved its use in the work.

**60-08 Owner furnished materials**. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

**END OF SECTION 60**

## SECTION 70 – LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

**70-01 Laws to be observed**. The Contractor shall keep fully informed of all Federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all his or her officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

**70-02 Permits, licenses, and taxes**. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

**70-03 Patented devices, materials, and processes**. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

**70-04 Restoration of surfaces disturbed by others**. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) is indicated as follows:

**NONE AT THIS TIME**

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

**70-05 Federal aid participation**. For Airport Improvement Program (AIP) contracts, the United States Government has agreed to reimburse the Owner for some portion of the contract costs. Such reimbursement is made from time to time upon the Owner's request to the FAA. In consideration of the United States Government's (FAA's) agreement with the Owner, the Owner has included provisions in this contract pursuant to the requirements of Title 49 of the USC and the Rules and Regulations of the FAA that pertain to the work.

As required by the USC, the contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator, and is further subject to those provisions of the rules and regulations that are cited in the contract, plans, or specifications.

No requirement of the USC, the rules and regulations implementing the USC, or this contract shall be construed as making the Federal Government a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

**70-06 Sanitary, health, and safety provisions**. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his or her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to his or her health or safety.

**70-07 Public convenience and safety**. The Contractor shall control his or her operations and those of his or her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his or her own operations and those of his or her subcontractors and all suppliers in accordance with the subsection 40-05 titled MAINTENANCE OF TRAFFIC of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection 80-04 titled LIMITATION OF OPERATIONS of Section 80 hereinafter.

**70-08 Barricades, warning signs, and hazard markings**. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area (AOAs) shall be a maximum of 18 inches (0.5 m) high. Unless otherwise specified, barricades shall be spaced not more than 4 feet (1.2 m) apart. Barricades, warning signs, and markings shall be paid for under subsection 40-05.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices.

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of advisory circular (AC) 150/5340-1, Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and the Contractor's parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2, Operational Safety on Airports During Construction.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their removal is directed by the Engineer.

Open-flame type lights shall not be permitted.

**70-09 Use of explosives**. When the use of explosives is necessary for the execution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and, in general, not closer than 1,000 feet (300 m) from the work or from any building, road, or other place of human occupancy.

The Contractor shall notify each property Owner and public utility company having structures or facilities in proximity to the site of the work of his or her intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.

The use of electrical blasting caps shall not be permitted on or within 1,000 feet (300 m) of the airport property.

**70-10 Protection and restoration of property and landscape**. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at his or her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

**70-11 Responsibility for damage claims**. The Contractor shall indemnify and save harmless the Engineer and the Owner and their officers, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the “Workmen’s Compensation Act,” or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of his or her contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, his or her surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the

Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

**70-12 Third party beneficiary clause**. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

**70-13 Opening sections of the work to traffic**. Should it be necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such “phasing” of the work shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his or her own estimate of the difficulties involved in arranging the work to permit such beneficial occupancy by the Owner as described below:

**PHASING IS ADDRESSED IN DETAIL IN THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP), LOCATED IN THIS SPECIFICATION.**

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50.

No portion of the work may be opened by the Contractor for public use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at his or her expense.

The Contractor shall make his or her own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

Contractor shall be required to conform to safety standards contained AC 150/5370-2 (see Special Provisions).

Contractor shall refer to the approved Construction Safety Phasing Plan (CSPP) to identify barricade requirements and other safety requirements prior to opening up sections of work to traffic.

**70-14 Contractor’s responsibility for work**. Until the Engineer’s final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with the subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at his or her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

**70-15 Contractor's responsibility for utility service and facilities of others**. As provided in the subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, the Contractor shall cooperate with the Owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and the Owners are indicated as follows:

**NONE KNOWN; HOWEVER, THE CONTRACTOR SHALL NOTIFY IOWA ONE-CALL, THE AIRPORT MANAGER, AND THE ENGINEER AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.**

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of his or her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided in this subsection and subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the Engineer and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his or her surety.

~~**70-15.1 FAA facilities and cable runs**. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:~~

~~**a.** The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.~~

~~**b.** The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport Owner a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.~~

~~**c.** If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.~~

~~**d.** Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.~~

~~**e.** If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.~~

**70-16 Furnishing rights-of-way**. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

**70-17 Personal liability of public officials**. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, his or her authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

**70-18 No waiver of legal rights**. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or his or her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his or her obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

**70-19 Environmental protection**. The Contractor shall comply with all Federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

**70-20 Archaeological and historical findings**. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his or her operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate the Contractor’s finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor’s operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in the subsection 40-04 titled EXTRA WORK of Section 40 and the subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with the subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.

**END OF SECTION 70**

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## SECTION 80 – EXECUTION AND PROGRESS

**80-01 Subletting of contract**. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Engineer.

The Contractor shall provide copies of all subcontracts to the Engineer. **The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.**

Should the Contractor elect to assign his or her contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

**80-02 Notice to proceed**. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin. The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

**80-03 Execution and progress**. Unless otherwise specified, the Contractor shall submit their progress schedule for the Engineer's approval within 10 days after the effective date of the notice to proceed. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

**80-04 Limitation of operations**. The Contractor shall control his or her operations and the operations of his or her subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct his or her operations within an AOA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection 70-08 titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until the satisfactory conditions are provided. The following AOA cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

**CLOSED AREAS AND LIMITATIONS AREA ADDRESSED IN DETAIL IN THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP), LOCATED IN THIS SPECIFICATION.**

Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction (see Special Provisions).

**80-04.1 Operational safety on airport during construction.** All Contractors' operations shall be conducted in accordance with the project Construction Safety and Phasing Plan (CSPP) and the provisions set forth within the current version of AC 150/5370-2. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a Safety Plan Compliance Document that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP unless approved in writing by the Owner or Engineer.

**80-05 Character of workers, methods, and equipment**. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the Engineer.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

**80-06 Temporary suspension of the work**. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as the Owner may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the execution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer’s order to suspend work to the effective date of the Engineer’s order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer’s order to resume work. The Contractor shall submit with his or her claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor’s claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Owner, or for any other delay provided for in the contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

**80-07 Determination and extension of contract time**. The number of calendar or working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor’s control, it shall be adjusted as follows:

**a.** CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his or her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer shall base his or her weekly statement of contract time charged on the following considerations:

**(1)** No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least six (6) hours with the normal work force employed on such principal item. Should the normal work force be on a double-shift, 12 hours shall be used. Should the normal work force be on a triple-shift, 18 hours shall apply. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

**(2)** The Engineer will not make charges against the contract time prior to the effective date of the notice to proceed.

**(3)** The Engineer will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

**(4)** The Engineer will not make charges against the contract time after the date of final acceptance as defined in the subsection 50-15 titled FINAL ACCEPTANCE of Section 50.

**(5)** The Contractor will be allowed one (1) week in which to file a written protest setting forth his or her objections to the Engineer's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time (stated in the proposal) is based on the originally estimated quantities as described in the subsection 20-05 titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Section 20. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

**b.** Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the notice to proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

**c.** When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially complete.

If the Contractor finds it impossible for reasons beyond his or her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, the Contractor may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which the Contractor believes will justify the granting of his or her request. Requests for extension of time on calendar day projects, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded what could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the supporting documentation justify the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time for completion by a change order that adjusts the contract time or completion date. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

**80-08 Failure to complete on time**. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in the subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his or her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

| Schedule | Liquidated Damages Cost | Allowed Construction Time |
|---|---|---|
| Base Bid | $500 / Working Day | 15 Working Days |

The maximum construction time allowed for Schedules as listed above will be the sum of the time allowed for individual schedules but not more than **Twenty (20) Working Days**. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

**80-09 Default and termination of contract**. The Contractor shall be considered in default of his or her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons if the Contractor:

**a.** Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

**b.** Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

**c.** Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

**d.** Discontinues the execution of the work, or

**e.** Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

**f.** Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

**g.** Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

**h.** Makes an assignment for the benefit of creditors, or

**i.** For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Engineer consider the Contractor in default of the contract for any reason above, the Engineer shall immediately give written notice to the Contractor and the Contractor’s surety as to the reasons for considering the Contractor in default and the Owner’s intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the Engineer of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

**80-10 Termination for national emergencies**. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his or her responsibilities for the completed work nor shall it relieve his or her surety of its obligation for and concerning any just claim arising out of the work performed.

**80-11 Work area, storage area and sequence of operations**. The Contractor shall obtain approval from the Engineer prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate his or her work in such a manner as to ensure safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum or **200** feet from the centerline of an active runway. No equipment will be allowed to park within the approach area of an active runway at any time. No equipment shall be within **200** feet of an active runway at any time.

**END OF SECTION 80**

# SECTION 90 – MEASUREMENT AND PAYMENT

**90-01 Measurement of quantities**. All work completed under the contract will be measured by the Engineer, or his or her authorized representatives, using United States Customary Units of Measurement or the International System of Units.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.

The term “ton” will mean the short ton consisting of 2,000 lb (907 km) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts or ASTM D633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton (kg) or hundredweight (km).

Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term “lump sum” when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, “lump sum” work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within 1/2% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1% of the nominal rated capacity of the scale, but not less than 1 pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales “overweighing” (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of one-half of 1%.

In the event inspection reveals the scales have been underweighing (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

**90-02 Scope of payment**. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of the subsection 70-18 titled NO WAIVER OF LEGAL RIGHTS of Section 70.

When the “basis of payment” subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

**90-03 Compensation for altered quantities**. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection 40-02 titled ALTERATION OF WORK AND QUANTITIES of Section 40 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his or her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

**90-04 Payment for omitted items**. As specified in the subsection 40-03 titled OMITTED ITEMS of Section 40, the Engineer shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the Engineer omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer’s order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer’s order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer’s order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

**90-05 Payment for extra work**. Extra work, performed in accordance with the subsection 40-04 titled EXTRA WORK of Section 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

**90-06 Partial payments**. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the Engineer, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection 90-07 titled PAYMENT FOR MATERIALS ON HAND of this section. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. The Owner must ensure prompt and full payment of retainage from the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

From the total of the amount determined to be payable on a partial payment, **five (5) percent** of such total amount will be deducted and retained by the Owner until the final payment is made, except as may be provided (at the Contractor's option) in the subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section. The balance **(95 percent)** of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his or her option, as provided in the subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section, no such percent retainage shall be deducted.

When at least 95% of the work has been completed, the Engineer shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.

The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in the subsection 90-09 titled ACCEPTANCE AND FINAL PAYMENT of this section.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim. **Lien wiavers prior to final release of retainage will be required from the Prime Contractor, all subcontractors, and all suppliers with a value of material/equipment supplied in excess of $500.**

**90-07 Payment for materials on hand.** Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

**a.** The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.

**b.** The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

**c.** The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.

**d.** The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

**e.** The Contractor has furnished the Owner evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his or her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

**90-08 Payment of withheld funds**. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in subsection 90-06 PARTIAL PAYMENTS, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

**a.** The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

**b.** The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

**c.** The Contractor shall enter into an escrow agreement satisfactory to the Owner.

**d.** The Contractor shall obtain the written consent of the surety to such agreement.

**90-09 Acceptance and final payment**. When the contract work has been accepted in accordance with the requirements of the subsection 50-15 titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the Engineer shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with the subsection 50-16 titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, and after the Engineer's receipt of the project closeout documentation required in subsection 90-11 Project Closeout, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection 50-16 titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50 or under the provisions of this subsection, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

**90-10 Construction warranty.**

**a.** In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

**b.** This warranty shall continue for a period of one year from the date of final acceptance of the work. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work.

**c.** The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of:

**(1)** The Contractor's failure to conform to contract requirements; or

**(2)** Any defect of equipment, material, workmanship, or design furnished by the Contractor.

**d.** The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

**e.** The Owner will notify the Contractor, in writing, within **seven (7) days** after the discovery of any failure, defect, or damage.

**f.** If the Contractor fails to remedy any failure, defect, or damage within **fourteen (14) days** after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

**g.** With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

**h.** This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

**90-11 Project closeout.** Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the Engineer approves the Contractor’s final submittal. The Contractor shall:

**a.** Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

**b.** Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

**c.** Complete final cleanup in accordance with subsection 40-08, FINAL CLEANUP.

**d.** Complete all punch list items identified during the Final Inspection.

**e.** Provide complete release of all claims for labor and material arising out of the Contract.

**f.** Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

**g.** When applicable per state requirements, return copies of sales tax completion forms.

**h.** Manufacturer's certifications for all items incorporated in the work.

**i.** All required record drawings, as-built drawings or as-constructed drawings.

**j.** Project Operation and Maintenance (O&M) Manual.

k. Security for Construction Warranty.

**l.** Equipment commissioning documentation submitted, if required.

**END OF SECTION 90**

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# SECTION 100 – CONTRACTOR QUALITY CONTROL PROGRAM

**100-01 General.** When the specification requires a Contractor Quality Control Program, the Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

**a.** Adequately provide for the production of acceptable quality materials.

**b.** Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.

**c.** Allow the Contractor as much latitude as possible to develop his or her own standard of control.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, their understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed and accepted by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

Paving projects over $500,000 shall have a Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Contractor, subcontractors, testing laboratories, and Owner’s representative at start of construction. The workshop shall address QC and QA requirements of the project specifications. The Contractor shall coordinate with the Airport and the Engineer on time and location of the QC/QA workshop.

**100-02 Description of program.**

**a. General description.** The Contractor shall establish a Quality Control Program to perform quality control inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

**b. Quality Control Program.** The Contractor shall describe the Quality Control Program in a written document that shall be reviewed and approved by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review and approval at least 5 calendar days before the Preconstruction Meeting. The Contractor’s Quality Control Plan and Quality Control testing laboratory must be approved in writing by the Engineer prior to the Notice to Proceed (NTP).

The Quality Control Program shall be organized to address, as a minimum, the following items:

**a.** Quality control organization

**b.** Project progress schedule

**c.** Submittals schedule

**d.** Inspection requirements

**e.** Quality control testing plan

**f.** Documentation of quality control activities

**g.** Requirements for corrective action when quality control and/or acceptance criteria are not met

The Contractor is encouraged to add any additional elements to the Quality Control Program that is deemed necessary to adequately control all production and/or construction processes required by this contract.

**100-03 Quality control organization.** The Contractor Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of paragraph 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall, as a minimum, consist of the following personnel:

**a. Program Administrator.** The Program Administrator shall be a full-time on-site employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of five (5) years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract.

Additional qualifications for the Program Administrator shall include at least one of the following requirements:

**(1)** Professional Engineer with one (1) year of airport paving experience.

**(2)** Engineer-in-training with two (2) years of airport paving experience.

**(3)** An individual with three (3) years of highway and/or airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

**(4)** Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).

**(5)** Highway materials technician certified at Level III by NICET.

**(6)** Highway construction technician certified at Level III by NICET.

**(7)** A NICET certified engineering technician in Civil Engineering Technology with five (5) years of highway and/or airport paving experience.

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract plans and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm. The Program Administrator may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

**b. Quality control technicians.** A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of two (2) years of experience in their area of expertise.

The quality control technicians shall report directly to the Program Administrator and shall perform the following functions:

**(1)** Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by subsection 100-06.

**(2)** Performance of all quality control tests as required by the technical specifications and subsection 100-07.

**(3)** Performance of density tests for the Engineer when required by the technical specifications.

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

**c. Staffing levels.** The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

**100-04 Project progress schedule.** The Contractor shall submit a coordinated construction schedule for all work activities. The schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified in the contract. As a minimum, it shall provide information on the sequence of work activities, milestone dates, and activity duration.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

**100-05 Submittals schedule.** The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

**a.** Specification item number

**b.** Item description

**c.** Description of submittal

**d.** Specification paragraph requiring submittal

**e.** Scheduled date of submittal

**100-06 Inspection requirements.** Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by subsection 100-07.

Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These shall include the following minimum requirements:

**a.** During plant operation for material production, quality control test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and used.

**b.** During field operations, quality control test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and used.

**100-07 Quality control testing plan.** As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

**a.** Specification item number (for example, P-401)

**b.** Item description (for example, Plant Mix Bituminous Pavements)

**c.** Test type (for example, gradation, grade, asphalt content)

**d.** Test standard (for example, ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

**e.** Test frequency (for example, as required by technical specifications or minimum frequency when requirements are not stated)

**f.** Responsibility (for example, plant technician)

**g.** Control requirements (for example, target, permissible deviations)

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The Engineer shall be provided the opportunity to witness quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by subsection 100-08.

**100-08 Documentation.** The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

**a. Daily inspection reports.** Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

**(1)** Technical specification item number and description

**(2)** Compliance with approved submittals

**(3)** Proper storage of materials and equipment

**(4)** Proper operation of all equipment

**(5)** Adherence to plans and technical specifications

**(6)** Review of quality control tests

**(7)** Safety inspection.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The Engineer shall be provided at least one copy of each daily inspection report on the work day following the day of record.

**b. Daily test reports.** The Contractor shall be responsible for establishing a system that will record all quality control test results. Daily test reports shall document the following information:

**(1)** Technical specification item number and description

**(2)** Test designation

**(3)** Location

**(4)** Date of test

**(5)** Control requirements

**(6)** Test results

**(7)** Causes for rejection

**(8)** Recommended remedial actions

**(9)** Retests

Test results from each day's work period shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

**100-09 Corrective action requirements.** The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

**100-10 Surveillance by the Engineer.** All items of material and equipment shall be subject to surveillance by the Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the Engineer at the site for the same purpose.

Surveillance by the Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

**100-11 Noncompliance.**

**a.** The Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or his or her authorized representative to the Contractor or his or her authorized representative at the site of the work, shall be considered sufficient notice.

**b.** In cases where quality control activities do not comply with either the Contractor Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:

**(1)** Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.

**(2)** Order the Contractor to stop operations until appropriate corrective actions are taken.

**END OF SECTION 100**

## SECTION 105 – MOBILIZATION

**105-1 Description.** This item shall consist of work and operations, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

**105-1.1 Posted notices.** Prior to commencement of construction activities the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster “Equal Employment Opportunity is the Law” in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL “Notice to All Employees” Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

**105-2 Basis of measurement and payment.** Based upon the contract lump sum price for “Mobilization” partial payments will be allowed as follows:

**a.** With first pay request, 25%.

**b.** When 25% or more of the original contract is earned, an additional 25%.

**c.** When 50% or more of the original contract is earned, an additional 40%.

**d.** After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by 90-11, the final 10%.

**END OF SECTION 105**

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# SECTION 110 – METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

**110-01 General.** When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (X) and sample standard deviation ($S_n$) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, $Q_L$ for Lower Quality Index and/or $Q_U$ for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

**110-02 Method for computing PWL.** The computational sequence for computing PWL is as follows:

**a.** Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

**b**. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

**c.** Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

**d.** Find the sample average (X) for all sublot values within the lot by using the following formula:

$$\mathbf{X = (x_1 + x_2 + x_3 + \ldots x_n) / n}$$

Where: X = Sample average of all sublot values within a lot

$x_1$, $x_2$ = Individual sublot values

n = Number of sublots

**e.** Find the sample standard deviation ($S_n$) by use of the following formula:

$$\mathbf{S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}}$$

Where: $S_n$ = Sample standard deviation of the number of sublot values in the set

$d_1$, $d_2$ = Deviations of the individual sublot values $x_1$, $x_2$, … from the average value X

that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X)$ … $d_n = (x_n - X)$

n = Number of sublots

**f.** For single sided specification limits (that is, L only), compute the Lower Quality Index $Q_L$ by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with $Q_L$, using the column appropriate to the total number (n) of measurements. If the value of $Q_L$ falls between values shown on the table, use the next higher value of PWL.

**g.** For double-sided specification limits (that is, L and U), compute the Quality Indexes $Q_L$ and $Q_U$ by use of the following formulas:

$$Q_L = (X - L) / S_n$$

**and**

$$Q_U = (U - X) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with $Q_L$ and $Q_U$, using the column appropriate to the total number (n) of measurements, and determining the percent of material above $P_L$ and percent of material below $P_U$ for each tolerance limit. If the values of $Q_L$ fall between values shown on the table, use the next higher value of $P_L$ or $P_U$. Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where: $P_L$ = percent within lower specification limit

$P_U$ = percent within upper specification limit

## EXAMPLE OF PWL CALCULATION

**Project:** Example Project

**Test Item:** Item P-401, Lot A.

**A. PWL Determination for Mat Density.**

**1.** Density of four random cores taken from Lot A.

A-1 = 96.60

A-2 = 97.55

A-3 = 99.30

A-4 = 98.35

n = 4

**2.** Calculate average density for the lot.

$X = (x_1 + x_2 + x_3 + \ldots x_n) / n$

$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$

$X = 97.95\%$ density

**3.** Calculate the standard deviation for the lot.

$S_n = \mathbf{[}((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)\mathbf{]}^{1/2}$

$S_n = \mathbf{[}(1.82 + 0.16 + 1.82 + 0.16) / 3\mathbf{]}^{1/2}$

$S_n = 1.15$

**4.** Calculate the Lower Quality Index $Q_L$ for the lot. (L=96.3)

$Q_L = (X - L) / S_n$

$Q_L = (97.95 - 96.30) / 1.15$

$Q_L = 1.4348$

**5.** Determine PWL by entering Table 1 with $Q_L$= 1.44 and n= 4.

PWL = 98

**B. PWL Determination for Air Voids.**

**1.** Air Voids of four random samples taken from Lot A.

A-1 = 5.00

A-2 = 3.74

A-3 = 2.30

A-4 = 3.25

**2.** Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3 \ldots n) / n$

$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

$X = 3.57\%$

**3.** Calculate the standard deviation $S_n$ for the lot.

$S_n = \mathbf{[}((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)\mathbf{]}^{1/2}$

$S_n = \mathbf{[}(2.04 + 0.03 + 1.62 + 0.10) / 3\mathbf{]}^{1/2}$

$S_n = 1.12$

**4.** Calculate the Lower Quality Index $Q_L$ for the lot. (L= 2.0)

$Q_L = (X - L) / S_n$

$Q_L = (3.57 - 2.00) / 1.12$

$Q_L = 1.3992$

**5.** Determine $P_L$ by entering Table 1 with $Q_L$ = 1.41 and n = 4.

$P_L = 97$

**6.** Calculate the Upper Quality Index $Q_U$ for the lot. (U= 5.0)

$Q_U = (U - X) / S_n$
$Q_U = (5.00 - 3.57) / 1.12$
$Q_U = 1.2702$

**7.** Determine $P_U$ by entering Table 1 with $Q_U = 1.29$ and n = 4.

$P_U = 93$

**8.** Calculate Air Voids PWL

PWL = $(P_L + P_U) - 100$

PWL = (97 + 93) - 100 = 90

## EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

**Project:** Example Project

**Test Item:** Item P-401, Lot A.

**A. Outlier Determination for Mat Density.**

**1.** Density of four random cores taken from Lot A arranged in descending order.

A-3 = 99.30
A-4 = 98.35
A-2 = 97.55
A-1 = 96.60

**2.** Use n=4 and upper 5% significance level of to find the critical value for test criterion = 1.463.

**3.** Use average density, standard deviation, and test criterion value to evaluate density measurements.

**a.** For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion,
then the measurement is not considered an outlier

For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

**b.** For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion,
then the measurement is not considered an outlier.

For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

**Note:** In this example, a measurement would be considered an outlier if the density were:

Greater than (97.95 + 1.463 × 1.15) = 99.63%

OR

less than (97.95 - 1.463 × 1.15) = 96.27%.

## Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

| Percent Within Limits ($P_L$ and $P_U$) | Positive Values of Q ($Q_L$ and $Q_U$) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | n=3 | n=4 | n=5 | n=6 | n=7 | n=8 | n=9 | n=10 |
| 99 | 1.1541 | 1.4700 | 1.6714 | 1.8008 | 1.8888 | 1.9520 | 1.9994 | 2.0362 |
| 98 | 1.1524 | 1.4400 | 1.6016 | 1.6982 | 1.7612 | 1.8053 | 1.8379 | 1.8630 |
| 97 | 1.1496 | 1.4100 | 1.5427 | 1.6181 | 1.6661 | 1.6993 | 1.7235 | 1.7420 |
| 96 | 1.1456 | 1.3800 | 1.4897 | 1.5497 | 1.5871 | 1.6127 | 1.6313 | 1.6454 |
| 95 | 1.1405 | 1.3500 | 1.4407 | 1.4887 | 1.5181 | 1.5381 | 1.5525 | 1.5635 |
| 94 | 1.1342 | 1.3200 | 1.3946 | 1.4329 | 1.4561 | 1.4717 | 1.4829 | 1.4914 |
| 93 | 1.1269 | 1.2900 | 1.3508 | 1.3810 | 1.3991 | 1.4112 | 1.4199 | 1.4265 |
| 92 | 1.1184 | 1.2600 | 1.3088 | 1.3323 | 1.3461 | 1.3554 | 1.3620 | 1.3670 |
| 91 | 1.1089 | 1.2300 | 1.2683 | 1.2860 | 1.2964 | 1.3032 | 1.3081 | 1.3118 |
| 90 | 1.0982 | 1.2000 | 1.2290 | 1.2419 | 1.2492 | 1.2541 | 1.2576 | 1.2602 |
| 89 | 1.0864 | 1.1700 | 1.1909 | 1.1995 | 1.2043 | 1.2075 | 1.2098 | 1.2115 |
| 88 | 1.0736 | 1.1400 | 1.1537 | 1.1587 | 1.1613 | 1.1630 | 1.1643 | 1.1653 |
| 87 | 1.0597 | 1.1100 | 1.1173 | 1.1192 | 1.1199 | 1.1204 | 1.1208 | 1.1212 |
| 86 | 1.0448 | 1.0800 | 1.0817 | 1.0808 | 1.0800 | 1.0794 | 1.0791 | 1.0789 |
| 85 | 1.0288 | 1.0500 | 1.0467 | 1.0435 | 1.0413 | 1.0399 | 1.0389 | 1.0382 |
| 84 | 1.0119 | 1.0200 | 1.0124 | 1.0071 | 1.0037 | 1.0015 | 1.0000 | 0.9990 |
| 83 | 0.9939 | 0.9900 | 0.9785 | 0.9715 | 0.9671 | 0.9643 | 0.9624 | 0.9610 |
| 82 | 0.9749 | 0.9600 | 0.9452 | 0.9367 | 0.9315 | 0.9281 | 0.9258 | 0.9241 |
| 81 | 0.9550 | 0.9300 | 0.9123 | 0.9025 | 0.8966 | 0.8928 | 0.8901 | 0.8882 |
| 80 | 0.9342 | 0.9000 | 0.8799 | 0.8690 | 0.8625 | 0.8583 | 0.8554 | 0.8533 |
| 79 | 0.9124 | 0.8700 | 0.8478 | 0.8360 | 0.8291 | 0.8245 | 0.8214 | 0.8192 |
| 78 | 0.8897 | 0.8400 | 0.8160 | 0.8036 | 0.7962 | 0.7915 | 0.7882 | 0.7858 |
| 77 | 0.8662 | 0.8100 | 0.7846 | 0.7716 | 0.7640 | 0.7590 | 0.7556 | 0.7531 |
| 76 | 0.8417 | 0.7800 | 0.7535 | 0.7401 | 0.7322 | 0.7271 | 0.7236 | 0.7211 |
| 75 | 0.8165 | 0.7500 | 0.7226 | 0.7089 | 0.7009 | 0.6958 | 0.6922 | 0.6896 |
| 74 | 0.7904 | 0.7200 | 0.6921 | 0.6781 | 0.6701 | 0.6649 | 0.6613 | 0.6587 |
| 73 | 0.7636 | 0.6900 | 0.6617 | 0.6477 | 0.6396 | 0.6344 | 0.6308 | 0.6282 |
| 72 | 0.7360 | 0.6600 | 0.6316 | 0.6176 | 0.6095 | 0.6044 | 0.6008 | 0.5982 |
| 71 | 0.7077 | 0.6300 | 0.6016 | 0.5878 | 0.5798 | 0.5747 | 0.5712 | 0.5686 |
| 70 | 0.6787 | 0.6000 | 0.5719 | 0.5582 | 0.5504 | 0.5454 | 0.5419 | 0.5394 |
| 69 | 0.6490 | 0.5700 | 0.5423 | 0.5290 | 0.5213 | 0.5164 | 0.5130 | 0.5105 |
| 68 | 0.6187 | 0.5400 | 0.5129 | 0.4999 | 0.4924 | 0.4877 | 0.4844 | 0.4820 |
| 67 | 0.5878 | 0.5100 | 0.4836 | 0.4710 | 0.4638 | 0.4592 | 0.4560 | 0.4537 |
| 66 | 0.5563 | 0.4800 | 0.4545 | 0.4424 | 0.4355 | 0.4310 | 0.4280 | 0.4257 |
| 65 | 0.5242 | 0.4500 | 0.4255 | 0.4139 | 0.4073 | 0.4030 | 0.4001 | 0.3980 |
| 64 | 0.4916 | 0.4200 | 0.3967 | 0.3856 | 0.3793 | 0.3753 | 0.3725 | 0.3705 |
| 63 | 0.4586 | 0.3900 | 0.3679 | 0.3575 | 0.3515 | 0.3477 | 0.3451 | 0.3432 |
| 62 | 0.4251 | 0.3600 | 0.3392 | 0.3295 | 0.3239 | 0.3203 | 0.3179 | 0.3161 |
| 61 | 0.3911 | 0.3300 | 0.3107 | 0.3016 | 0.2964 | 0.2931 | 0.2908 | 0.2892 |
| 60 | 0.3568 | 0.3000 | 0.2822 | 0.2738 | 0.2691 | 0.2660 | 0.2639 | 0.2624 |
| 59 | 0.3222 | 0.2700 | 0.2537 | 0.2461 | 0.2418 | 0.2391 | 0.2372 | 0.2358 |
| 58 | 0.2872 | 0.2400 | 0.2254 | 0.2186 | 0.2147 | 0.2122 | 0.2105 | 0.2093 |
| 57 | 0.2519 | 0.2100 | 0.1971 | 0.1911 | 0.1877 | 0.1855 | 0.1840 | 0.1829 |
| 56 | 0.2164 | 0.1800 | 0.1688 | 0.1636 | 0.1607 | 0.1588 | 0.1575 | 0.1566 |
| 55 | 0.1806 | 0.1500 | 0.1406 | 0.1363 | 0.1338 | 0.1322 | 0.1312 | 0.1304 |
| 54 | 0.1447 | 0.1200 | 0.1125 | 0.1090 | 0.1070 | 0.1057 | 0.1049 | 0.1042 |
| 53 | 0.1087 | 0.0900 | 0.0843 | 0.0817 | 0.0802 | 0.0793 | 0.0786 | 0.0781 |
| 52 | 0.0725 | 0.0600 | 0.0562 | 0.0544 | 0.0534 | 0.0528 | 0.0524 | 0.0521 |
| 51 | 0.0363 | 0.0300 | 0.0281 | 0.0272 | 0.0267 | 0.0264 | 0.0262 | 0.0260 |
| 50 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| Percent Within Limits ($P_L$ and $P_U$) | Negative Values of Q ($Q_L$ and $Q_U$) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | n=3 | n=4 | n=5 | n=6 | n=7 | n=8 | n=9 | n=10 |
| 49 | -0.0363 | -0.0300 | -0.0281 | -0.0272 | -0.0267 | -0.0264 | -0.0262 | -0.0260 |
| 48 | -0.0725 | -0.0600 | -0.0562 | -0.0544 | -0.0534 | -0.0528 | -0.0524 | -0.0521 |
| 47 | -0.1087 | -0.0900 | -0.0843 | -0.0817 | -0.0802 | -0.0793 | -0.0786 | -0.0781 |
| 46 | -0.1447 | -0.1200 | -0.1125 | -0.1090 | -0.1070 | -0.1057 | -0.1049 | -0.1042 |
| 45 | -0.1806 | -0.1500 | -0.1406 | -0.1363 | -0.1338 | -0.1322 | -0.1312 | -0.1304 |
| 44 | -0.2164 | -0.1800 | -0.1688 | -0.1636 | -0.1607 | -0.1588 | -0.1575 | -0.1566 |
| 43 | -0.2519 | -0.2100 | -0.1971 | -0.1911 | -0.1877 | -0.1855 | -0.1840 | -0.1829 |
| 42 | -0.2872 | -0.2400 | -0.2254 | -0.2186 | -0.2147 | -0.2122 | -0.2105 | -0.2093 |
| 41 | -0.3222 | -0.2700 | -0.2537 | -0.2461 | -0.2418 | -0.2391 | -0.2372 | -0.2358 |
| 40 | -0.3568 | -0.3000 | -0.2822 | -0.2738 | -0.2691 | -0.2660 | -0.2639 | -0.2624 |
| 39 | -0.3911 | -0.3300 | -0.3107 | -0.3016 | -0.2964 | -0.2931 | -0.2908 | -0.2892 |
| 38 | -0.4251 | -0.3600 | -0.3392 | -0.3295 | -0.3239 | -0.3203 | -0.3179 | -0.3161 |
| 37 | -0.4586 | -0.3900 | -0.3679 | -0.3575 | -0.3515 | -0.3477 | -0.3451 | -0.3432 |
| 36 | -0.4916 | -0.4200 | -0.3967 | -0.3856 | -0.3793 | -0.3753 | -0.3725 | -0.3705 |
| 35 | -0.5242 | -0.4500 | -0.4255 | -0.4139 | -0.4073 | -0.4030 | -0.4001 | -0.3980 |
| 34 | -0.5563 | -0.4800 | -0.4545 | -0.4424 | -0.4355 | -0.4310 | -0.4280 | -0.4257 |
| 33 | -0.5878 | -0.5100 | -0.4836 | -0.4710 | -0.4638 | -0.4592 | -0.4560 | -0.4537 |
| 32 | -0.6187 | -0.5400 | -0.5129 | -0.4999 | -0.4924 | -0.4877 | -0.4844 | -0.4820 |
| 31 | -0.6490 | -0.5700 | -0.5423 | -0.5290 | -0.5213 | -0.5164 | -0.5130 | -0.5105 |
| 30 | -0.6787 | -0.6000 | -0.5719 | -0.5582 | -0.5504 | -0.5454 | -0.5419 | -0.5394 |
| 29 | -0.7077 | -0.6300 | -0.6016 | -0.5878 | -0.5798 | -0.5747 | -0.5712 | -0.5686 |
| 28 | -0.7360 | -0.6600 | -0.6316 | -0.6176 | -0.6095 | -0.6044 | -0.6008 | -0.5982 |
| 27 | -0.7636 | -0.6900 | -0.6617 | -0.6477 | -0.6396 | -0.6344 | -0.6308 | -0.6282 |
| 26 | -0.7904 | -0.7200 | -0.6921 | -0.6781 | -0.6701 | -0.6649 | -0.6613 | -0.6587 |
| 25 | -0.8165 | -0.7500 | -0.7226 | -0.7089 | -0.7009 | -0.6958 | -0.6922 | -0.6896 |
| 24 | -0.8417 | -0.7800 | -0.7535 | -0.7401 | -0.7322 | -0.7271 | -0.7236 | -0.7211 |
| 23 | -0.8662 | -0.8100 | -0.7846 | -0.7716 | -0.7640 | -0.7590 | -0.7556 | -0.7531 |
| 22 | -0.8897 | -0.8400 | -0.8160 | -0.8036 | -0.7962 | -0.7915 | -0.7882 | -0.7858 |
| 21 | -0.9124 | -0.8700 | -0.8478 | -0.8360 | -0.8291 | -0.8245 | -0.8214 | -0.8192 |
| 20 | -0.9342 | -0.9000 | -0.8799 | -0.8690 | -0.8625 | -0.8583 | -0.8554 | -0.8533 |
| 19 | -0.9550 | -0.9300 | -0.9123 | -0.9025 | -0.8966 | -0.8928 | -0.8901 | -0.8882 |
| 18 | -0.9749 | -0.9600 | -0.9452 | -0.9367 | -0.9315 | -0.9281 | -0.9258 | -0.9241 |
| 17 | -0.9939 | -0.9900 | -0.9785 | -0.9715 | -0.9671 | -0.9643 | -0.9624 | -0.9610 |
| 16 | -1.0119 | -1.0200 | -1.0124 | -1.0071 | -1.0037 | -1.0015 | -1.0000 | -0.9990 |
| 15 | -1.0288 | -1.0500 | -1.0467 | -1.0435 | -1.0413 | -1.0399 | -1.0389 | -1.0382 |
| 14 | -1.0448 | -1.0800 | -1.0817 | -1.0808 | -1.0800 | -1.0794 | -1.0791 | -1.0789 |
| 13 | -1.0597 | -1.1100 | -1.1173 | -1.1192 | -1.1199 | -1.1204 | -1.1208 | -1.1212 |
| 12 | -1.0736 | -1.1400 | -1.1537 | -1.1587 | -1.1613 | -1.1630 | -1.1643 | -1.1653 |
| 11 | -1.0864 | -1.1700 | -1.1909 | -1.1995 | -1.2043 | -1.2075 | -1.2098 | -1.2115 |
| 10 | -1.0982 | -1.2000 | -1.2290 | -1.2419 | -1.2492 | -1.2541 | -1.2576 | -1.2602 |
| 9 | -1.1089 | -1.2300 | -1.2683 | -1.2860 | -1.2964 | -1.3032 | -1.3081 | -1.3118 |
| 8 | -1.1184 | -1.2600 | -1.3088 | -1.3323 | -1.3461 | -1.3554 | -1.3620 | -1.3670 |
| 7 | -1.1269 | -1.2900 | -1.3508 | -1.3810 | -1.3991 | -1.4112 | -1.4199 | -1.4265 |
| 6 | -1.1342 | -1.3200 | -1.3946 | -1.4329 | -1.4561 | -1.4717 | -1.4829 | -1.4914 |
| 5 | -1.1405 | -1.3500 | -1.4407 | -1.4887 | -1.5181 | -1.5381 | -1.5525 | -1.5635 |
| 4 | -1.1456 | -1.3800 | -1.4897 | -1.5497 | -1.5871 | -1.6127 | -1.6313 | -1.6454 |
| 3 | -1.1496 | -1.4100 | -1.5427 | -1.6181 | -1.6661 | -1.6993 | -1.7235 | -1.7420 |
| 2 | -1.1524 | -1.4400 | -1.6016 | -1.6982 | -1.7612 | -1.8053 | -1.8379 | -1.8630 |
| 1 | -1.1541 | -1.4700 | -1.6714 | -1.8008 | -1.8888 | -1.9520 | -1.9994 | -2.0362 |

**END OF SECTION 110**

# Part 2 – Earthwork

## ITEM P-101 – SURFACE PREPARATION

### DESCRIPTION

**101-1.1** This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable drawings.

### EQUIPMENT

**101-2.1** All equipment shall be specified here and in the following paragraphs or approved by the Engineer. The equipment shall not cause damage to the pavement to remain in place.

### CONSTRUCTION

**101-3.1 Removal of existing pavement.**

**a. Concrete pavement.** The existing concrete pavement to be removed shall be freed from the pavement to remain by sawing through the complete depth of the slab one foot (30 cm) inside the perimeter of the final removal limits or outside the dowels, whichever is greater when the limits of removal are located on the joints. The pavement between the perimeter of the pavement removal and the saw cut shall be carefully broken up and removed using hand-held jackhammers, weighing 30 pounds (14 kg) or less, or other light-duty equipment which will not cause distress in the pavement which is to remain in place. The Contractor shall have the option of sawing through the dowels at the joint, removing the pavement and installing new dowels. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, then the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods suitable to the Engineer which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size designated by the Engineer. The Contractor's removal operation shall not cause damage to cables, utility ducts, pipelines, or drainage structures under the pavement. Concrete slabs that are damaged by under breaking shall be removed. Any damage shall be repaired at the Contractor's expense.

**b. Asphalt concrete pavement.** Asphalt concrete pavement to be removed shall be cut to the full depth of the bituminous material around the perimeter of the area to be removed. The pavement shall be removed so the joint for each layer of pavement replacement is offset 1 foot (30 cm) from the joint in the preceding layer. This does not apply if the removed pavement is to be replaced with concrete or soil. If the material is to be wasted on the airport site, it shall be broken to a maximum size as designated by the airport owner

**101-3.2 Preparation of joints and cracks.** Remove all vegetation and debris from cracks to a minimum depth of 1 inch (25 mm). If extensive vegetation exists treat the specific area with a concentrated solution of a water-based herbicide approved by the Engineer. Fill all cracks, ignoring hairline cracks (< 1/4 inch (6 mm) wide) with a crack sealant per ASTM D6690. Wider cracks (over 1-1/2 inch wide (38 mm)), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or replaced as stated below. Any excess joint or crack sealer on the surface of the pavement shall also be removed from the pavement surface.

~~**101-3.3 Removal of paint and rubber.** All paint and rubber over 1 foot (30 cm) wide that will affect the bond of the new overlay shall be removed from the surface of the existing pavement. Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, or sandblasting may be used. Any methods used shall not cause major damage to the pavement. Major damage is defined as changing the properties of the pavement or removing pavement over 1/8 inch (3 mm) deep. If chemicals are used, they shall comply with the state's environmental protection regulations. No material shall be deposited on the runway shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.~~

~~**101-3.4 Concrete spall or failed asphaltic concrete pavement repair.**~~

~~**a. Repair of concrete spalls in areas to be overlaid with asphalt.** The Contractors shall repair all spalled concrete as shown on the plans or as directed by the Engineer. The perimeter of the repair shall be saw cut a minimum of 2 inches (50 mm) outside the affected area and 2 inches (50 mm) deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphaltic concrete with a minimum Marshall stability of 1,200 lbs (544 kg) and maximum flow of 20 (units of 0.01 in). The material shall be compacted with equipment approved by the Engineer until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches (100 mm) in depth. This method of repair applies only to pavement to be overlaid.~~

~~**b. Asphaltic concrete pavement repair.** The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. The base course and subbase shall be replaced if it has been infiltrated with clay, silt, or other material affecting the load-bearing capacity. Materials and methods of construction shall comply with the other applicable sections of this specification.~~

~~**101-3.5 Cold milling.** Milling shall be performed with a power-operated milling machine or grinder, capable of producing a finished surface that provides a good bond to the new overlay. The milling machine or grinder shall operate without tearing or gouging the under laying surface. The milling machine or grinder shall be equipped with automatic grade and slope controls. All millings shall be removed and disposed off Airport property, unless otherwise specified. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material that was removed with new material at no additional cost to the Owner.~~

~~**a. Patching.** The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The Engineer shall layout the area to be milled with a straightedge in increments of 1 foot (30 cm) widths. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall not be included in the measurement for payment.~~

~~**b. Profiling, grade correction, or surface correction.** The milling machine shall have a minimum width of [7 ] feet( [2] m) and it shall be equipped with electronic grade control devices that will cut the surface to the grade and tolerances specified. The machine shall cut vertical edges. A positive method of dust control shall be provided. The machine shall have the ability to remove the millings or cuttings from the pavement and load them into a truck.~~

~~**c. Clean-up.** The Contractor shall sweep the milled surface daily and immediately after the milling until all residual aggregate and fines are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove any remaining aggregate or fines.~~

~~**101-3.6. Preparation of asphalt pavement surfaces.** Existing asphalt pavements indicated to be treated with a surface treatment shall be prepared as follows:~~

~~**a.** Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt concrete similar to that of the existing pavement in accordance with paragraph 101-3.4.~~

~~**b.** Repair joints and cracks in accordance with paragraph 101-3.2.~~

~~**c.** Remove oil or grease that has not penetrated the asphalt pavement by scraping or by scrubbing with a detergent, then wash thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.~~

~~**d.** Clean pavement surface immediately prior to placing the surface treatment by sweeping, flushing well with water leaving no standing water, or a combination of both, so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.~~

~~**101-3.7 Maintenance**. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the Engineer. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.~~

**101-3.8 Preparation of Joints in Rigid Pavement.**

**101-3.8.1 Removal of Existing Joint Sealant**. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch (2 mm) from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry. Allow sufficient time to dry out joints prior to sealing.

**101-3.8.2 Cleaning prior to sealing**. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Clean joints by ~~sandblasting~~, or other method approved by the Engineer, on each joint face with nozzle held at an angle and not more than three inches (75 mm) from face. Following sandblasting, clean joints with air free of oil and water. Joint surfaces will be surface-dry prior to installation of sealant. ***No sandblasting shall be allowed.***

~~**101-3.9 Preparation of Cracks in Flexible Pavement.**~~

~~**101-3.9.1 Preparation of Crack**. Widen crack with router by removing a minimum of 1/16 inch (2 mm) from each side of crack. Immediately before sealing, joints will be blown out with a hot air lance combined with oil and water-free compressed air.~~

~~**101-3.9.2 Removal of Existing Sealant**. Existing sealants will be removed by routing or swaing. Following routing or sawing any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.~~

## METHOD OF MEASUREMENT

**101-4.1 Pavement removal**. The unit of measurement for pavement removal shall be the number of square yards (square meters) removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment.

## BASIS OF PAYMENT

**101-5.1 Payment.** Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

| | |
|---|---|
| **Item P 101-5.1** | Pavement Removal – per Square Yard |

## MATERIAL REQUIREMENTS

| | |
|---|---|
| ASTM D6690 | Standard Specification For Joint And Crack Sealants, Hot Applied, For Concrete And Asphalt Pavements |

## END OF ITEM P-101

## ITEM P-152 – EXCAVATION, SUBGRADE, AND EMBANKMENT

### DESCRIPTION

**152-1.1** This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

**152-1.2 Classification.** All material excavated shall be classified as defined below:

**a. Unclassified excavation.** Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

**152-1.3 Unsuitable excavation.** Any material containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material, suitable for topsoil may be used on the embankment slope when approved by the Engineer.

### CONSTRUCTION METHODS

**152-2.1 General.** Before beginning excavation, grading, and embankment operations in any area, the area shall be completely cleared and grubbed in accordance with Item P-151.

The suitability of material to be placed in embankments shall be subject to approval by the Engineer. All unsuitable material shall be disposed of in waste areas shown on the plans. All waste areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable areas of the airport, unless specified on the plans or approved by the Engineer.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the Engineer notified per subsection 70-20. At the direction of the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Those areas outside of the limits of the pavement areas where the top layer of soil material has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the Engineer, who shall arrange for their removal if necessary. The Contractor, at his or her expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

**152-2.2 Excavation.** No excavation shall be started until the work has been staked out by the Contractor and the Engineer has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the Engineer. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

When the volume of the excavation exceeds that required to construct the embankments to the grades indicated, the excess shall be used to grade the areas of ultimate development or disposed as directed by the Engineer. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the work.

**a. Selective grading.** When selective grading is indicated on the plans, the more suitable material designated by the Engineer shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas so that it can be measured for payment as specified in paragraph 152-3.3.

**b. Undercutting.** Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches (300 mm) below the subgrade or to the depth specified by the Engineer. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans.

**c. Overbreak.** Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Engineer. All overbreak shall be graded or removed by the Contractor and disposed of as directed by the Engineer. The Engineer shall determine if the displacement of such material was unavoidable and his or her decision shall be final. Payment will not be made for the removal and disposal of overbreak that the Engineer determines as avoidable. Unavoidable overbreak will be classified as “Unclassified Excavation.”

**d. Removal of utilities.** The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by someone other than the Contractor; for example, the utility unless otherwise shown on the plans. All existing foundations shall be excavated at least 2 feet (60 cm) below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the Engineer. All foundations thus excavated shall be backfilled with suitable material and compacted as specified.

**e. Compaction requirements.** The subgrade under areas to be paved shall be compacted to a depth of 12” and to a density of not less than 95 percent of the maximum density as determined by ASTM D698. The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils).

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade. The finished grading operations, conforming to the typical cross-section, shall be completed and maintained at least 1,000 feet (300 m) ahead of the paving operations or as directed by the Engineer.

All loose or protruding rocks on the back slopes of cuts shall be pried loose or otherwise removed to the slope finished grade line. All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the Engineer.

Blasting shall not be allowed.

~~**f. Proof rolling.** After compaction is completed, the subgrade area shall be proof rolled with a 20 ton (18.1 metric ton) Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 80/100/150 psi (0.551 MPa/0.689 MPa/1.034 MPa)~~

~~**]** in the presence of the Engineer. Apply a minimum of [___] coverage, or as specified by the Engineer, to all paved areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications.~~

**152-2.3 Borrow excavation.** Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the Engineer.

When borrow sources are outside the boundaries of the airport property, it shall be the Contractor's responsibility to locate and obtain the borrow sources, subject to the approval of the Engineer. The Contractor shall notify the Engineer at least 15 days prior to beginning the excavation so necessary measurements and tests can be made. All borrow pits shall be opened up to expose the various strata of acceptable material to allow obtaining a uniform product. All unsuitable material shall be disposed of by the Contractor. Borrow pits shall be excavated to regular lines to permit accurate measurements, and they shall be drained and left in a neat, presentable condition with all slopes dressed uniformly.

**152-2.4 Drainage excavation.** Drainage excavation shall consist of excavating for drainage ditches such as intercepting; inlet or outlet ditches; for temporary levee construction; or for any other type as designed or as shown on the plans. The work shall be performed in sequence with the other construction. Intercepting ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the Engineer. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

**152-2.5 Preparation of embankment area.** Where an embankment is to be constructed to a height of 4 feet (1.2 m) or less, all sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches (150 mm) and shall then be compacted as indicated in paragraph 152-2.6. When the height of fill is greater than 4 feet (1.2 m), sod not required to be removed shall be thoroughly disked and recompacted to the density of the surrounding ground before construction of embankment.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches (300 mm) and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

**152-2.6 Formation of embankments.** Embankments shall be formed in successive horizontal layers of not more than 8 inches (200 mm) in loose depth for the full width of the cross-section, unless otherwise approved by the Engineer.

The layers shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the Engineer. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each layer shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. To achieve a uniform moisture content throughout the layer, the material shall be moistened or aerated as necessary. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken for each 1000 square yards. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for noncohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D698. Under all areas to be paved, the embankments shall be compacted to a depth of 12” and to a density of not less than 95 percent of the maximum density as determined by ASTM D698.

| **Area of Placement** | **ASTM STND** | **Density** | **Moisture** |
|---|---|---|---|
| Subgrade beneath granular subbase | 698 | 95 | -1 - +4 |
| Subgrade outside pavement area | 698 | 90 | -1 - +4 |
| Utility Trenches beneath paving | 698 | 95 | -1 - +4 |
| Utility Trenches outside paving area | 698 | 90 | -1 - +4 |
| Landscape areas | 698 | 92 | -1 - +4 |

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches (100 mm).

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The Contractor’s laboratory shall perform all density tests in the Engineer’s presence and provide the test results upon completion to the Engineer for acceptance.

Compaction areas shall be kept separate, and no layer shall be covered by another layer until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each layer is placed. Layer placement shall begin in the deepest portion of the embankment fill. As placement progresses, the layers shall be constructed approximately parallel to the finished pavement grade line.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the embankment and the other material shall be incorporated under the future paved areas. Stones or fragmentary rock larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 6 inches (150 mm) of the subgrade. Rockfill shall be brought up in layers as specified or as directed by the Engineer and the finer material shall be used to fill the voids with forming a dense, compact mass. Rock or boulders shall not be disposed of outside the excavation or embankment areas, except at places and in the manner designated on the plans or by the Engineer.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in layers not exceeding 2 feet (60 cm) in thickness. Each layer shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The layer shall not be constructed above an elevation 4 feet (1.2 m) below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in layers, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

**152-2.7 Finishing and protection of subgrade.** After the subgrade is substantially complete, the Contractor shall remove any soft or other unstable material over the full width of the subgrade that will not compact properly. All low areas, holes or depressions in the subgrade shall be brought to grade with suitable select material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans.

Grading of the subgrade shall be performed so that it will drain readily. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes. All ruts or rough places that develop in the completed subgrade shall be graded and recompacted.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer.

**152-2.8 Haul.** All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

**152-2.9 Tolerances.** In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 12-foot (3.7-m) straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2 inch (12 mm), or shall not be more than 0.05 feet (15 mm) from true grade as established by grade hubs. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting.

On safety areas, intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 feet (3 mm) from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

**152-2.10 Topsoil.** When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall not be placed within 300 feet of runway pavement or 66 feet of taxiway pavement and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the Engineer, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further rehandling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as directed, or as required in Item T-905.

No direct payment will be made for topsoil under Item P-152. The quantity removed and placed directly or stockpiled shall be paid for at the contract unit price per cubic yard (cubic meter) for "Unclassified Excavation."

When stockpiling of topsoil and later rehandling of such material is directed by the Engineer, the material so rehandled shall be paid for at the contract unit price per cubic yard (cubic meter) for “topsoiling,” as provided in Item T-905.

## METHOD OF MEASUREMENT

**152-3.1** The quantity of excavation to be paid for shall be the number of cubic yards (cubic meters) measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

**152-3.4** For payment specified by the cubic yard (cubic meter), measurement for all excavation shall be computed by the average end area method. The end area is that bound by the original ground line established by field cross-sections and the final theoretical pay line established by excavation cross-sections shown on the plans, subject to verification by the Engineer. After completion of all excavation operations and prior to the placing of base or subbase material, the final excavation shall be verified by the Engineer by means of field cross-sections taken randomly at intervals not exceeding 500 linear feet (150 m).

**152-3.5** The quantity of embankment in place shall be the number of cubic yards (cubic meters) measured in its final position.

## BASIS OF PAYMENT

**152-4.1** “Unclassified excavation” payment shall be incidental to Subgrade – Trim, Shape and Compact

**152-4.2** “Subgrade – Trim, Shape, and Compact”, payment shall be made at the contract unit price per square yard (square meter). This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

| | |
|---|---|
| **Item P-152-4.1** | Subgrade – Trim, Shape, and Compact – per Square Yard |

## TESTING REQUIREMENTS

| | |
|---|---|
| ASTM D698 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/$ft^3$ (600 kN-m/$m^3$)) |
| ASTM D1556 | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method |
| ASTM D1557 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/$ft^3$ (2700 kN-m/$m^3$)) |
| ASTM D2167 | Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method |
| ASTM D6938 | Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) |

## END OF ITEM P-152

# ITEM P-156 – TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

## DESCRIPTION

**156-1.1** This item shall consist of temporary control measures as shown on the plans or as ordered by the Engineer during the life of a contract to control water pollution, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be design, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

## MATERIALS

**156-2.1 Grass.** Grass that will not compete with the grasses sown later for permanent cover per Item T-901shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

**156-2.2 Mulches.** Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per ItemT-908. Mulches shall not create a wildlife attractant.

**156-2.3 Fertilizer.** Fertilizer shall be a standard commercial grade and shall conform to all Federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

**156-2.4 Slope drains.** Slope drains may be constructed of pipe, fiber mats, rubble, Portland cement concrete, bituminous concrete, or other materials that will adequately control erosion.

**156-2.5 Silt fence.** The silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

**156-2.6 Other.** All other materials shall meet commercial grade standards and shall be approved by the Engineer before being incorporated into the project.

## CONSTRUCTION REQUIREMENTS

**156-3.1 General.** In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The Engineer shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

**156-3.2 Schedule.** Prior to the start of construction, the Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the Engineer.

**The Engineer may direct the Contractor to install additional erosion control measures as necessary. Also, if construction and/or disturbed earth areas cause blowing dust or other air pollutants to become an issue, the Engineer may direct the Contractor to implement methods of controlling said dust (or other air pollutants), such as use of water sprinkler trucks, covered haul trucks, limiting exposed eroded earth, or other methods agreed on by the Engineer and Contractor.**

**156-3.3 Construction details.** The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately if project conditions permit; otherwise, temporary erosion control measures may be required.

The Engineer shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the Engineer.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the Engineer. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the Engineer, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The Engineer may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

Whenever construction equipment must cross watercourses at frequent intervals, temporary structures should be provided.

Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

**156-3.4 Installation, maintenance and removal of silt fences.** Silt fences shall extend a minimum of 16 inches (41 cm) and a maximum of 34 inches (86 cm) above the ground surface. Posts shall be set no more than 10 feet (3 m) on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch (300-mm) overlap and securely sealed. A trench shall be excavated approximately 4 inches (100 mm) deep by 4 inches (100 mm) wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the Engineer.

## METHOD OF MEASUREMENT

**156-4.1** Temporary erosion and pollution control work required will be performed as scheduled or directed by the Engineer. Completed and accepted work will be measured as follows:

~~**a.** Temporary seeding and mulching will be measured by the square yard.~~

~~**b.** Temporary slope drains will be measured by the linear foot.~~

~~**c.** Temporary benches, dikes, dams, and sediment basins will be measured by the cubic yard (cubic meter) of excavation performed, including necessary cleaning of sediment basins, and the cubic yard (cubic meter) of embankment placed as directed by the Engineer~~.

~~**d.** All fertilizing will be measured by the ton.~~

~~**e.** Installation and removal of silt fence will be measured by the linear foot.~~

**156-4.2** Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

## BASIS OF PAYMENT

**156-5.1** Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the Engineer and measured as provided in paragraph 156-4.1 will be paid for under:

| | |
|---|---|
| **Item P-156-5.1** | Installation and Removal of Silt Fence – per Linear Foot |

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the Engineer will be paid for in accordance with Section 90-05 Payment for Extra work.

## MATERIAL REQUIREMENTS

| | |
|---|---|
| ASTM D6461 | Standard Specification for Silt Fence Materials |
| AC 150/5200-33 | Hazardous Wildlife Attractants |

## END OF ITEM P-156

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# Part 3 – Flexible Base Courses

## ITEM P-209 – CRUSHED AGGREGATE BASE COURSE

### DESCRIPTION

**209-1.1** This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

### MATERIALS

**209-2.1 Crushed aggregate base.** Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, crushed gravel, and shall be free from coatings of clay, silt, organic material, or other objectionable materials. Aggregates shall contain no clay lumps or balls. Fine aggregate passing the No. 4 (4.75 mm) sieve shall consist of fines from the coarse aggregate crushing operation. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone, gravel, that meet the coarse aggregate requirements for wear and soundness.

The coarse aggregate portion, defined as the material retained on the No. 4 (4.75 mm) sieve, shall not have a loss of greater than 45% when tested per ASTM C131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. The aggregate shall contain no more than 15%, by weight, of flat, elongated, or flat and elongated particles per ASTM D4791. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than three (3). The aggregate shall have at least 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face per ASTM D5821. The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

**a. Sampling and testing for initial aggregate base requirements**. Samples shall be taken by the Contractor in the presence of the Engineer. Material shall meet the requirements in paragraph 209-2.1 and 209-2.2. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

**209-2.2 Gradation requirements.** The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine as defined by ASTM D2487 and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. The fraction of material passing the No. 200 (0.075 mm) sieve shall not exceed one-half the fraction passing the No. 40 (0.45 mm) sieve.

**The material finer than 0.02 mm shall be limited to a maximum of 3% and the maximum allowable material passing the No. 200 sieve shall be reduced from 0-8% to 0-5%. Testing per ASTM D422 will be required for the percentage passing the 0.02 mm particle size once per lot.**

**Requirements For Gradation Of Aggregate Base**

| Sieve Size | Design Range Percentage by Weight | Contractor's Final Gradation | Job Control Grading Band Tolerances for Contractor's Final Gradation Percent |
|---|---|---|---|
| 2 inch (50 mm) | 100 | | 0 |
| 1-1/2 inch (38 mm) | 95-100 | | ±5 |
| 1 inch (25 mm) | 70-95 | | ±8 |
| 3/4 inch (19 mm) | 55-85 | | ±8 |
| No. 4 (4.75 mm) | 30-60 | | ±8 |
| No. 40 (0.45 mm) | 10-30 | | ±5 |
| No. 200 (0.075 mm) | 0-8 | | ±3 |

The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

**a. Sampling and testing for gradation.** Gradation tests shall be performed by the Contractor per ASTM C136 and sieve analysis on material passing the No. 200 sieve (75 mm) per ASTM C117. The Contractor shall take at least two aggregate base samples per lot to check the final gradation. Sampling shall be per ASTM D75. The lot will be consistent with the lot size used for density. The samples shall be taken from the in-place, un-compacted material in the presence of the Engineer. Sampling points and intervals will be designated by the Engineer.

## CONSTRUCTION METHODS

**209-3.1 Preparing underlying subgrade and/or subbase**. The underlying subgrade and/or subbase shall be checked and accepted by the Engineer before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with P-152, at the Contractor's expense, may be required by the Engineer if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

**209-3.2 Production**. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.4, the approved material may be transported directly to the spreading equipment.

**209-3.3 Placing**. The aggregate base material shall be placed on the prepared underlying subgrade and/or subbase and compacted in layers to the thickness shown on the plans. Work shall progress without interruption. The material shall be deposited and spread in lanes in a uniform layer without segregation to such loose depth that, when compacted, the layer shall have the specified thickness. The aggregate base course shall be constructed in layers of uniform thickness of not less than 3 inches (75 mm) nor more than 6 inches (150 mm) of compacted thickness. The aggregate as spread shall be of uniform grading with no pockets of fine or coarse materials. The aggregate, unless otherwise permitted by the Engineer, shall not be spread more than 2,000 square yards (1700 sq m) in advance of the rolling. Any necessary sprinkling shall be kept within these limits. Care shall be taken to prevent cutting into the underlying layer during spreading.

No material shall be placed in snow or on a soft, muddy, or frozen course. The aggregate base material shall be spread by spreader boxes or other approved devices. This equipment shall have positive thickness controls that spread the aggregate in the required amount to avoid or minimize the need for hand manipulation. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

**209-3.4 Compaction**. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D698.

**209-3.5 Acceptance sampling and testing for density.** Aggregate base course shall be accepted for density on a lot basis. A lot will consist of one day's production if it does not exceed 2,400 square yards (2000 sq m). A lot will consist of one-half day's production if a day's production consists of between 2,400 and 4,800 square yards (2000 and 4000 sq m). The Contractor's laboratory shall perform all density tests in the Engineer's presence and provide the test results upon completion daily to the Engineer for acceptance**.**

Each lot shall be divided into two equal sublots. One test shall be made for each sublot and shall consist of the average of two random locations for density determination. Sampling locations will be determined by the Engineer on a random basis per ASTM D3665.

Each lot will be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens. The specimens shall be compacted and tested per ASTM D698. The in-place field density shall be determined per ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938**.** If the specified density is not attained, the entire lot shall be reworked and/or recompacted and two additional random tests made at the Contractor's expense. This procedure shall be followed until the specified density is reached.

**209-3.6 Surface tolerances.** After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and recompacted to grade. until the required smoothness and accuracy are obtained and approved by the Engineer. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

**a. Smoothness.** The finished surface shall not vary more than 3/8 inch (9 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

**b. Accuracy.** The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +0 and -1/2 inch (12 mm) of the specified grade.

**209-3.7 Thickness control.** The thickness of the base course shall be within +0 and -1/2 inch (12 mm) of the specified thickness as determined by depth tests taken by the Contractor in the presence of the Engineer. Tests shall be taken at intervals representing no more than 300 square yards (250 sq m) per test. Sampling locations will be determined by the Engineer per ASTM D3665. Where the thickness is deficient by more than 1/2 inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material of proper gradation, and the material shall be blended and recompacted to grade. Additional test holes may be required to identify the limits of deficient areas. The Contractor shall replace, at his expense, base material where depth tests have been taken.

**At the Contractor's optio, thickness may be determined by survey. Survey shall be required before and after placement of the base. The survey interval shall be on a grid basis of no greater than 50 ft. in each direction if this option is selected.**

**209-3.8 Protection.** Perform construction when the atmospheric temperature is above 35°F (2°C). When the temperature falls below 35°F (2°C), protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements. When the aggregates contain frozen materials or when the underlying course is frozen or wet, the construction shall be stopped. Hauling equipment may be routed over completed portions of the base course, provided no damage results. Equipment shall be routed over the full width of the base course to avoid rutting or uneven compaction. The Engineer will stop all hauling over completed or partially completed base course when, in the Engineer's opinion, such hauling is causing damage. Any damage to the base course shall be repaired by the Contractor at the Contractor's expense.

**209-3.9 Maintenance.** The Contractor shall maintain the base course in a satisfactory condition until the full pavement section is completed and accepted by the Engineer. The surface shall be kept clean and free from foreign material and properly drained at all times. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any base course that is not paved over prior to the onset of winter shall be retested to verify that it still complies with the requirements of this specification. Any area of base course that is damaged shall be reworked or replaced as necessary to comply with this specification.

Equipment used in the construction of an adjoining section may be routed over completed base course, if no damage results and the equipment is routed over the full width of the base course to avoid rutting or uneven compaction.

The Contractor shall remove all survey and grade hubs from the base courses prior to placing any bituminous surface course.

## METHOD OF MEASUREMENT

**209-4.1** The quantity of crushed aggregate base course will be determined by measurement of the number of square yards of material actually constructed and accepted by the Engineer as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

## BASIS OF PAYMENT

**209-5.1** Payment shall be made at the contract unit price per square yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

| | |
|---|---|
| **Item P-209-5.1** | Crushed Aggregate Base Course - per Square Yard |

## TESTING REQUIREMENTS

| | |
|---|---|
| ASTM C29 | Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate |
| ASTM C88 | Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate |

| | |
|---|---|
| ASTM C117 | Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing |
| ASTM C131 | Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C136 | Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates |
| ASTM D75 | Standard Practice for Sampling Aggregates |
| ASTM D422 | Standard Test Method for Particle-Size Analysis of Soils |
| ASTM D698 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft$^3$ (600 kN-m/m$^3$)) |
| ASTM D1556 | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method |
| ASTM D1557 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft$^3$ (2700 kN-m/m$^3$)) |
| ASTM D2167 | Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method |
| ASTM D2419 | Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate |
| ASTM D3665 | Standard Practice for Random Sampling of Construction Materials |
| ASTM D4718 | Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles |
| ASTM D4791 | Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate |
| ASTM D5821 | Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate |
| ASTM D6938 | Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) |

**END OF ITEM P-209**

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# Part 6 – Rigid Pavement

## ITEM P-501 – PORTLAND CEMENT CONCRETE (PCC) PAVEMENT

### DESCRIPTION

**501-1.1** This work shall consist of pavement composed of portland cement concrete (PCC), with or without reinforcement **(reinforcement shall be as shown on the plans)** constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross-sections shown on the plans.

**On this project, P-501 shall not be measured nor paid for separately, but shall be used as the basis for materials and methods for PCC concrete repair, as described in Item M-564, bid Item M-564-5.1.**

### MATERIALS

**501-2.1 Aggregates.**

**a. Reactivity.** Fine and Coarse aggregates to be used in all concrete shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and ASTM C1567. Aggregate and mix proportion reactivity tests shall be performed for each project.

**(1)** Coarse and fine aggregate shall be tested separately in accordance with ASTM C1260. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.10% at 28 days (30 days from casting).

**(2)** Combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) Concrete Research Division (CRD) C662. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water.

**(3)** If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C1567, modified for combined aggregates, or COE CRD C662, does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

**b. Fine aggregate.** Fine aggregate shall conform to the requirements of ASTM C33. Grading of the fine aggregate, as delivered to the mixer, shall conform to the requirements of ASTM C33 and shall have a fineness modulus of not less than 2.50 nor more than 3.40. The soundness loss shall not exceed 10% when sodium sulfate is used or 15% when magnesium sulfate is used, after five cycles, when tested per ASTM C88.

The amount of deleterious material in the fine aggregate shall not exceed the following limits:

**Limits for Deleterious Substances in Fine Aggregate for Concrete**

| Deleterious material | ASTM | Percentage by Mass |
|---|---|---|
| Clay Lumps and friable particles | ASTM C142 | 1.0 |
| Material finer than 0.075mm (No. 200 sieve) | ASTM C117 | 3.0 |
| Lightweight particles | ASTM C123 using a medium with a density of Sp. Gr. of 2.0 | 0.5 |
| Total of all deleterious Material | | 3.0 |

**c. Coarse aggregate.** Gradation, within the separated size groups, shall meet the coarse aggregate grading requirements of ASTM C33 when tested in accordance with ASTM C136. When the nominal maximum size of the aggregate is greater than one inch (25 mm), the aggregates shall be furnished in two size groups.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, air-cooled iron blast furnace slag, crushed recycled concrete pavement, or a combination. The aggregates should be free of ferrous sulfides, such as pyrite, that would cause "rust" staining that can bleed through pavement markings. Steel blast furnace slag shall not be permitted. The aggregate shall be composed of clean, hard, uncoated particles. Dust and other coating shall be removed from the aggregates by washing.

The percentage of wear shall be no more than 40% when tested in accordance with ASTM C131.

The quantity of flat, elongated, and flat and elongated particles in any size group coarser than 3/8 sieve (9 mm) shall not exceed 8% by weight when tested in accordance with ASTM D4791. A flat particle is defined as one having a ratio of width to thickness greater than 5. An elongated particle is one having a ratio of length to width greater than 5.

The soundness loss shall not exceed 12% when sodium sulfate is used or 18% when magnesium sulfate is used, after five cycles, when tested per ASTM C88.

The amount of deleterious material in the coarse aggregate shall not exceed the following limits:

**Limits for Deleterious Substances in Coarse Aggregate for Concrete**

| Deleterious material | ASTM | Percentage by Mass |
|---|---|---|
| Clay Lumps and friable particles | ASTM C142 | 1.0 |
| Material finer than No. 200 sieve (0.075mm) | ASTM C117 | 1.0 |
| Lightweight particles | ASTM C123 using a medium with a density of Sp. Gr. of 2.0 | 0.5 |
| Chert (less than 2.40 Sp Gr.) | ASTM C123 using a medium with a density of Sp. Gr. of 2.40) | 1.0 |
| Total of all deleterious Material | | 3.0 |

**Table 1. Gradation For Coarse Aggregate**

**(ASTM C33)**

| Sieve Designations (square openings) | | Percentage by Weight Passing Sieves |
|---|---|---|
| inch | mm | |
| 2-1/2 | 60 | --- |
| 2 | 50 | --- |
| 1-1/2 | 38 | 100 |
| 1 | 25 | 95-100 |
| 3/4 | 19 | --- |
| 1/2 | 13 | 25-60 |
| 3/8 | 9 | --- |
| No. 4 | 4.75 | 0-10 |
| No. 8 | 2.36 | 0-5 |

**(1) Aggregate susceptibility to durability (D) cracking.** Aggregates that have a history of D-cracking shall not be used.

**(2) Combined aggregate gradation.** If substituted for the grading requirements specified for coarse aggregate and for fine aggregateand when approved by the Engineer, the combined aggregate grading shall meet the following requirements:

(a) The materials selected and the proportions used shall be such that when the Coarseness Factor (CF) and the Workability Factor (WF) are plotted on a diagram as described in d. below, the point thus determined shall fall within the parallelogram described therein.

(b) The CF shall be determined from the following equation:

CF = (cumulative percent retained on the 3/8 in. sieve)(100) / (cumulative percent retained on the No. 8 sieve)

(c) The Workability Factor WF is defined as the percent passing the No. 8 (2.36 mm) sieve based on the combined gradation. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds (42 kg) of cementitious material per cubic meter yard greater than 564 pounds per cubic yard (335 kg per cubic meter).

(d) A diagram shall be plotted using a rectangular scale with WF on the Y-axis with units from 20 (bottom) to 45 (top), and with CF on the X-axis with units from 80 (left side) to 30 (right side). On this diagram a parallelogram shall be plotted with corners at the following coordinates (CF-75, WF-28), (CF-75, WF-40), (CF-45, WF-32.5), and (CF-45, WF-44.5). If the point determined by the intersection of the computed CF and WF does not fall within the above parallelogram, the grading of each size of aggregate used and the proportions selected shall be changed as necessary.

**501-2.2 Cement.** Cement shall conform to the requirements of ASTM C150 Type I or II, or ASTM C595 Type IP

If aggregates are deemed innocuous when tested in accordance with paragraph 501-2.1.a.1 and accepted in accordance with paragraph 501-2.1.a.2, higher equivalent alkali content in the cement may be allowed if approved by the Engineer and FAA. If cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

**501-2.3 Cementitious materials.**

**a. Fly ash.** Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the mix design, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Engineer.

**b. Slag cement (ground granulated blast furnace(GGBF)).** Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

**c. Raw or calcined natural pozzolan.** Natural pozzolan shall be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling Alkali-Silica reaction and shall have a loss on ignition not exceeding 6%. Class N pozzolan for use in mitigating Alkali-Silica Reactivity shall have a total available alkali content less than 3%.

**501-2.4 Joint seal.** The joint seal for the joints in the concrete pavement shall meet the requirements of Item P-605 and shall be of the type specified in the plans.

**501-2.5 Isolation joint filler.** Premolded joint filler for isolation joints shall conform to the requirements of ASTM D1751 and shall be where shown on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

**501-2.6 Steel reinforcement.** Not Required

**501-2.7 Dowel and tie bars.** Dowel bars shall be plain steel bars conforming to ASTM A615 and shall be free from burring or other deformation restricting slippage in the concrete. Before delivery to the construction site each dowel bar shall be epoxy coated per ASTM A1078. The dowels shall be coated with a bond-breaker recommended by the manufacturer. Dowel sleeves or inserts are not permitted. Grout retention rings shall be fully circular metal or plastic devices capable of supporting the dowel until the grout hardens.

Tie bars shall be deformed steel bars and conform to the requirements of ASTM A615. Tie bars designated as Grade 60 in ASTM A615 or ASTM A706 shall be used for construction requiring bent bars.

**501-2.8 Water.** Water used in mixing or curing shall be potable, clean, free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product, except that non-potable water, or water from concrete production operations, may be used if it meets the requirements of ASTM C1602.

**501-2.9 Material for curing concrete.** Curing materials shall conform to one of the following specifications:

**a.** Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C309, Type 2, Class B, or Class A if wax base only.

**b.** White polyethylene film for curing concrete shall conform to the requirements of ASTM C171.

**c.** White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C171.

**d.** Waterproof paper for curing concrete shall conform to the requirements of ASTM C171.

**501-2.10 Admixtures.** The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

**a. Air-entraining admixtures.** Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

**b. Water-reducing admixtures.** Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

**c. Other admixtures.** The use of set retarding, and set-accelerating admixtures shall be approved by the Engineer. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

**d. Lithium Nitrate.** The lithium admixture shall be a nominal 30% aqueous solution of Lithium Nitrate, with a density of 10 pounds/gallon (1.2 kg/L), and shall have the approximate chemical form as shown below:

| Constituent | Limit (Percent by Mass) |
|---|---|
| LiNO3 (Lithium Nitrate) | 30 ±0.5 |
| SO4 (Sulfate Ion) | 0.1 (max) |
| Cl (Chloride Ion) | 0.2 (max) |
| Na (Sodium Ion) | 0.1 (max) |
| K (Potassium Ion) | 0.1 (max) |

Provide a trained manufacturer's representative to supervise the lithium nitrate admixture dispensing and mixing operations.

**501-2.11 Epoxy-resin.** All epoxy-resin materials shall be two-component materials conforming to the requirements of ASTM C881, Class as appropriate for each application temperature to be encountered, except that in addition, the materials shall meet the following requirements:

**a.** Material for use for embedding dowels and anchor bolts shall be Type IV, Grade 3.

**b.** Material for use as patching materials for complete filling of spalls and other voids and for use in preparing epoxy resin mortar shall be Type III, Grade as approved.

**c.** Material for use for injecting cracks shall be Type IV, Grade 1.

**d.** Material for bonding freshly mixed Portland cement concrete or mortar or freshly mixed epoxy resin concrete or mortar to hardened concrete shall be Type V, Grade as approved.

**501-2.12 Material acceptance.** Prior to use of materials, the Contractor shall submit certified test reports to the Engineer for those materials proposed for use during construction. The certification shall show the appropriate ASTM test for each material, the test results, and a statement that the material passed or failed.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

## MIX DESIGN

**501-3.1. General**. No concrete shall be placed until the mix design has been submitted to the Engineer for review and the Engineer has taken appropriate action. The Engineer's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

**501-3.2 Proportions.** The laboratory preparing the mix design shall be accredited in accordance with ASTM C1077. The mix design for all Portland cement concrete placed under P-501 shall be stamped or sealed by the responsible professional Engineer of the laboratory. Concrete shall be proportioned to achieve a 28-day compressive strength that meets or exceeds the acceptance criteria contained in paragraph 501-5.2 for a compressive strength of **4,400 psi** per ASTM C39. The mix shall be developed using the procedures contained in the Portland Cement Association's (PCA) publication, "Design and Control of Concrete Mixtures".

The minimum cementitious material shall be adequate to ensure a workable, durable mix. The minimum cementitious material (cement plus fly ash, or slag cement) shall be **517** pounds per cubic yard (**310** kg per cubic meter). The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall not be more than **0.42** by weight.

Compressive strength test specimens shall be prepared in accordance with ASTM C192 and tested in accordance with ASTM C39. The mix determined shall be workable concrete having a maximum allowable slump between one and two inches (25mm and 50 mm) as determined by ASTM C143. For slip-form concrete, the slump shall be between 1/2 inch (12 mm) and 1-1/2 inch (38 mm). At the start of the project, the Contractor shall determine a maximum allowable slump for slip-form pavement which will produce in-place pavement to control the edge slump. The selected slump shall be applicable to both pilot and fill-in lanes.

As the Contractor's option, a "strength curve" may be completed and used, using the following "Cylinder/Beam" method.

Cylinders/Beams

a. Fabricate all beams and cylinders for each mixture from the same batch or blend of batches. Fabricate and cure all beams and cylinders in accordance with ASTM C192, using 6 × 6 inch (150 × 150 mm) steel beam forms and 6 × 12 inch (150 × 300 mm) single-use cylinder forms.

b. Cure test beams from each mixture for 3, 7, 14, and 28-day flexural tests; six (6) beams to be tested per age.

c. Cure test cylinders from each mixture for 3, 7, 14, and 28-day compressive strength tests; six (6) cylinders to be tested per age.

d. Test beams in accordance with ASTM C78, cylinders in accordance with ASTM C39.

e. Using the average strength for each w/c at each age, plot all results from each of the three mixtures on separate graphs for w/c versus:

3-day flexural strength

7-day flexural strength

14-day flexural strength

28-day flexural strength

3-day compressive strength

7-day compressive strength

14-day compressive strength

28-day compressive strength

f. From these graphs select a w/c that will produce a mixture giving a 28-day flexural strength equal to the required strength determined in accordance with the next paragraph.

g. Using the above selected w/c, select from the graphs the expected 3, 7, 14, 28-day flexural strengths and the expected 3, 7, 14, 28-day compressive strengths for the mixture.

h. From the above expected strengths for the selected mixture determine the following Correlation Ratios:

(1) Ratio of the 14-day compressive strength of the selected mixture to the 28-day flexural strength of the mixture (for acceptance).

(2) Ratio of the 7-day compressive strength of the selected mixture to the 28-day flexural strength of the mixture (for Contractor Quality Control control).

i. If there is a change in materials, additional mixture design studies shall be made using the new materials and new Correlation Ratios shall be determined.

j. No concrete pavement shall be placed until the Engineer has approved the Contractor's mixture proportions. The approved water-cementitious materials ratio shall not exceed the maximum value specified.

Before the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit a mix design showing the proportions and flexural strength obtained from the concrete at seven (7) and 28 days. The mix design shall include copies of test reports, including test dates, and a complete list of materials including type, brand, source, and amount of cement, fly ash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The mix design shall be submitted to the Engineer at least 30 days prior to the start of operations. The submitted mix design shall not be more than 90 days old. Production shall not begin until the mix design is approved in writing by the Engineer.

If a change in sources is made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Engineer for approval.

The results of the mix design shall include a statement giving the maximum nominal coarse aggregate size and the weights and volumes of each ingredient proportioned on a one cubic yard (meter) basis. Aggregate quantities shall be based on the mass in a saturated surface dry condition. The recommended mixture proportions shall be accompanied by test results demonstrating that the proportions selected will produce concrete of the qualities indicated. Trial mixtures having proportions, slumps, and air content suitable for the work shall be based on methodology described in PCA's publication, Design and Control of Concrete Mixtures, modified as necessary to accommodate compressive strength.

The submitted mix design shall be stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

**a.** Coarse, fine, and combined aggregate gradations and plots including fineness modulus of the fine aggregate.

**b.** Reactivity Test Results.

**c.** Coarse aggregate quality test results, including deleterious materials.

**d.** Fine aggregate quality test results, including deleterious materials.

**e.** Mill certificates for cement and supplemental cementitious materials.

**f.** Certified test results for all admixtures, including Lithium Nitrate if applicable.

**g.** Specified compressive strength, slump, and air content.

**h.** Recommended proportions/volumes for proposed mixture and trial water-cementitious materials ratio, including actual slump and air content.

**i.** Flexural and compressive strength summaries and plots, including all individual beam and cylinder breaks.

**j.** Correlation ratios for acceptance testing and Contractor Quality Control testing, when applicable.

**k.** Historical record of test results documenting production standard deviation, when applicable.

**501-3.3 Cementitious materials.**

**a. Fly ash.** When fly ash is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If fly ash is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

**b. Slag cement (ground granulated blast furnace (GGBF)).** Slag cement may be used. The slag cement, or slag cement plus fly ash if both are used, may constitute between 25 to 55% of the total cementitious material by weight. If the concrete is to be used for slipforming operations and the air temperature is expected to be lower than 55°F (13°C) the percent slag cement shall not exceed 30% by weight.

**c. Raw or calcined natural pozzolan.** Natural pozzolan may be used in the mix design. When pozzolan is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If pozzolan is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

**501-3.4 Admixtures.**

**a. Air-entraining admixtures.** Air-entraining admixture are to be added in such a manner that will ensure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be Six (6) percent. Air content shall be determined by testing in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag and other highly porous coarse aggregate.

**b. Water-reducing admixtures.** Water-reducing admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C494.

**c. Other admixtures.** Set controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, in accordance with ASTM C 494.

**d. Lithium nitrate.** Lithium nitrate shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements in accordance with paragraph 501-2.10d.

**501-3.5 Concrete mix design laboratory.** The Contractor's laboratory used to develop the concrete mix design shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix design must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction

## CONSTRUCTION METHODS

**501-4.1 Equipment.** Equipment necessary for handling materials and performing all parts of the work shall be approved by the Engineer, but does not relieve the Contractor of the responsibility for the proper operation of equipment and maintaining the equipment in good working condition. The equipment shall be at the jobsite sufficiently ahead of the start of paving operations to be examined thoroughly and approved.

**a. Batch plant and equipment.** The batch plant and equipment shall conform to the requirements of ASTM C94.

**b. Mixers and transportation equipment.**

**(1) General.** Concrete may be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

**(2) Central plant mixer.** Central plant mixers shall conform to the requirements of ASTM C94. The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch

(19 mm) or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

**(3) Truck mixers and truck agitators.** Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central-mixed concrete shall conform to the requirements of ASTM C94.

**(4) Nonagitator trucks.** Nonagitating hauling equipment shall conform to the requirements of ASTM C94.

**(5) Transfer and spreading equipment.** Equipment for transferring concrete from the transporting equipment to the paving lane in front of the paver shall be specially manufactured, self-propelled transfer equipment which will accept the concrete outside the paving lane and will transfer and spread it evenly across the paving lane in front of the paver and strike off the surface evenly to a depth which permits the paver to operate efficiently.

**c. Finishing equipment.** The standard method of constructing concrete pavements shall be with an approved slip-form paving equipment designed and operated to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the machine so that the end result is a dense and homogeneous pavement which is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements. It shall weigh at least 2,200 lbs per foot (3274 kg/m) of paving lane width and powered by an engine having at least 6.0 horsepower per foot of lane width.

On projects requiring less than 500 square yard (418 sq m) of cement concrete pavement or requiring individual placement areas of less than 500 square yard (418 sq m), or irregular areas at locations inaccessible to slip-form paving equipment, concrete pavement may be placed with approved placement and finishing equipment using stationary side forms. Hand screeding and float finishing may only be used on small irregular areas as allowed by the Engineer.

**d. Vibrators.** Vibrator shall be the internal type. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025-0.05 inch (0.06 - 0.13 cm).

The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of American Concrete Institute (ACI) 309, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The Contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the Engineer.

Hand held vibrators may be used in irregular areas only, but shall meet the recommendations of ACI 309R, Guide for Consolidation of Concrete.

**e. Concrete saws.** The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations. Early-entry saws may be used, subject to demonstration and approval of the Engineer.

**f. Side forms.** Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the pavement thickness at the edge, and a base width equal to or greater than the depth. Flexible or curved forms of proper radius shall be used for curves of 100-foot (31 m) radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 inch (3 mm) in 10 feet (3 m), and the upstanding leg shall not vary more than 1/4 inch (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.

**g. Pavers.** The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross-section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices.

**501-4.2 Form setting.** Forms shall be set sufficiently in advance of the concrete placement to ensure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.

Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 inch (3 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

**501-4.3 Conditioning of underlying surface.** The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 feet (1 m) to extend beyond the paving machine track to support the paver without any noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas that will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and retested at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed.

**501-4.4 Conditioning of underlying surface, side-form and fill-in lane construction.** The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and retested at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. The underlying surface shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying surface shall not be permitted.

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.

**501-4.5 Handling, measuring, and batching material.** The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the concrete batch plant.

Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

**501-4.6 Mixing concrete.** The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C94.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the approved mix design is not exceeded, and approved by the Engineer.

**501-4.7 Limitations on mixing and placing.** No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

**a. Cold weather.** Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F (4°C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F (2°C).

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50°F (10°C) at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150°F (66°C). The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

**b. Hot weather.** During periods of hot weather when the maximum daily air temperature exceeds 85°F (30°C), the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90°F (32°C). The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The finished surfaces of the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. When necessary, wind screens shall be provided to protect the concrete from an evaporation rate in excess of 0.2 psf (0.98 kg/m$^2$ per hour) per hour. When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

**c. Temperature management program.** Prior to the start of paving operation for each day of paving, the Contractor shall provide the Engineer with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. As a minimum the program shall address the following items:

**(1)** Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

**(2)** Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity; and anticipated evaporation rate using Figure 11-8, PCA, Design and Control of Concrete Mixtures.

**(3)** Anticipated timing of initial sawing of joint.

**(4)** Anticipated number and type of saws to be used.

**501-4.8 Placing concrete.** At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 feet (1 m). The finished concrete product must be dense and homogeneous, without segregation and conforming to the standards in this specification. Backhoes and grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used. All concrete shall be consolidated without voids or segregation, including under and around all load-transfer devices, joint assembly units, and other features embedded in the pavement. Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength a compressive strength of 3,500 psi, based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed. Also, subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum compressive strength of 3,500 psi (2757 kPa).

The Contractor shall have available materials for the protection of the concrete during inclement weather. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

**a. Slip-form construction.** The concrete shall be distributed uniformly into final position by a self-propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms. The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 inches (23 cm) for slipform and at the end of the dowels for the fill-in lanes The spacing of internal units shall be uniform and shall not exceed 18 inches (0.5 m).

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be within 8000 to 12000 cycles per minute and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least one foot (30 cm). The frequency of vibration or amplitude shall vary proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible and all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

Not more than 15% of the total free edge of each 500 foot (150 m) segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 inch (6 mm), and none of the free edge of the pavement shall have an edge slump exceeding 3/8 inch (9 mm). (The total free edge of 500 feet (150 m) of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet (150 m) of paving lane originally constructed as a separate lane will have 1,000 feet (300 m) of free edge, 500 feet (150 m) of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches (0.5 m) from the edge. When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor as directed by the Engineer.

**b. Side-form construction.** Side form sections shall be straight, free from warps, bends, indentations, or other defects. Defective forms shall be removed from the work. Metal side forms shall be used except at end closures and transverse construction joints where straight forms of other suitable material may be used.

Side forms may be built up by rigidly attaching a section to either top or bottom of forms. If such build-up is attached to the top of metal forms, the build-up shall also be metal.

Width of the base of all forms shall be equal to or greater than the specified pavement thickness.

Side forms shall be of sufficient rigidity, both in the form and in the interlocking connection with adjoining forms, that springing will not occur under the weight of subgrading and paving equipment or from the pressure of the concrete. The Contractor shall provide sufficient forms so that there will be no delay in placing concrete due to lack of forms.

Before placing side forms, the underlying material shall be at the proper grade. Side forms shall have full bearing upon the foundation throughout their length and width of base and shall be placed to the required grade and alignment of the finished pavement. They shall be firmly supported during the entire operation of placing, compacting, and finishing the pavement.

Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and oiled each time they are used and before concrete is placed against them.

Concrete shall be spread, screeded, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross-section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery.

Concrete for the full paving width shall be effectively consolidated by internal vibrators without causing segregation. Internal type vibrators' rate of vibration shall be not less than 7,000 cycles per minute. Amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete more than one foot (30 cm) from the vibrating element. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating frequency of vibration.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

The provisions relating to the frequency and amplitude of internal vibration shall be considered the minimum requirements and are intended to ensure adequate density in the hardened concrete.

**c. Consolidation.** Concrete shall be consolidated with the specified type of lane-spanning, gang-mounted, mechanical, immersion type vibrating equipment mounted in front of the paver, supplemented, in rare instances as specified, by hand-operated vibrators. The vibrators shall be inserted into the concrete to a depth that will provide the best full-depth consolidation but not closer to the underlying material than inches (50 mm). Excessive vibration shall not be permitted. If the vibrators cause visible tracking in the paving lane, the paving operation shall be stopped and equipment and operations modified to prevent it. Concrete in small, odd-shaped slabs or in isolated locations inaccessible to the gang-mounted vibration equipment shall be vibrated with an approved hand-operated immersion vibrator operated from a bridge spanning the area. Vibrators shall not be used to transport or spread the concrete. Hand-operated vibrators shall not be operated in the concrete at one location for more than 20 seconds. Insertion locations for hand-operated vibrators shall be between 6 to 15 inches (150 to 400 mm) on centers. For each paving train, at least one additional vibrator spud, or sufficient parts for rapid replacement and repair of vibrators shall be maintained at the paving site at all times. Any evidence of inadequate consolidation (honeycomb along the edges, large air pockets, or any other evidence) shall require the immediate stopping of the paving operation and adjustment of the equipment or procedures as approved by the Engineer.

If a lack of consolidation of the concrete is suspected by the Engineer, referee testing may be required. Referee testing of hardened concrete will be performed by the Engineer by cutting cores from the finished pavement after a minimum of 24 hours curing. Density determinations will be made by the Engineer based on the water content of the core as taken. ASTM C642 shall be used for the determination of core density in the saturated-surface dry condition. When required, referee cores will be taken at the minimum rate of one for each 500 cubic yards (382 $m^2$) of pavement, or fraction. The Contractor shall be responsible for all referee testing cost if they fail to meet the required density.

The average density of the cores shall be at least 97% of the original mix design density, with no cores having a density of less than 96% of the original mix design density. Failure to meet the referee tests will be considered evidence that the minimum requirements for vibration are inadequate for the job conditions. Additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete conforms to the above requirements.

**501-4.9 Strike-off of concrete and placement of reinforcement.** Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the plans and to an elevation that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screeded. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

**501-4.10 Joints.** Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2 inch (12 mm) from their designated position and shall be true to line with not more than 1/4 inch (6 mm) variation in 10 feet (3 m). The surface across the joints shall be tested with a 12 feet (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4 inch (6 mm) shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

**a. Construction.** Longitudinal construction joints shall be slip-formed or formed against side forms as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

**b. Contraction.** Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 inch (3 mm) wide and to the depth shown on the plans.

**c. Isolation (expansion).** Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

**d. Tie bars.** Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. Tie bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed.

**e. Dowel bars.** Dowel bars or other load-transfer units of an approved type shall be placed across joints as shown on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. The dowels shall be coated with a bond-breaker or other lubricant recommended by the manufacturer and approved by the Engineer.

**f.** Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

**g. Placing dowels and tie bars.** The method used in installing and holding dowels in position shall ensure that the error in alignment of any dowel from its required horizontal and vertical alignment after the pavement has been completed will not be greater than 1/8 inch per feet (3 mm per 0.3 m). Except as otherwise specified below, horizontal spacing of dowels shall be within a tolerance of ±5/8 inch (16 mm). The vertical location on the face of the slab shall be within a tolerance of ±1/2 inch (12 mm). The vertical alignment of the dowels shall be measured parallel to the designated top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge. The horizontal alignment shall be checked with a framing square. Dowels shall not be placed closer than 0.6 times the dowel bar length to the planned joint line. If the last regularly spaced longitudinal dowel is closer than that dimension, it shall be moved away from the joint to a location 0.6 times the dowel bar length, but not closer than 6 inches (150 mm) to its nearest neighbor. The portion of each dowel intended to move within the concrete or expansion cap shall be wiped clean and coated with a thin, even film of lubricating oil or light grease before the concrete is placed. Dowels shall be installed as specified in the following subparagraphs.

**(1) Contraction joints.** Dowels and tie bars in longitudinal and transverse contraction joints within the paving lane shall be held securely in place, as indicated, by means of rigid metal frames or basket assemblies of an approved type. The basket assemblies shall be held securely in the proper location by means of suitable pins or anchors. Do not cut or crimp the dowel basket tie wires. At the Contractor’s option, in lieu of the above, dowels and tie bars in contraction joints shall be installed near the front of the paver by insertion into the plastic concrete using approved equipment and procedures. Approval will be based on the results of a preconstruction demonstration, showing that the dowels and tie bars are installed within specified tolerances.

**(2) Construction joints**. Install dowels and tie bars by the cast-in- place or the drill-and-dowel method. Installation by removing and replacing in preformed holes will not be permitted. Dowels and tie bars shall be prepared and placed across joints where indicated, correctly aligned, and securely held in the proper horizontal and vertical position during placing and finishing operations, by means of devices fastened to the forms. The spacing of dowels and tie bars in construction joints shall be as indicated.

**(3) Dowels installed in isolation joints and other hardened concrete.** Install dowels for isolation joints and in other hardened concrete by bonding the dowels into holes drilled into the hardened concrete. The concrete shall have cured for seven (7) days or reached a minimum compressive strength of 2500 psi before drilling commences. Holes 1/8 inch (3 mm) greater in diameter than the dowels shall be drilled into the hardened concrete using rotary-core drills. Rotary-percussion drills may be used, provided that excessive spalling does not occur to the concrete joint face. Modification of the equipment and operation shall be required if, in the Engineer's opinion, the equipment and/or operation is causing excessive damage. Depth of dowel hole shall be within a tolerance of ±1/2 inch (12 mm) of the dimension shown on the drawings. On completion of the drilling operation, the dowel hole shall be blown out with oil-free, compressed air. Dowels shall be bonded in the drilled holes using epoxy resin. Epoxy resin shall be injected at the back of the hole before installing the dowel and extruded to the collar during insertion of the dowel so as to completely fill the void around the dowel. Application by buttering the dowel will not be permitted. The dowels shall be held in alignment at the collar of the hole, after insertion and before the grout hardens, by means of a suitable metal or plastic grout retention ring fitted around the dowel. Dowels required to be installed in any joints between new and existing concrete shall be grouted in holes drilled in the existing concrete, all as specified above.

**h. Sawing of joints.** Joints shall be cut as shown on the plans. Equipment shall be as described in paragraph 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 inch (3 mm) wide and to the depth shown on the plans. The top of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the plans. Sawing shall commence, without regard to day or night, as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs and shall continue without interruption until all joints have been sawn. The joints shall be sawn at the required spacing. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing. Curing compound or system shall be reapplied in the initial sawcut and maintained for the remaining cure period.

**501-4.11 Finishing.** Finishing operations shall be a continuing part of placing operations starting immediately behind the strike-off of the paver. Initial finishing shall be provided by the transverse screed or extrusion plate. The sequence of operations shall be transverse finishing, longitudinal machine floating if used, straightedge finishing, texturing, and then edging of joints. Finishing shall be by the machine method. The hand method shall be used only on isolated areas of odd slab widths or shapes and in the event of a breakdown of the mechanical finishing equipment. Supplemental hand finishing for machine finished pavement shall be kept to an absolute minimum. Any machine finishing operation which requires appreciable hand finishing, other than a moderate amount of straightedge finishing, shall be immediately stopped and proper adjustments made or the equipment replaced. Any operations which produce more than 1/8 inch (3 mm) of mortar-rich surface (defined as deficient in plus U.S. No. 4 (4.75 mm) sieve size aggregate) shall be halted immediately and the equipment, mixture, or procedures modified as necessary. Compensation shall be made for surging behind the screeds or extrusion plate and settlement during hardening and care shall be taken to ensure that paving and finishing machines are properly adjusted so that the finished surface of the concrete (not just the cutting edges of the screeds) will be at the required line and grade. Finishing equipment and tools shall be maintained clean and in an approved condition. At no time shall water be added to the surface of the slab with the finishing equipment or tools, or in any other way, except for fog (mist) sprays specified to prevent plastic shrinkage cracking.

**a. Machine finishing with slipform pavers.** The slipform paver shall be operated so that only a very minimum of additional finishing work is required to produce pavement surfaces and edges meeting the specified tolerances. Any equipment or procedure that fails to meet these specified requirements shall immediately be replaced or modified as necessary. A self-propelled non-rotating pipe float may be used while the concrete is still plastic, to remove minor irregularities and score marks. Only one pass of the pipe float shall be allowed. If there is concrete slurry or fluid paste on the surface that runs over the edge of the pavement, the paving operation shall be immediately stopped and the equipment, mixture, or operation modified to prevent formation of such slurry. Any slurry which does run down the vertical edges shall be immediately removed by hand, using stiff brushes or scrapers. No slurry, concrete or concrete mortar shall be used to build up along the edges of the pavement to compensate for excessive edge slump, either while the concrete is plastic or after it hardens.

**b. Machine finishing with fixed forms.** The machine shall be designed to straddle the forms and shall be operated to screed and consolidate the concrete. Machines that cause displacement of the forms shall be replaced. The machine shall make only one pass over each area of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operation shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary.

**c. Other types of finishing equipment.** Clary screeds, other rotating tube floats, or bridge deck finishers are not allowed on mainline paving, but may be allowed on irregular or odd-shaped slabs, and near buildings or trench drains, subject to the Engineer's approval.

Bridge deck finishers shall have a minimum operating weight of 7500 pounds (3400 kg) and shall have a transversely operating carriage containing a knock-down auger and a minimum of two immersion vibrators. Vibrating screeds or pans shall be used only for isolated slabs where hand finishing is permitted as specified, and only where specifically approved.

**d. Hand finishing.** Hand finishing methods will not be permitted, except under the following conditions: (1) in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade and (2) in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Use hand finishing operations only as specified below.

**(1) Equipment and screed.** In addition to approved mechanical internal vibrators for consolidating the concrete, provide a strike-off and tamping screed and a longitudinal float for hand finishing. The screed shall be at least one foot (30 cm) longer than the width of pavement being finished, of an approved design, and sufficiently rigid to retain its shape, and shall be constructed of metal or other suitable material shod with metal. The longitudinal float shall be at least 10 feet (3 m) long, of approved design, and rigid and substantially braced, and shall maintain a plane surface on the bottom. Grate tampers (jitterbugs) shall not be used.

**(2) Finishing and floating.** As soon as placed and vibrated, the concrete shall be struck off and screeded to the crown and cross-section and to such elevation above grade that when consolidated and finished, the surface of the pavement will be at the required elevation. In addition to previously specified complete coverage with handheld immersion vibrators, the entire surface shall be tamped with the strike-off and tamping template, and the tamping operation continued until the required compaction and reduction of internal and surface voids are accomplished. Immediately following the final tamping of the surface, the pavement shall be floated longitudinally from bridges resting on the side forms and spanning but not touching the concrete. If necessary, additional concrete shall be placed, consolidated and screeded, and the float operated until a satisfactory surface has been produced. The floating operation shall be advanced not more than half the length of the float and then continued over the new and previously floated surfaces.

**e. Straightedge testing and surface correction.** After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 12-foot (3.7-m) straightedge swung from handles 3 feet (1 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 inch (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of paragraph 501-5.2e(3). Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross-section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment. This straight-edging is not a replacement for the straightedge testing of paragraph 501-5.2e(3), Smoothness.

**501-4.12 Surface texture.** The surface of the pavement shall be finished with either a brush or broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the Engineer.

**a. Brush or broom finish.** If the pavement surface texture is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 inch (2 mm) in depth.

**b. Burlap drag finish.** If a burlap drag is used to texture the pavement surface, it shall be at least 15 ounces per square yard (555 grams per square meter). To obtain a textured surface, the transverse threads of the burlap shall be removed approximately one foot (30 cm) from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface. The corrugations shall be uniform in appearance and approximately 1/16 inch (2 mm) in depth.

**501-4.13 Curing.** Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-sawcut method is used to construct the contraction joint, the curing compound shall be applied to the sawcut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

**a. Impervious membrane method.** The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of one gallon (4 liters) to not more than 150 sq ft (14 sq m). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the Engineer, a double application rate shall be used to ensure coverage. The curing compound shall be of such character that the film will harden within

30 minutes after application. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface. Curing shall be applied immediately after the bleed water is gone from the surface.

**b. White burlap-polyethylene sheets.** The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for seven (7) days after the concrete has been placed.

**c. Water method.** The entire area shall be covered with burlap or other water absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for seven (7) days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

**d. Concrete protection for cold weather.** The concrete shall be maintained at an ambient temperature of at least 50°F (10°C) for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather; and any concrete damaged shall be removed and replaced at the Contractor’s expense.

**e. Concrete protection for hot weather.** Concrete should be continuous moisture cured for the entire curing period and shall commence as soon as the surfaces are finished and continue for at least 24 hours. However, if moisture curing is not practical beyond 24 hours, the concrete surface shall be protected from drying with application of a liquid membrane-forming curing compound while the surfaces are still damp. Other curing methods may be approved by the Engineer.

**501-4.14 Removing forms.** Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured as per the methods indicated in paragraph 501-4.13. Major honeycombed areas shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-5.2(f).

**501-4.15** S**aw-cut grooving.** If shown on the plans, grooved surfaces shall be provided in accordance with the requirements of Item P-621.

**501-4.16 Sealing joints.** The joints in the pavement shall be sealed in accordance with Item P-605.

**501-4.17 Protection of pavement.** The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor’s employees and agents until accepted by the Engineer. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor’s expense.

Aggregates, rubble, or other similar construction materials shall not be placed on airfield pavements. Traffic shall be excluded from the new pavement by erecting and maintaining barricades and signs until the concrete is at least seven (7) days old, or for a longer period if directed by the Engineer.

In paving intermediate lanes between newly paved pilot lanes, operation of the hauling and paving equipment will be permitted on the new pavement after the pavement has been cured for seven (7) days and the joints have been sealed or otherwise protected, and the concrete has attained a minimum field cured compressive strength of 3,500 psi (24,130 kPa) and approved means are furnished to prevent damage to the slab edge.

All new and existing pavement carrying construction traffic or equipment shall be continuously kept completely clean, and spillage of concrete or other materials shall be cleaned up immediately upon occurrence.

Damaged pavements shall be removed and replaced at the Contractor's expense. Slabs shall be removed to the full depth, width, and length of the slab.

**501-4.18 Opening to construction traffic.** The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a compressive strength of 3,500 psi (24,130 kPa) when tested in accordance with ASTM C39. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion.

**501-4.19 Repair, removal, or replacement of slabs.**

**a. General.** New pavement slabs that are broken or contain cracks or are otherwise defective or unacceptable shall be removed and replaced or repaired, as directed by the Engineer and as specified hereinafter at no cost to the Owner. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The Engineer will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4 inch (100 mm) diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the Owner. All epoxy resin used in this work shall conform to ASTM C881, Type V. Repair of cracks as described in this section shall not be allowed if in the opinion of the Engineer the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of cracks shall be allowed in any panel that demonstrates segregated aggregate with an absence of coarse aggregate in the upper 1/8 inch (3 mm) of the pavement surface.

**b. Shrinkage cracks.** Shrinkage cracks, which do not exceed 4 inches (100 mm) in depth, shall be cleaned and then pressure injected with epoxy resin, Type IV, Grade 1, using procedures as approved by the Engineer. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Shrinkage cracks, which exceed 4 inches (100 mm) in depth, shall be treated as full depth cracks in accordance with paragraphs 4.19b and 4.19c.

**c. Slabs with cracks through interior areas.** Interior area is defined as that area more than 6 inches (150 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the Owner, when there are any full depth cracks, or cracks greater than 4 inches (100 mm) in depth, that extend into the interior area.

**d. Cracks close to and parallel to joints.** All cracks essentially parallel to original joints, extending full depth of the slab, and lying wholly within 6 inches (150 mm) either side of the joint shall be treated as specified here. Any crack extending more than 6 inches (150 mm) from the joint shall be treated as specified above in subparagraph c.

**(1) Full depth cracks present, original joint not opened.** When the original un-cracked joint has not opened, the crack shall be sawed and sealed, and the original joint filled with epoxy resin as specified below. The crack shall be sawed with equipment specially designed to follow random cracks. The reservoir for joint sealant in the crack shall be formed by sawing to a depth of 3/4 inches (19 mm), ±1/16 inch (2 mm), and to a width of 5/8 inch (16 mm), ±1/8 inch (3 mm). Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint seal shall be as specified for sealing joints or as directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. If filler type material has been used to form a weakened plane in the transverse joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remained of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

**(2) Full depth cracks present, original joint also cracked.** At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

**e. Removal and replacement of full slabs.** Where it is necessary to remove full slabs, unless there are dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If dowels, or tie bars are present along any edges, these edges shall be sawed full depth just beyond the end of the dowels or tie bars. These joints shall then be carefully sawed on the joint line to within one inch (25 mm) of the depth of the dowel or tie bar.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along doweled edges shall be carefully broken up and removed using light, hand-held jackhammers, 30 lb (14 kg) or less, or other approved similar equipment.

Care shall be taken to prevent damage to the dowels, tie bars, or to concrete to remain in place. The joint face below dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 inch (12 mm) and no gradual offset greater than one inch (25 mm) when tested in a horizontal direction with a 12-foot (3.7-m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 inches (38 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 inches (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels or tie bars, or where they have been damaged, dowels or tie bars of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All four (4) edges of the new slab shall contain dowels or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate section of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

**f. Repairing spalls along joints.** Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, shall be repaired by first making a vertical saw cut at least one inch (25 mm) outside the spalled area and to a depth of at least 2 inch (50 mm). Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 inch (12 mm) of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high-pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 $m^3$) in size, and mortar shall be used for the smaller ones. Any spall less than 0.1 cu. ft. (0.003 $m^3$) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 inches (50 mm) thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140°F (60°C) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified If any spall would require over 25% of the length of any single joint to be repaired, the entire slab shall be removed and replaced. Repair of spalls as described in this section shall not be allowed if in the opinion of the Engineer the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of spalls shall be allowed in any panel that demonstrates segregated aggregate with a significant absence of coarse aggregate in the upper one-eight (1/8th) inch of the pavement surface.

**g. Diamond grinding of PCC surfaces.** Diamond grinding of the hardened concrete with an approved diamond grinding machine should not be performed until the concrete is 14 days or more old and concrete has reached full minimum strength. When required, diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive. The saw blades shall be assembled in a cutting head mounted on a machine designed specifically for diamond grinding that will produce the required texture and smoothness level without damage to the pavement. The saw blades shall be 1/8-inch (3-mm) wide and there shall be a minimum of 55 to 60 blades per 12 inches (300 mm) of cutting head width; the actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Each machine shall be capable of cutting a path at least 3 feet (0.9 m) wide. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. The area corrected by diamond grinding the surface of the hardened concrete should not exceed 10% of the total area of any sublot. The depth of diamond grinding shall not exceed 1/2 inch (13 mm) and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. All pavement areas requiring plan grade or surface smoothness corrections in excess of the limits specified above, may require removing and replacing in conformance with paragraph 501-4.19.

**501-4.20 Existing concrete pavement removal and repair.**

All operations shall be carefully controlled to prevent damage to the concrete pavement and to the underlying material to remain in place. All saw cuts shall be made perpendicular to the slab surface.

**a. Removal of existing pavement slab.**

When it is necessary to remove existing concrete pavement and leave adjacent concrete in place, unless there are dowels present, the joint between the removal area and adjoining pavement to stay in place, including dowels or tie bars, shall first be cut full depth with a standard diamond-type concrete saw. f dowels are present at this joint, the saw cut shall be made full depth just beyond the end of dowels. The edge shall then be carefully sawed on the joint line to within one inch (25 mm) of the top of the dowel. Next, a full depth saw cut shall be made parallel to the joint at least 24 inches (600 mm) from the joint and at least 12 inches (300 mm) from the end of any dowels. All pavement between this last saw cut and the joint line shall be carefully broken up and removed using hand-held jackhammers, 30 lb (14 kg) or less, or the approved light-duty equipment which will not cause stress to propagate across the joint saw cut and cause distress in the pavement which is to remain in place. Where dowels are present, care shall be taken to produce an even, vertical joint face below the dowels. If the Contractor is unable to produce such a joint face, or if underbreak or other distress occurs, the Contractor shall saw the dowels flush with the joint. The Contractor shall then install new dowels, of the size and spacing used for other similar joints, by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph 501-4.10g. All this shall be at no additional cost to the Owner. Dowels of the size and spacing indicated shall be installed as shown on the drawings by epoxy resin bonding them in holes drilled in the joint face as specified in paragraph 501-4.10g. The joint face shall be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/2 inches (12 mm) and no gradual offset greater than one inch (25 mm) when tested in a horizontal direction with a 12-foot (3.7-m) straightedge.

**b. Edge repair.**

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Areas that are damaged during construction shall be repaired at no cost to the Owner.

**(1) Spall repair.** Spalls shall be repaired where indicated and where directed by the Engineer. Repair materials and procedures shall be as previously specified in subparagraph 501-4.19f.

**(2) Underbreak repair.** All underbreak shall be repaired. First, all delaminated and loose material shall be carefully removed. Next, the underlying material shall be recompacted, without addition of any new material. Finally, the void shall be completely filled with paving concrete, thoroughly consolidated. Care shall be taken to produce an even joint face from top to bottom. Prior to placing concrete, the underlying material shall be thoroughly moistened. After placement, the exposed surface shall be heavily coated with curing compound.

**(3) Underlying material.** The underlying material adjacent to the edge and under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete, and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement that is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction shall be carefully removed and replaced with concrete as specified in paragraph 501-4.20b(2). The underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed.

## MATERIAL ACCEPTANCE

**501-5.1 Acceptance sampling and testing.** All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the Engineer at no cost to the Contractor. The Contractor shall bear the cost of providing curing facilities for the strength specimens, per paragraph 501-5.1a(3), and coring and filling operations, per paragraph 501-5.1b(1). Testing organizations performing these tests shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

Concrete shall be accepted for strength and thickness on a lot basis.

**A lot shall be defined as one day's production, not to exceed 2,000 square yards. Daily pours of small areas (short runs and/or radius areas) shall be considered as one sublot if less than 500 square yards. Daily pour sizes shall be broken into sublots as defined below:**

| Daily Pour (SY) | Sublots |
|---|---|
| 0 – 500 | 1 |
| 501 – 1000 | 2 |
| 1001 – 1500 | 3 |
| > 1500 | 4 |

**Any daily pour shall be considered a sublot.**

**a. Compressive strength.**

**(1) Sampling.** Each lot shall be divided into four equal sublots. One sample shall be taken for each sublot from the plastic concrete delivered to the job site. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D3665. The concrete shall be sampled in accordance with ASTM C172.

**(2) Testing.** Two (2) specimens shall be made from each sample. Specimens shall be made in accordance with ASTM C31 and the compressive strength of each specimen shall be determined in accordance with ASTM C39. The compressive strength for each sublot shall be computed by averaging the results of the two test specimens representing that sublot.

**(3) Curing.** The Contractor shall provide adequate facilities for the initial curing of cylinders. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60° to 80°F (16°to 27°C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather or in heavyweight closed plastic bags, or use other suitable methods, provided the temperature and moisture loss requirements are met.

**(4) Acceptance.** Acceptance of pavement for compressive strength will be determined by the Engineer in accordance with paragraph 501-5.2b.

**b. Pavement thickness.**

**(1) Sampling.** Each lot shall be divided into four equal sublots and one core shall be taken by the Contractor for each sublot. Sampling locations shall be determined by the Engineer in accordance with random sampling procedures contained in ASTM D3665. Areas, such as thickened edges, with planned variable thickness, shall be excluded from sample locations.

Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.

**(2) Testing.** The thickness of the cores shall be determined by the Engineer by the average caliper measurement in accordance with ASTM C174.

**(3) Acceptance.** Acceptance of pavement for thickness shall be determined by the Engineer in accordance with paragraph 501-5.2c.

**c. Partial lots.** When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot, or when the Contractor and Engineer agree in writing to allow overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they shall constitute a lot. Where one or two sublots have been produced, they shall be incorporated into the next lot or the previous lot and the total number of sublots shall be used in the acceptance criteria calculation, that is, n=5 or n=6.

**d. Outliers.** All individual compressive strength tests within a lot shall be checked for an outlier (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers shall be discarded, and the percentage of material within specification limits (PWL) shall be determined using the remaining test values.

**501-5.2 Acceptance criteria.**

**a. General.** Acceptance will be based on the following characteristics of the completed pavement discussed in paragraph 501-5.2e:

**(1)** Compressive strength

**(2)** Thickness

~~**(3)** Smoothness~~

~~**(4)** Grade~~

~~**(5)** Edge slump~~

Compressive strength and thickness shall be evaluated for acceptance on a lot basis using the method of estimating PWL. Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for compressive strength will be based on the criteria contained in accordance with paragraph 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in paragraph 501-5.2e(2). Acceptance for smoothness will be based on the criteria contained in paragraph 501-5.2e(3). Acceptance for grade will be based on the criteria contained in paragraph 501-5.2e(4).

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the

Engineer, and if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

**b. Compressive strength.** Acceptance of each lot of in-place pavement for compressive strength shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

**c. Pavement thickness. A**cceptance of each lot of in-place pavement shall be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.

**d. Percentage of material within limits (PWL).** The PWL shall be determined in accordance with procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for compressive strength and thickness shall be:

**Lower Specification Tolerance Limit (L)**

| | |
|---|---|
| **Compressive Strength** | L = 4,140 psi |
| **Thickness** | Lot Plan Thickness in inches, - 0.50 in |

**e. Acceptance criteria.**

**(1) Compressive Strength.** If the PWL of the lot equals or exceeds 90%, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

**(2) Thickness.** If the PWL of the lot equals or exceeds 90%, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 501-8.1.

**(3) Smoothness.** As soon as the concrete has hardened sufficiently, but not later than 48 hours after placement, the surface of each lot shall be tested in both longitudinal and transverse directions for smoothness to reveal all surface irregularities exceeding the tolerances specified. The Contractor shall furnish paving equipment and employ methods that produce a surface for each section of pavement having an average profile index meeting the requirements of paragraph 501-8.1c when evaluated with a profilograph; and the finished surface of the pavement shall not vary more than 1/4 inch (6mm) when evaluated with a 12-foot (3.7m) straightedge. When the surface smoothness exceeds specification tolerances which cannot be corrected by diamond grinding of the pavement, full depth removal and replacement of pavement shall be to the limit of the longitudinal placement. Corrections involving diamond grinding will be subject to the final pavement thickness tolerances specified.

(a) Transverse measurements. Transverse measurements will be taken for each lot placed. Transverse measurements will be taken perpendicular to the pavement centerline each 50 feet (15m) or more often as determined by the Engineer.

(i) Testing shall be continuous across all joints, starting with one-half the length of the straight edge at the edge of pavement section being tested and then moved ahead one-half the length of the straight edge for each successive measurement. Smoothness readings will not be made across grade changes or cross slope transitions; at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points. Deviations on final pavement > 1/4 inch (6mm) in transverse direction shall be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of pavement. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) The joint between lots shall be tested separately to facilitate smoothness between lots. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface, with half the straightedge on one side of the joint and the other half of the straightedge on the other side of the joint. Measure the maximum gap between the straightedge and the pavement surface in the area between these two high points. One measurement shall be taken at the joint every 50 feet (15m) or more often if directed by the Engineer. Maximum gap on final pavement surface > 1/4 inch (6mm) in transverse direction shall be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of surface. Each measurement shall be recorded and a copy of the data shall be furnished to the Engineer at the end of each days testing.

(b) Longitudinal measurements. Longitudinal measurements will be taken for each lot placed. Longitudinal tests will be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet (6m); and at the one third points of paving lanes when widths of paving lanes are 20 ft (6m) or greater.

(i) Longitudinal Short Sections. Longitudinal Short Sections are when the longitudinal lot length is less than 200 feet (60m) and areas not requiring a profilograph. When approved by the Engineer, the first and last 15 feet (4.5m) of the lot can also be considered as short sections for smoothness. The finished surface shall not vary more than 1/4 inch (6mm) when evaluated with a 12-foot (3.7m) straightedge. Smoothness readings will not be made across grade changes or cross slope transitions, at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. Testing shall be continuous across all joints, starting with one-half the length of the straight edge at the edge of pavement section being tested and then moved ahead one-half the length of the straight edge for each successive measurement. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points. Deviations on final pavement surface > 1/4 inch (6mm) in longitudinal direction will be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of surface. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

~~(ii) Profilograph Testing. Profilograph testing shall be performed by the contractor using approved equipment and procedures as described as ASTM E1274. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2 inch (5 mm) blanking band. The bump template must span one inch (25 mm) with an offset of 0.4 inches (10 mm). The profilograph must be calibrated prior to use and operated by a factory or State DOT approved operator. Profilograms shall be recorded on a longitudinal scale of one inch (25 mm) equals 25 feet (7.5 m) and a vertical scale of one inch (25 mm) equals one inch (25 mm). A copy of the reduced tapes shall be furnished to the Engineer at the end of each days testing.~~

~~The pavement must have an average profile index meeting the requirements of paragraph 501-8.1c. Deviations on final surface in longitudinal direction shall be corrected with diamond grinding per paragraph 501-4.19g or by removing and replacing full depth of pavement. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.~~

~~Where corrections are necessary, second profilograph runs shall be performed to verify that the corrections produced an average profile index of 15 inches (38 cm) per mile or less. If the initial average profile index was less than 15 inches (38 cm), only those areas representing greater than 0.4 inch (10 mm) deviation will be re-profiled for correction verification.~~

~~(iii) Final profilograph of [ runway ]. Final profilograph, full length of runway, shall be performed to facilitate testing of smoothness between lots. Profilograph testing shall be performed by~~

~~the contractor using approved equipment and procedures as described as ASTM E1274. The pavement must have an average profile index meeting the requirements of paragraph 501-8.1c. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2 inch (5 mm) blanking band. The bump template must span one inch (25 mm) with an offset of 0.4 inches (10 mm). The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch (25 mm) equals 25 feet (7.5 m) and a vertical scale of one inch (25 mm) equals one inch (25 mm). A copy of the reduced tapes shall be furnished to the Engineer at the end of each days testing. Profilograph of final runway shall be performed one foot right and left of runway centerline and 15 feet right and left of centerline. Any areas that indicate "must grind" will be corrected as directed by the Engineer.~~

~~Smoothness testing indicated in the above paragraphs except paragraph (iii) shall be performed within 48 hours of placement of material. Smoothness texting indicated in paragraph (iii) shall be performed within 48 hours final paving completion. The primary purpose of smoothness testing is to identify areas that may be prone to ponding of water which could lead to hydroplaning of aircraft. If the contractor's machines and/or methods are producing significant areas that need corrective actions then production should be stopped until corrective measures can be implemented. If corrective measures are not implemented and when directed by the Engineer, production shall be stopped until corrective measures can be implemented.~~

**(4) Grade.** An evaluation of the surface grade shall be made by the Engineer for compliance to the tolerances contained below. The finish grade will be determined by running levels at intervals of 50 feet (15 m) or less longitudinally and all breaks in grade transversely (not to exceed 50 feet (15 m)) to determine the elevation of the completed pavement. The Contractor shall pay the costs of surveying the level runs, and this work shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer.

**(a) Lateral deviation.** Lateral deviation from established alignment of the pavement edge shall not exceed ±0.10 feet (30 mm) in any lane.

**(b) Vertical deviation.** Vertical deviation from established grade shall not exceed ±0.04 feet (12 mm) at any point.

**(5) Edge slump.** When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor as directed by the Engineer in accordance with paragraph 501-4.8a.

**f. Removal and replacement of concrete.** Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in paragraph 501-4.10 shall apply to all contraction joints exposed by concrete removal. Removal and replacement shall be in accordance with paragraph 501-4.20.

## CONTRACTOR QUALITY CONTROL

**501-6.1 Quality control program.** The Contractor shall develop a Quality Control Program in accordance with Section 100 of the General Provisions. The program shall address all elements that affect the quality of the pavement including but not limited to:

**a.** Mix Design

**b.** Aggregate Gradation

**c.** Quality of Materials

**d.** Stockpile Management

**e.** Proportioning

**f.** Mixing and Transportation

**g.** Placing and Consolidation

**h.** Joints

**i.** Dowel Placement and Alignment

**j.** Flexural or Compressive Strength

**k.** Finishing and Curing

**l.** Surface Smoothness

**501-6.2 Quality control testing.** The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.

A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

**a. Fine aggregate.**

**(1) Gradation.** A sieve analysis shall be made at least twice daily in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

**(2) Moisture content.** If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C70 or ASTM C566.

**b. Coarse Aggregate.**

**(1) Gradation.** A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

**(2) Moisture content.** If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C566.

**c. Slump.** Four slump tests shall be performed for each lot of material produced in accordance with the lot size defined in paragraph 501-5.1. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

**d. Air content.** Four air content tests, shall be performed for each lot of material produced in accordance with the lot size defined in paragraph 501-5.1. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

**e.** Four unit weight and yield tests shall be made in accordance with ASTM C138. The samples shall be taken in accordance with ASTM C172 and at the same time as the air content tests.

**501-6.3 Control charts.** The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, slump, moisture content and air content.

Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.

**a. Fine and coarse aggregate gradation.** The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in the Lower Specification Tolerance Limit (L) table above and the Control Chart Limits table below shall be superimposed on the Control Chart for job control.

**b. Slump and air content.** The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

**Control Chart Limits**

| Control Parameter | Individual Measurements | | Range Suspension Limit |
|---|---|---|---|
| | Action Limit | Suspension Limit | |
| **Slip Form:** | | | |
| Slump | +0 to -1 inch (0-25 mm) | +0.5 to -1.5 inch (13-38 mm) | ±1.5 inch (38 mm) |
| Air Content | ±1.2% | ±1.8% | ±2.5% |
| **Side Form:** | | | |
| Slump | +0.5 to -1 inch (13-25 mm) | +1 to -1.5 inch (25-38 mm) | ±1.5 inch (38 mm) |
| Air Content | ±1.2% | ±1.8% | ±2.5% |

The individual measurement control charts shall use the mix design target values as indicators of central tendency.

**501-6.4 Corrective action.** The Contractor Quality Control Program shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Contractor Quality Control Program shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

**a. Fine and coarse aggregate gradation.** When two consecutive averages of five tests are outside of the specification limits in paragraph 501-2.1, immediate steps, including a halt to production, shall be taken to correct the grading.

**b. Fine and coarse aggregate moisture content.** Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5%, the scale settings for the aggregate batcher and water batcher shall be adjusted.

**c. Slump.** The Contractor shall halt production and make appropriate adjustments whenever:

**(1)** one point falls outside the Suspension Limit line for individual measurements or range

OR

**(2)** two points in a row fall outside the Action Limit line for individual measurements.

**d. Air content.** The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

**(1)** one point falls outside the Suspension Limit line for individual measurements or range

OR

**(2)** two points in a row fall outside the Action Limit line for individual measurements.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

## METHOD OF MEASUREMENT

**501-7.1** Portland cement concrete pavement shall be measured by the number square yards of either plain or reinforced pavement as specified in-place, completed and accepted. **On this project, measurement shall be as described in Item M-564.**

## BASIS OF PAYMENT

**501-8.1 Payment.** Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-5.2 Acceptance Criteria shall be based on results of smoothness, strength and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness and 501-8.1c for smoothness, subject to the limitation that:

The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under the Price Adjustment Schedule table below).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings.

**a. Basis of adjusted payment.** The pay factor for each individual lot shall be calculated in accordance with the Price Adjustment Schedule table below. A pay factor shall be calculated for both compressive strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both compressive strength and thickness are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either compressive strength or thickness is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both compressive strength and thickness are less than 100%.

**Price Adjustment Schedule[1]**

| Percentage of Materials Within Specification Limits (PWL) | Lot Pay Factor (Percent of Contract Unit Price) |
|---|---|
| 96 – 100 | 106 |
| 90 – 95 | PWL + 10 |
| 75 – 90 | 0.5 PWL + 55 |
| 55 – 74 | 1.4 PWL – 12 |
| Below 55 | Reject[2] |

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment in excess of 100% shall be subject to the total project payment limitation specified in paragraph 501-8.1.

[2] The lot shall be removed and replaced. However, the Engineer may have reasons to decide to allow the rejected lot to remain. In that case, the Engineer will consult and get concurrence from the FAA ADO, as stated in Section 50-02, to enter into a written agreement with the Contractor. This written agreement shall include the reasoning why the lot shall not be removed and that it shall be paid for at 50% of the contract unit price and the total project payment limitation shall be reduced by the amount withheld for the rejected lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100% for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100%.

**b. Payment. Payment shall not be made separately for P-501, but shall be measured and paid in accordance with Item M-564. However, strength and thickness shall be measured as described in this section, and any adjustments applied to the payment method as described in Item M-564 for bid Item M-564-5.1.**

~~**c. Basis of adjusted payment for smoothness.** Price adjustment for pavement smoothness will apply to the total area of concrete within a section of pavement and shall be applied in accordance the following equation and schedule:~~

~~(Square yard in section) × (original unit price per square yard) × PFm = reduction in payment for area within section~~

| ~~Average Profile Index (Inches Per Mile) Pavement Strength Rating~~ | | | ~~Contract Unit Price Adjustment (PFm)~~ |
|---|---|---|---|
| ~~Over 30,000 lb~~ | ~~30,000 lb or Less~~ | ~~Short Sections~~ | |
| ~~0 - 7~~ | ~~0 - 10~~ | ~~0 - 15~~ | ~~0.00~~ |
| ~~7.1 - 9~~ | ~~10.1 - 11~~ | ~~15.1 - 16~~ | ~~0.02~~ |
| ~~9.1 - 11~~ | ~~11.1 - 12~~ | ~~16.1 - 17~~ | ~~0.04~~ |
| ~~11.1 - 13~~ | ~~12.1 - 13~~ | ~~17.1 - 18~~ | ~~0.06~~ |
| ~~13.1 - 14~~ | ~~13.1 - 14~~ | ~~18.1 - 20~~ | ~~0.08~~ |
| ~~14.1 - 15~~ | ~~14.1 - 15~~ | ~~20.1 - 22~~ | ~~0.10~~ |
| ~~15.1 and up~~ | ~~15.1 and up~~ | ~~22.1 and up~~ | ~~Corrective work required~~ |

## TESTING REQUIREMENTS

| | |
|---|---|
| ASTM C31 | Standard Practice for Making and Curing Concrete Test Specimens in the Field |
| ASTM C39 | Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens |
| ASTM C70 | Standard Test Method for Surface Moisture in Fine Aggregate |
| ASTM C78 | Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading) |
| ASTM C88 | Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate |
| ASTM C117 | Standard Test Method for Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing |
| ASTM C131 | Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C136 | Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates |
| ASTM C138 | Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete |
| ASTM C142 | Standard Test Method for Clay Lumps and Friable Particles in Aggregates |
| ASTM C143 | Standard Test Method for Slump of Hydraulic-Cement Concrete |
| ASTM C172 | Standard Practice for Sampling Freshly Mixed Concrete |
| ASTM C173 | Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method |
| ASTM C174 | Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores |
| ASTM C227 | Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method) |
| ASTM C231 | Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method |
| ASTM C289 | Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method) |
| ASTM C295 | Standard Guide for Petrographic Examination of Aggregates for Concrete |
| ASTM C114 | Standard Test Methods for Chemical Analysis of Hydraulic Cement |
| ASTM C311 | Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland Cement Concrete |
| ASTM C566 | Standard Test Method for Total Evaporable Moisture Content of Aggregates by Drying |
| ASTM C642 | Standard Test Method for Density, Absorption, and Voids in Hardened Concrete |
| ASTM C666 | Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing |

| | |
|---|---|
| ASTM C1077 | Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation |
| ASTM C1260 | Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method) |
| ASTM C1567 | Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method) |
| ASTM C1602 | Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete |
| ASTM D3665 | Standard Practice for Random Sampling of Construction Materials |
| ASTM D4791 | Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate |
| ASTM E178 | Standard Practice for Dealing With Outlying Observations |
| ASTM E1274 | Standard Test Method for Measuring Pavement Roughness Using a Profilograph |

U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD) C662 Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

## MATERIAL REQUIREMENTS

| | |
|---|---|
| ASTM A184 | Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement |
| ASTM A615 | Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement |
| ASTM A704 | Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement |
| ASTM A706 | Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement |
| ASTM A714 | Standard Specification for High-Strength Low-Alloy Welded and Seamless Steel Pipe |
| ASTM A775 | Standard Specification for Epoxy-Coated Steel Reinforcing Bars |
| ASTM A934 | Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars |
| ASTM A996 | Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement |
| ASTM A1064 | Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete |
| ASTM A1078 | Standard Specification for Epoxy-Coated Steel Dowels for Concrete Pavement |
| ASTM C33 | Standard Specification for Concrete Aggregates |
| ASTM C94 | Standard Specification for Ready-Mixed Concrete |

| | |
|---|---|
| ASTM C150 | Standard Specification for Portland Cement |
| ASTM C171 | Standard Specification for Sheet Materials for Curing Concrete |
| ASTM C260 | Standard Specification for Air-Entraining Admixtures for Concrete |
| ASTM C309 | Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete |
| ASTM C494 | Standard Specification for Chemical Admixtures for Concrete |
| ASTM C595 | Standard Specification for Blended Hydraulic Cements |
| ASTM C618 | Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete |
| ASTM C881 | Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete |
| ASTM C989 | Standard Specification for Slag Cement for Use in Concrete and Mortars |
| ASTM D1751 | Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) |
| ASTM D1752 | Standard Specification for Preformed Sponge Rubber and Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving And Structural Construction |
| ACI 211.1 | Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete |
| ACI 305R | Guide to Hot Weather Concreting |
| ACI 306R | Guide to Cold Weather Concreting |
| ACI 309R | Guide for Consolidation of Concrete |
| AC 150/5320-6 | Airport Pavement Design and Evaluation |
| PCA | Design and Control of Concrete Mixtures |

**END ITEM P-501**

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# Part 7 – Miscellaneous

## ITEM P-605 – JOINT SEALANTS FOR CONCRETE PAVEMENTS

### DESCRIPTION

**605-1.1** This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints and cracks in rigid pavements.

**This section shall be used for joint sealing of both interior joints of multi-panel PCC replacement, as well as sealing of perimeter joints of PCC concrete repair, both included in Item M-564, and measured and bid under Item M-564-5.1.**

### MATERIALS

**605-2.1 Joint sealants.** Joint sealant materials shall meet the requirements as listed below. Either material is acceptable, at Contractor's option.

- **ASTM D5893** Standard Specifications for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements
- **ASTM D6690** Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

**605-2.2 Backer rod.** ~~The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant. The material shall have a water absorption of not more than 5% when tested in accordance with ASTM C509. The backer-rod material shall be 25% ± 5 % larger in diameter than the nominal width of the crack.~~ ***No backer rod shall be allowed***

**605-2.3 Backup materials.** Provide backup material that is a compressible, nonshrinking, nonstaining, nonabsorbing material, nonreactive with the joint sealant. The material shall have a melting point at least 5°F (3°C) greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The material shall have a water absorption of not more than 5% of the sample weight when tested in accordance with ASTM C509. The backup material shall be 25 ±5% larger in diameter than the nominal width of the crack.

**605-2.4 Bond breaking tapes.** Provide a bond breaking tape or separating material that is a flexible, nonshrinkable, nonabsorbing, nonstaining, and nonreacting adhesive-backed tape. The material shall have a melting point at least 5°F (3°C) greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch (3 mm) wider than the nominal width of the joint and shall not bond to the joint sealant.

## CONSTRUCTION METHODS

**605-3.1 Time of application.** Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F (10°C) and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

**If the pavement must be opened to traffic prior to placement of the sealant, the Contractor will be required to temporarily fill the joint with a jute or nylon rope immediately after the joint is sawed. The rope should be slightly larger than the joint and should be forced into the joint so that the top of the rope is 1/8 inch (3 mm) below the pavement surface. The rope shall be removed immediately prior to cleaning.**

**605-3.2 Equipment.** Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, **5** days prior to use on the project.

**a. Tractor-mounted routing tool**. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

**b. Concrete saw.** Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified or for refacing joints or cleaning sawed joints where sandblasting does not provide a clean joint.

**c. Sandblasting equipment.** Sandblasting is not allowed

**d. Waterblasting equipment**. Include with the waterblasting equipment a trailer-mounted water tank, pumps, high-pressure hose, wand with safety release cutoff control, nozzle, and auxiliary water resupply equipment. Provide water tank and auxiliary resupply equipment of sufficient capacity to permit continuous operations. The nozzle shall have an adjustable guide that will hold the nozzle aligned with the joint approximately one inch (25 mm) above the pavement surface. Adjust the height, angle of inclination and the size of the nozzle as necessary to obtain satisfactory results. A pressure gauge mounted at the pump shall show at all times the pressure in psi (kPa) at which the equipment is operating.

**e. Hand tools**. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. **Such tools should be carefully evaluated for potential spalling effects prior to approval for use.**

**f. Hot-poured sealing equipment**. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

**g. Cold-applied, single-component sealing equipment**. The equipment for installing ASTM D5893 single component joint sealants shall consist of an extrusion pump, air compressor, following plate, hoses, and nozzle for transferring the sealant from the storage container into the joint opening. The dimension of the nozzle shall be such that the tip of the nozzle will extend into the joint to allow sealing from the bottom of the joint to the top. Maintain the initially approved equipment in good working condition, serviced in accordance with the supplier's instructions, and unaltered in any way without obtaining prior approval. Small hand-held air-powered equipment (i.e., caulking guns) may be used for small applications.

**605-3.3 Preparation of joints.**

**a. Sawing**. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

**b. Sealing**. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by tractor-mounted routing equipment, concrete saw, or waterblaster as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch (12 mm) from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches (75 mm) from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

**c. Back-up material.** When the joint opening is of a greater depth than indicated for the sealant depth, plug or seal off the lower portion of the joint opening using a back-up material to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backup material is placed at the specified depth and is not stretched or twisted during installation.

**d. Bond-breaking tape.** Where inserts or filler materials contain bitumen, or the depth of the joint opening does not allow for the use of a backup material, insert a bond-breaker separating tape to prevent incompatibility with the filler materials and three-sided adhesion of the sealant. Securely bond the tape to the bottom of the joint opening so it will not float up into the new sealant.

**605-3.4 Installation of sealants.** Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the Engineer before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet (15 m) ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch ±1/16 inch below the pavement surface. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the Contracting Officer. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

**605-3.5 Inspection.** The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

**605-3.6 Clean-up.** Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

## METHOD OF MEASUREMENT

**605-4.1 Joint sealing material shall not be measured, but shall be considered incidental to the pavement being placed.**

## BASIS OF PAYMENT

**605-5.1 Payment for joint sealing material shall be incidental to Item M-564.** The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

| | |
|---|---|
| **Item P-605-5.1** | N/A for this project |

## TESTING REQUIREMENTS

| | |
|---|---|
| ASTM D412 | Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension |
| ASTM C509 | Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material |
| ASTM D1644 | Standard Test Methods for Nonvolatile Content of Varnishes |

## MATERIAL REQUIREMENTS

| | |
|---|---|
| AC 150/5340-30 | Design and Installation Details for Airport Visual Aids |
| ASTM D789 | Standard Test Method for Determination of Relative Viscosity of Polyamide (PA) |
| ASTM D5893 | Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements |
| ASTM D6690 | Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements |

## END ITEM P-605

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## ITEM M-361 – HOT-APPLIED JOINT AND CRACK SEALANTS FOR RIGID (PORTLAND CEMENT CONCRETE) AND FLEXIBLE (BITUMINOUS) PAVEMENTS

### DESCRIPTION

**361-1.1** This item consists of providing and installing a resilient and adhesive joint & crack sealant, hot-applied, capable of effectively sealing joints & cracks in rigid (PCC) ~~or flexible (bituminous)~~ pavements. This item includes the removal of existing, loose, or damaged sealant material where applicable, preparation of the joints & cracks preparation of the sealant material, and the complete installation of the sealant repair system. The selection of sealant material products will be based on climate conditions, past performance of products, and at the discretion of the engineer.

**This section shall be used for measurement and payment of Bid Items M-361-5.1, "Joint Sealant" and M-361-5.2, "Crack Sealant". It shall not be used for interior joints and perimeter joints of PCC pavement repair included in Bid Item M-564-5.1.**

### MATERIALS

**361-2.1** The repair material will be a hot-applied sealant conforming to the requirements of ASTM D 6690, as listed in Table 1, for the classification type specified below. The engineer will evaluate performance based on local conditions.

*Type IV* – A joint and crack sealant capable of maintaining an effective seal in climates experiencing very cold temperatures. The material is tested for low temperature performance at -29°C (-84.2°F) using 200% extension.

**Table 1. Sealant Requirements per Classification Type**

| | |
|---|---|
| Cone Penetration at 25°C (77°F), per ASTM D 5329 | * |
| Softening Point, °C (°F), per ASTM D 36 | 80 (176) minimum |
| Bond, non-immersed, per ASTM D 5329 | * |
| Bond, water immersed, per ASTM D 5329 | * |
| Resilience, %, per ASTM D 5329 | * |
| Oven Aged Resilience, %, per ASTM D 5329 | * |
| Asphalt Compatibility, per ASTM D 5329 | Pass[B] |

[A]The development of at any time during the test procedure of a crack, separation, or other opening over 6mm (0.24 in) deep, in the sealant or between the sealant and the concrete block will constitute failure of the test specimen. The depth of crack, separation or other opening will be measured perpendicular to the side of the sealant showing the defect.

[B]There will be no failure in adhesion, formation of an oily exudate at the interface between the sealant and asphaltic concrete of other deleterious effects on the asphaltic concrete or sealant when tested at 60°C (140°F).

**361-2.2 Heating of Materials.** The hot-applied sealant will be heated in conformance with ASTM D 5167, Standard Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation.

## CONSTRUCTION METHODS

**361-3.1 Time of Application. Joints and/or Cracks** will be sealed as soon after completion of the pavement preparation as feasible and preferably before the pavement is opened to traffic, including construction equipment. The pavement temperature must be above 50°F (10°C) at the time of installation of the hot-applied **joint/crack** sealing material.

**361-3.2 Preparation of Joints in Rigid Pavements**

**a. Removal of Existing Joint Sealant.** All existing joint sealants will be removed by routing / plowing. Any remaining sealant / debris will be removed by use of wire brushes or other tools as necessary. In some instances, re-sawing the joints may be required. This is only recommended in areas where the existing joint faces cannot be thoroughly cleaned to satisfactorily promote the effectiveness and adherence of the new sealant. If re-sawing the joints is required, immediately after sawing, the resulting slurry will be completely removed from the joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary. The joints will be allowed sufficient time to dry prior to re-sealing. The joint reservoir width to depth ratio should be as close to 1:1 as practical when re-sawing is required. The use of backer material is recommended to obtain the desired ratio at the reservoir or as recommended by the sealant manufacturer.

**b. Sealing.** Immediately before sealing, the joints will be thoroughly cleaned of all remaining laitance, curing compound, and other foreign material. Cleaning will be accomplished by waterblasting only. ~~Sandblasting will be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more that 3 inches from it~~. Upon completion of cleaning, the joints will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the joints for sealing. The joint faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8inch below the existing pavement surface.

~~**361-3.3 Preparation of Joints in Flexible Pavements**~~

~~**a. Removal of Existing Joint Sealant.** All existing joint sealants will be removed by routing / plowing. Any remaining sealant / debris will be removed by use of a hot lance and compressed air free of oil and water. In some instances, re-sawing the joints may be required. This is only recommended in areas where the existing joint faces cannot be thoroughly cleaned to satisfactorily promote the effectiveness and adherence of the new sealant. If re-sawing the joints is required, immediately after sawing, the joint faces will be cleaned by use of a hot lance and compressed air free of oil and water. If wet sawing equipment is used, the joints will be allowed sufficient time to dry following preparation and prior to re-sealing. The joint reservoir width to depth ratio should be as close to 1:1 as practical when re-sawing is required. The use of backer material is recommended to obtain the desired ratio at the reservoir or as recommended by the sealant manufacturer.~~

~~**b. Sealing.** Immediately before sealing, the joints will be thoroughly cleaned of all remaining laitance and other foreign material. Cleaning will be accomplished by use of a hot lance. Upon completion of cleaning, the joints will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the joints for sealing. The joint faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8-inch below the existing pavement surface.~~

**361-3.4 Preparation of Cracks in Rigid Pavements**

**a. Sawing.** All cracks will be cleaned of any debris or laitance by use of wire brushes or other tools as necessary. In some instances, sawing the cracks may be required. If sawing the joints is required, immediately after sawing, the resulting slurry will be completely removed from the crack and adjacent area by flushing with a jet of water, and by use of other tools as necessary. The crack will be allowed sufficient time to dry prior to sealing. When sawing cracks, the reservoir ratio should be 1:1 with a 3/8-inch minimum width recommended.

**b. Sealing**. Immediately before sealing, the cracks will be thoroughly cleaned of all remaining laitance, curing compound, and other foreign material. Cleaning will be accomplished by waterblasting only. ~~Sandblasting will be accomplished in a minimum of two passes. One pass per crack face with the nozzle held at an angle directly toward the crack face and not more that 3 inches from it~~. Upon completion of cleaning, the cracks will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the cracks for sealing. The crack faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8inch below the existing pavement surface.

~~**361-3.5 Preparation of Cracks in Flexible Pavements**~~

~~**a. Sawing / Routing.** All cracks will be cleaned of any debris or laitance by use of a hot lance and compressed air free of oil and water. In some instances, sawing or routing the cracks may be required. If sawing/routing the cracks is required, immediately after sawing/routing, the resulting debris will be completely removed from the crack and adjacent area by a hot lance and compressed air free of oil and water, and by use of other tools as necessary. The crack will be allowed sufficient time to dry prior to sealing. When sawing/routing cracks, the reservoir ratio should be 1:1 with a 3/8-inch minimum width recommended.~~

~~**b. Sealing.** Immediately before sealing, the cracks will be thoroughly cleaned of all remaining laitance and other foreign material. Cleaning will be accomplished by use of a hot lance. Upon completion of cleaning, the cracks will be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps will be used to prepare the cracks for sealing. The crack faces will be surface dry when the seal is applied. The surface of the installed sealant material will be 1/4-inch to 3/8-inch below the existing pavement surface.~~

**361-3.6 INSTALLATION OF SEALANTS. Joints and Cracks** will be inspected for proper width, depth, alignment, and preparation, and will be approved by the Engineer before sealing is allowed. Sealants will be installed in accordance with the following requirements:

**a. Hot Poured Sealants.** The **joint & crack** sealant will be applied uniformly solid from bottom to top and will be filled without formation of entrapped air or voids. The sealant surface when complete will be 1/4-inch to no more than 3/8-inch below existing pavement surface. A backing material will be placed to obtain the desired width to depth ratio and will be both non-reactive and non-adhesive to the pavement or the sealant material. The heating kettle will be an indirect heating type, constructed as a double boiler. A positive temperature control and mechanical agitation will be provided. The sealant will not be heated to more than 20°F (-11°C) below the safe heating temperature. The safe heating temperature can be obtained from the manufacturer’s shipping container. A direct connecting pressure type extruding device with nozzles shaped for insertion into the joint will be provided. Any sealant spilled on the surface of the pavement, structures and/or lighting fixtures will be removed immediately.

~~**b. Backer Rod Material.** The use of a backer rod material or bond breaker in the bottom of the **[joint][crack]** to be filled is recommended to control the depth of the sealant, to achieve the desired shape factor, reservoir width to depth ration, and to support the sealant against indentation and sag. Backer rod materials and bond breakers should be compatible with the sealant, should not adhere to the sealant, should be compressible without extruding the sealant, and should recover to maintain contact with the **[joint][crack]** faces when the **[joint][crack]** is open. The backer rod will be 25 percent larger in diameter than the width of the reservoir.~~

## METHOD OF MEASUREMENT

**361-4.1** The sealant material will be measured by the **linear foot** of sealant in place, completed, and accepted. Shall also include the removal of existing joint material. **Measurement under this bid item shall include joints and cracks identified for sealant replacement. This item shall <u>not</u> include measurement of joints (either interior or perimeter) of PCC replacement bid under bid item M-564-5.1, for which joints (both interior and perimeter) shall be considered incidental to that bid item.**

## BASIS OF PAYMENT

**361-5.1** Payment for sealing material will be made at the contract unit price bid per **linear foot**. This price will be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

| | |
|---|---|
| **Item M-361-5.1** | Joint Sealant – per Linear Foot |
| **Item M-361-5.2** | Crack Sealant – per Linear Foot |

## TESTING REQUIREMENTS

| | |
|---|---|
| ASTM D 36 | Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus) |
| ASTM D 5167 | Standard Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation |

## MATERIAL REQUIREMENTS

| | |
|---|---|
| ASTM D 6690 | Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements |

## END OF ITEM M-361

## ITEM M-564 – REPAIR OF PAVEMENT DISTRESSES IN RIGID (PORTLAND CEMENT CONCRETE) PAVEMENTS

### DESCRIPTION

**564-1.1** This item consists of repairing pavement distresses (e.g., cracks, spalls, corner breaks, etc.) in rigid (Portland Cement Concrete) pavements, as well as patching of small areas (less than 5 square feet) of PCC pavements. This work consists of: saw cutting, chipping, and removing the existing unsound PCC pavement; cleaning and preparing the area for the repair materials. This work also includes placing, vibrating, and finishing the repair material to reconstruct the PCC pavements, in accordance with this specification.

### MATERIALS

**564-2.1** The repair method and material will be of the type specified below for the appropriate application, as outlined in Table 1 – Repair Material Usage Matrix.

| **Table 1. Repair Material Usage Matrix PAVEMENT DISTRESS** | **TYPE 1** (Conventional) | **TYPE 2A** (Pre-packaged w/ Aggregate) | **TYPE 2B** (Pre-packaged w/o Aggregate) | **TYPE 3** (Rapid Setting, Early Strength) |
|---|---|---|---|---|
| CORNER BREAKS | Permanent | Permanent | n/a | Permanent |
| DURABILITY "D" CRACKING | Permanent | Temporary/ Emergency | Temporary/ Emergency | Temporary/ Emergency |
| SCALING, MAP CRACKING AND CRAZING | Permanent | n/a | n/a | n/a |
| JOINT SPALLING | n/a | Permanent | Permanent | Permanent |
| CORNER SPALLING | n/a | Permanent | Permanent | Permanent |
| PATCHING, SMALL (less than 5 square feet) | n/a | Permanent | Permanent | Permanent |
| PATCHING, LARGE AND UTILITY CUTS | Permanent | n/a | n/a | Temporary/ Emergency |
| SHATTERED SLAB / INTERSECTING CRACKS | Permanent | n/a | n/a | n/a |
| BLOWUPS | Permanent | n/a | n/a | n/a |

**a. Type 1 – Conventional Concrete Mixture.** The conventional concrete mixture will conform to FAA specification P-501 for materials. This repair method is considered a permanent, long term repair as it is typically used for large repair areas requiring 3 cubic yards or more of mix supplied by a local concrete mixing plant.

**b. Type 2A – Pre-packaged Cementitious Mixture with Aggregate.** The pre-packaged, one-component, cementitious mixture will have a minimum compressive strength of 5,000 psi in 7 days when tested in accordance with ASTM C 39. Bond strength will be 2,000 psi in 7 days when tested in accordance with ASTM C 882. The aggregate will conform to the requirements of ASTM C 33. This repair method may be used for either permanent or temporary/emergency repairs dependent on the distress type, as noted in Table 1. Preparation of materials (mixing with potable water, blending, etc) will be per manufacturer's requirements for the product.

**c. Type 2B – Pre-packaged Cementitious Mixture without Aggregate.** The pre-packaged, one-component, cementitious mixture will have a minimum compressive strength of 5,000 psi in 7 days when tested in accordance with ASTM C 39. Bond strength will be 2,000 psi in 7 days when tested in accordance with ASTM C 882. If the repair size requires the addition of coarse aggregate, the aggregate to be added maximum size will be 3/8-inch and will conform to the requirements of ASTM C 33. The aggregate will be blended into the pre-packaged mixture per the manufacturer's requirements. This repair method may be used for either permanent or temporary/emergency repairs dependent on the distress type, as noted in Table 1. Preparation of materials (mixing with potable water, blending, etc) will be per manufacturer's requirements for the product.

**564-2.2 Nonabsorbent Board.** The nonabsorbent board will be used as a joint form for the joint reservoir to be protected. The nonabsorbent board will be a standard 1/2-inch asphalt impregnated fiberboard. For joint widths greater than 1/2-inch, the width of the nonabsorbent board will be adjusted to fit the larger joint width.

**564-2.3 Curing Compound.** The curing compound will be a white pigmented impervious membrane conforming to the requirements of ASTM C 309. The curing compound will be of such character that the film will harden within 30 minutes after application.

## CONSTRUCTION METHODS

**564-3.1 Time of Application.** The ambient temperature and concrete surface temperature will be within the range specified by the manufacturer's requirements for that product at the time of application.

**564-3.2 Repair of Distresses in PCC Pavements.**

**a. Corner Breaks / Shattered Slabs / Blowups.** These are considered structural failures and require full-depth repairs. The procedures for repairing these types of distresses are as follows:

**(1)** Make full-depth saw cuts at constructed joints. The FAA recommends that full-depth cuts be made at a distance of at least 2 feet beyond the limits of the break. Make the saw cuts so the repair area is rectangular. For corner cracks, cut the repair area square.

**(2)** Use appropriate-sized impact equipment (e.g., jackhammer) to remove material within the limits of the saw cuts. When using a hoe-ram or removing the concrete by lifting, make a second saw cut inside the perimeter cuts to provide expansion. Remove by hand any loose materials that remain. During the repair, try to minimize any disturbance to the subgrade soils or base materials.

**(3)** Restore subgrade or subbase materials to the base elevation of the panel being repaired.

**(4)** Use tie-bars consisting of #4 deformed bars (#5 bars for pavements more than 12 inches thick) in the faces of the parent panel. Install by drilling into the face and using an epoxy bonding agent. Use equidistant spacing of the bars, but do not install them more than 24 inches apart. When spacing bars, do not allow their ends to overlap with those of other tie-bars or dowels.

**(5)** Use dowel bars, of the type and size of the existing dowel bars, in the joint that parallels the direction of traffic. On aprons and areas where traffic may be oblique to joints, install dowels in both joint faces. Dowels are installed by drilling and epoxying. Dowel bars will spaced at least one bar spacing away from faces parallel to the dowel bar. Space dowel bar ends at least one bar spacing apart at corners of intersecting joints. Oil exposed dowel bar ends prior to backfilling with concrete.

**(6)** Install nonabsorbent board within the limits of the joint seal reservoirs along the adjacent concrete panels. When repairing multiple panels, restore the joint seal reservoirs with the nonabsorbent filler board.

**(7)** Fill the repair area with concrete, being sure to consolidate the concrete along the limits of repair. Exercise caution when working adjacent to existing concrete faces, particularly during consolidation, and watch for segregation of the concrete. Finish the surface to match existing surface when practical.

**(8)** After the concrete cures, remove the nonabsorbent board by sawing. Reinstall joint seal material per specification M-361 or M-362.

**b. Durability "D" Cracking.** This type of distress usually requires repairing the complete slab since "D" cracking will normally reappear adjacent to the repaired areas. Temporary/emergency repairs can be made using the technique noted in paragraph 564-3.2.a (Corner Breaks/Shattered Slabs/Blowups). Another temporary/emergency repair, which is not a preferred method but is a rapid repair, is the partial depth repair by milling 2-3 inches in depth by 3-4 feet in length and width and filling the patch area with a high quality HMA.

**c. Scaling, Map Cracking, and Crazing.** If the distress is severe and produces FOD, the repair method is to remove and replace the area. Permanent repairs can be made using the technique noted in paragraph 564-3.2.a (Corner Breaks/Shattered Slabs/Blowups).

**d. Joint Spalling and Corner Spalling.** The procedure for the repair of spalls is as follows:

**(1)** Make a vertical cut with a concrete saw 2 inches in depth and approximately 2 inches outside of the spalled area. Saw cuts will be straight lines forming rectangular areas.

**(2)** Remove all unsound concrete until sound, intact material has been reached (into at least 1/2-inch of visually sound concrete). Break out the unsound concrete with air hammers or pneumatic drills and blow out the area with oil-free compressed air.

**(3)** Clean the area to be repaired with high-pressure water. Allow patch area to dry completely if required by the patch material specification.

**(4)** Treat the surface (all sides and bottom, except any joint face) with a neat cement grout mixture to ensure a good bond between the existing and new concrete. It is important to maintain the joint through the full depth of the spall repair and prevent a bond between the patch and the adjacent slab, thereby eliminating point-to-point loading. Apply the grout immediately before placing the patch mixture and spread with a stiff-bristle broom or brush to a depth of 1/16 inches. The use of liquid bonding agents will be acceptable if recommended by the manufacturer's requirements.

**(5)** Place the nonabsorbent board in the joint groove and vibrate or tamp the new mixture into the old surface.

**(6)** After edging the patch, finish it to a texture matching the adjacent area. After a proper cure period, remove the nonabsorbent board by sawing. Reinstall joint seal material per specification M361 or M-362.

**(7)** When there are adjacent spall repair areas within a slab, the minimum distance between repair areas is 1-1/2 feet. Therefore, when repairs areas are less than 1-1/2 feet apart, combine the repair areas into one repair. Similarly, when the repair areas are greater than 1-1/2 feet apart, maintain separate repair areas.

**e. Patching, Small (less than 5 square feet).** Patching repairs can be made using the technique noted in paragraph 564-3.2.d (Joint Spalling and Corner Spalling). For full-depth repairs, follow technique noted in paragraph 564-3.2.f (Patching, Large or Utility Cut).

**f. Patching, Large (greater than 5 square feet) or Utility Cut.** The procedure for patching a large or utility cut areas of PCC pavement is as follows:

**(1)** Make a full-depth vertical cut with a concrete saw at the limits of the area to be patched (approximately 6 inches outside of each end of the broken area).

**(2)** Break out the concrete with pneumatic tools, and remove concrete down to the subbase/subgrade material.

**(3)** Add subbase material, if necessary, and compact.

**(4)** In reinforced pavement construction, use joint techniques to tie the new concrete to the old reinforced material. Dowel any replacement joints, and build them to joint specifications. Follow procedures in paragraph 564-3.2.a(4) or 564-3.2.a.(5) as appropriate.

**(5)** Dampen the subgrade and the edges of existing PCC pavement. Place conventional concrete on the area to be patched. Finish the concrete so the surface texture approximates that of the existing pavement.

**(6)** Immediately after completing finishing operations, properly cure the surface with curing compound.

**(7)** After a proper cure period, fill the open joints with joint sealant per specification M-361 or M-362.

## METHOD OF MEASUREMENT

**564-4.1** The repair will be measured by the **square yard** for large areas and by the **each** for small areas for the material in place, completed, and accepted.

## BASIS OF PAYMENT

**564-5.1** Payment for repairs will be made at the contract unit price bid per **square yard**. This price will be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

**For Bid Item M-564-5.1 "Concrete Repair – Type 1 (Panel Replacement)", joints (perimeter of the patch or interior joints in a multi-panel patch) shall be considered incidental to this item and shall not be measured nor paid for separately. Also, for this bid item, price adjustments for compressive strength and thickness as defined and discussed in Item P-501 shall be applied as adjustments (if necessary) to the price bid for each square yard of PCC replacement bid.**

**P**ayment will be made under:

**Item M-564-5.1 Type 1 (Panel Replacement)** – per Square Yard

**Item M-564-5.2 Type 2B (Partial Depth Repair)** – per Each

## TESTING REQUIREMENTS

ASTM C 39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM C 109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars(Using 2-in. or [50-mm] Cube Specimens)

ASTM C 882 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear

## MATERIAL REQUIREMENTS

ASTM C 33 Standard Specification for Concrete Aggregates

ASTM C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

## END ITEM M-564

# APPENDICES

# Rehabilitate Apron & Connector Taxiway

# Storm Lake Municipal Airport

# T51.115389

# FAA AIP No. 3-19-0088-013

# Storm Lake, IA

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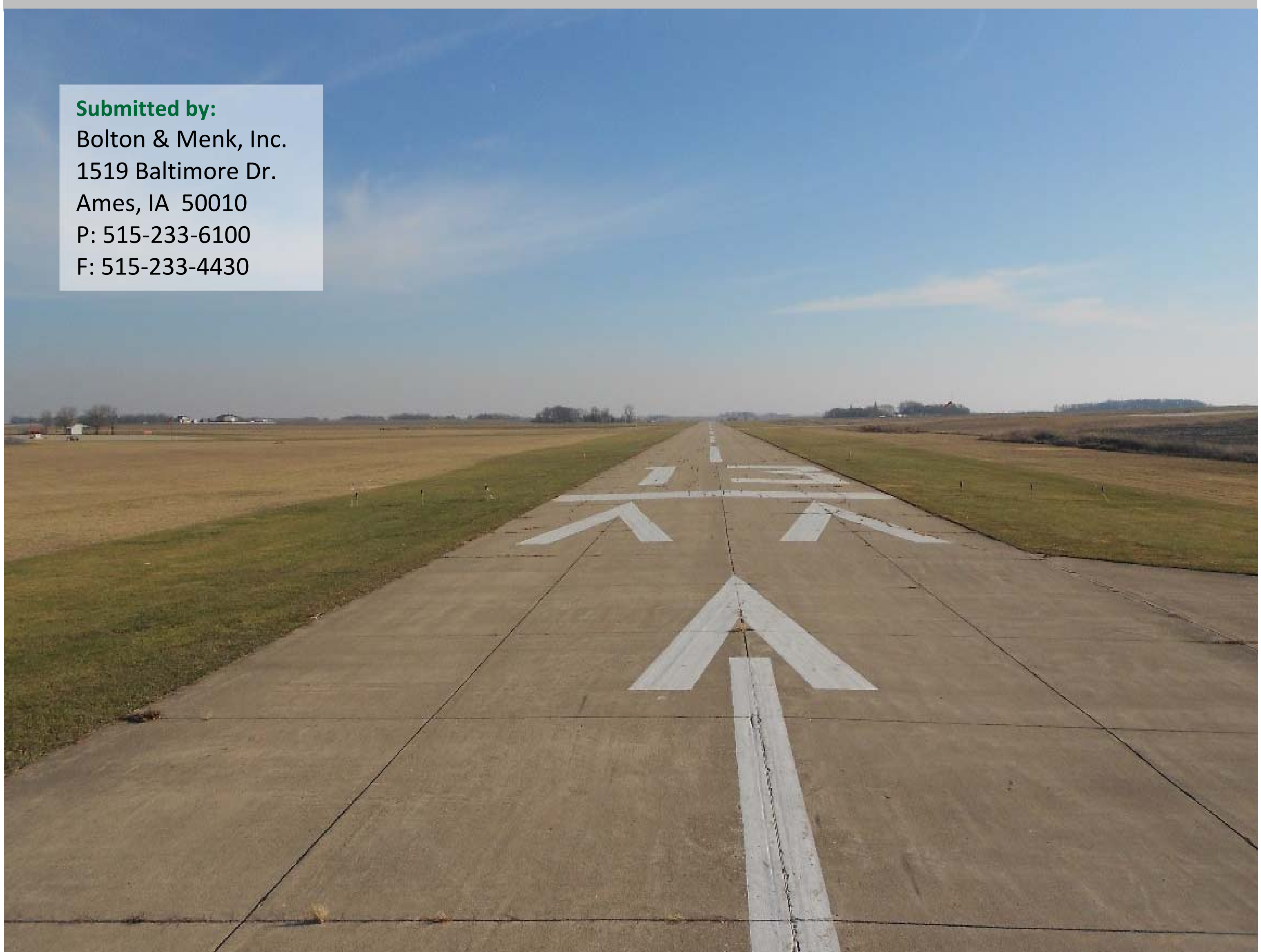
# Construction Safety and Phasing Plan (CSPP)

## Rehabilitate Apron & Connector Taxiway

**City of Storm Lake, IA**

**February 2018**



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## OVERVIEW

This document presents the Construction Safety and Phasing Plan (CSPP) for the proposed Rehabilitate Apron & Connector Taxiway project at the Storm Lake Municipal Airport being performed under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). The City anticipates authorizing onsite work to commence on or about August of 2018, pending execution and approval of the grant documents by the FAA. Final completion of the project is expected to be in Fall of 2018 or early 2019 depending on weather.

The objective of this CSPP is to provide a general outline of the construction safety and phasing provisions for working in or near the Air Operations Area (AOA) contained in the bid documents (Project Plans and Specifications), and to explain how those provisions will be implemented during construction.

## PURPOSE

The Plan provides single source procedural information for all key project personnel to use during construction. The CSPP defines the specific responsibilities of the Airport Operator, the Contractor, Airport tenants, and the Project Engineer.

Requirements for maintaining operational safety during construction are in conformance with FAA Advisory Circular 150/5370-2G, "Operational Safety on Airports During Construction." The project specific Construction Operations, Safety and Phasing plan for the project is shown on Plan Sheets 3-5 and is attached to this report as *Attachment 1*.

## CONSTRUCTION SAFETY AND PHASING RESPONSIBILITIES

**Airport Operator.** The Airport Operator is responsible for operational safety on the Airport at all times. The City of Storm Lake is the Airport Operator. The City will issue Notice to Airmen (NOTAMS) whenever construction activities occur in the AOA. The City will provide oversight of all construction activities and coordinate those activities with the Airport users (pilots) and Airport tenants. The City will hold weekly construction progress and safety meetings. During those meetings operational safety will be reviewed and an action plan will be developed as needed to address any discrepancies in safety that need to be corrected. The City will require and approve a Safety Plan Compliance Document (SPCD) from the Contractor prior to the Notice to Proceed. The SPCD outline is attached to this report as *Attachment 3*.

**Construction Contractor.** The Contractor will be required to attend weekly progress and safety meetings and to correct any discrepancies found in safety. The Contractor is required to submit a completed SPCD to the City for approval prior to the Notice to Proceed.

**Airport Tenants.** The City will notify Airport tenants of all pending construction activities that impact them and advise the tenants of planned pavement closures and other activities in the AOA that will affect aircraft operations.

**Project Engineer.** As part of the Project Construction Management, Inspection, and Quality Assurance process the Project Engineer will monitor construction safety on a daily basis, utilizing the "Construction Project Daily Safety Inspection Checklist" (see *Attachment 2*) to ensure an appropriate level of priority is given to safety. Any discrepancies in safety will be immediately brought to the Contractor's and City's attention for corrective action implementation.

## CONSTRUCTION SAFETY AND PHASING

1. Coordination

   A preconstruction conference will be held as soon as practicable after the contract has been awarded and before issuance of the notice to proceed. The preconstruction conference participants should include, but not be limited to, the sponsor's engineer, resident engineer, airport management, testing laboratory representative, contactor and subcontractor(s), contractor's project superintendent, contractor's project clerk, airport users, utility companies, federal, state, or local agencies affected by the proposed construction, and FAA representative.

   Contractor progress meetings will be held weekly for the duration of construction. Operational safety will be a standing agenda item for discussion during progress meetings throughout the project. Date, time, and location of the progress meetings will be determined at the pre-construction meeting.

   Scope or schedule changes for the project may necessitate revisions to the CSPP and may require review and approval by the City and the FAA.

2. Construction Phasing

   The project will be split into 2 phases. Details of each phase are listed below.

   a. Phase 1
      - Scope of Work – Pavement Rehabilitation on Taxiway A
      - Area closed to aircraft operations – Runway 13/31, Runway 17/35 & Runway 06/24.
      - Duration – 7 days
      - Taxi route – N/A
      - Emergency vehicle access routes – Not affected
      - Construction staging area – See plan set sheet 4
      - Construction access and haul route – See plan set sheet 4
      - Impacts to NAVAIDs – N/A
      - Lighting and marking changes – Runway 13/31, Runway 17/35 & Runway 06/24 lights shall be disconnected or turned off.
      - Required hazard marking and lighting – Low profile barricades and runway closure X's per plans.
      - Lead times for required notification – 48 hours

   b. Phase 2
      - Scope of Work – Work on apron area
      - Area closed to aircraft operations – Apron area
      - Duration – 8 days
      - Taxi route – Taxiway A to Runway 17/35
      - Emergency vehicle access routes – Not affected
      - Construction staging area – See plan set sheet 5
      - Construction access and haul route – See plan set sheet 5
      - Impacts to NAVAIDs – N/A

- Lighting and marking changes – N/A
- Required hazard marking and lighting – Low profile barricades
- Lead times for required notification – 48 hours

c. Construction Safety Drawings

A drawing specifically indicating construction operations and safety has been developed for each schedule and phase. This drawing has been included in *Attachment 1* and can also be found in the contract drawing bid package (Plan Sheets 3-5).

3. Areas and operations affected by the construction activities

Refer to the table below to view the affected airport elements during the different phases on the project.

| Operational Impact Table | | | |
|---|---|---|---|
| Element | Existing | Phase 1 | Phase 2 |
| **Taxiway A** | | | |
| ADG | II | Closed | II |
| Width | 35’ | - | 35’ |
| TSA | 79’ | - | 79’ |
| TOFA | 131’ | - | 131’ |
| **Runway 13/31** | | | |
| RDC | B-I | Closed | B-I |
| Width | 50’ | - | 50’ |
| RSA | 120’ | - | 120’ |
| ROFA | 400’ | - | 400’ |
| **Runway 17/35** | | | |
| RDC | B-II | Closed | B-II |
| Width | 75’ | - | 75’ |
| RSA | 150’ | - | 150’ |
| ROFA | 500’ | - | 500’ |
| **Runway 06/24** | | | |
| RDC | A-I | Closed | A-I |
| Width | 95’ | - | 95’ |
| RSA | 120’ | - | 120’ |
| ROFA | 400’ | - | 400’ |

4. Protection of navigational aids (NAVAIDs)

a. Precision approach path indicators (PAPIs)

Two box PAPI’s are located on both ends of Runway 17/35. When Runway 17/35 is closed the PAPI’s shall be turned off. Contractor shall coordinate with FAA to turn off PAPI’s

b. Runway end identified lights (REILs)
   The REIL's are located on Runway 17. When Runway 17/35 is closed the REIL's shall be turned off. Contractor shall coordinate with FAA to turn off REIL's

5. Contractor access
   a. Location of stockpiled construction materials
      Location of stockpiled materials and equipment storage shall be in the staging area or as approved by the City.

      Stockpiling materials and equipment outside the staging areas shall receive prior approval from the City and will be subjected to the restrictions described in this paragraph. Stockpiled materials and equipment storage are not permitted within the RSA or OFZ, and if possible should not be placed within the OFA of an operational runway. See Section 17 – Protection of Runway and Taxiway Safety Areas for requirements of stockpiled materials inside the ROFA.

      Stockpiles shall be restricted to a maximum height of 15-feet. Stockpiled material shall meet the requirements of Section 6 – Wildlife Management to prevent the stockpile location(s) from becoming wildlife attractants.

   b. Vehicle and pedestrian operations
      i. Construction site parking
         Employees' vehicles shall be parked in the staging area designated on the plans. No employee vehicles will be allowed into the worksite beyond the staging area limits.

      ii. Construction equipment parking
         Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active).

      iii. Access and haul roads
         The contractor will be restricted to use the haul route(s) shown on the drawings. Right-of-way shall be given to all emergency vehicles. See paragraphs (v.) and (vii.) in this section for requirements operating within the airfield environment.

      iv. Marking and lighting of vehicles
         Only marked Contractor-owned or operated vehicles required for the proper execution of the work will be allowed in the work area. All vehicles and equipment shall have an omni-directional amber flashing light and/or 3-foot by 3-foot flag having a checkered pattern of international orange and white squares at least one foot on each side. All vehicles and equipment must be equipped with an omni-directional amber flashing light for all airfield activities between sunset and sunrise or when visibility is low. Vehicles within the airfield environment shall display company identification markings on both sides of the vehicle. Non-motorized equipment shall have a reflective devise displayed on the front, back and sides. All supervisory and survey personnel vehicles which operate within the airfield

environment but outside the work area shall have a company vehicle with an amber flashing light mounted on the roof of the cab and identifying markings, visible from 300 feet, mounted on both sides of the vehicle.

v. Required escorts

Escorts will not be required on project.

vi. Situational awareness

While driving or working on the airfield environment, there shall be no devices in or on ears other than those used to protect hearing or communicate company business. Yield right-of-way to emergency vehicles displaying rotating and/or using sirens and other audible emergency signals. In the event of an emergency, be prepared to move workers, vehicles, and equipment immediately at the direction of the City.

vii. Two-way radio communication procedures

All activities within aircraft movement areas will require two-way radio communication. In the event the contractor needs to access a movement area, all radio communications will be performed by the City using the Common Traffic Advisory Frequency (CTAF). Frequency that will be used by City personnel is:

CTAF – 122.70 MHz

viii. Maintenance of the secured area of the airport

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people.

6. Wildlife management

a. Trash

Receptacles shall be provided by the contractor and equipped with metal, canvas, or plastic covers. Food scraps or other trash may not be disposed on the ground and must be collected and placed in the covered receptacles as to not attract wildlife.

b. Standing water

Staging areas, stockpile areas, and the work area shall be graded to drain to avoid attracting wildlife

c. Tall grass and seeds

The use of low quality seed mixtures that contain seeds of plants (such as clover) will attract wildlife and shall not be used. Grass and weeds shall be managed, or cut if necessary, within work areas to avoid attracting wildlife.

d. Disruption of existing wildlife habitat

Contractor personnel should immediately notify the airport operator of wildlife sighing.

7. Foreign object debris (FOD) management

The contractor will be required to ensure the airfield environment is kept continuously free of construction debris, equipment and/or materials that might endanger or be ingested by an aircraft. Take extreme care to ensure no work-related debris or other loose items are allowed to be blown by wind or aircraft engine blast. The Contractor shall be responsible for any resulting damage to aircraft engines and/or other property arising from failure to secure and/or protect debris, tools, supplies, or other loose items. In areas that may result in the tracking of soil, sediments, or hazardous materials on the wheels of hauling equipment outside the area that are enclosed by erosion and silt/sediment control devices, the Contractor shall provide the means and methods to remove these materials prior to the vehicle exiting the controlled area. Equipment operated on haul routes over existing pavements shall be kept free of material spillage and foreign matter at all times. Standby equipment is required to be onsite and operational at all times throughout the project and shall include, at a minimum, a self-propelled regenerative air sweeper and a water truck kept loaded at all times.

8. Hazardous materials (HAZMAT) management

If shipments of hazardous material (including hazardous debris, contaminated soil or water, and hazardous waste) will be unloaded onto or loaded from City property, the Contractor shall have a qualified person available onsite when shipments are received or made who is current with U.S. Department of Transportation (DOT) approved training for the transportation of hazardous materials. Contractor shall properly characterize and manifest waste material leaving City property for disposal. When the waste reaches its final destination, the owner or operator of the designated and permitted treatment, storage, and disposal (TSD) facility shall sign the manifest and return a copy to the City within 35 days to confirm receipt.

Minor spills can be controlled by the first responder at the discovery of the spill. Use absorbent materials on small spills rather than hosing down or burying the spill. First responder should contain the spread of the spill, recover spilled materials, clean the contaminated area and properly dispose of contaminated materials. For minor spills, consult the products MSDS for recommended actions for spills or container leaks. Additionally, MSDS's provided emergency phone numbers and occupational health hazard information.

Semi-significant spills can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. Notify the City of semi-significant spills. Spills should be cleaned up immediately. Contain the spread of the spill and notify the project foreman immediately. If the spill occurs on paved or impermeable surfaces, clean up by using dry methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil. If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant / Hazardous Spills that cannot be controlled by personnel in the immediate vicinity must be reported to the local emergency response by dialing 911. In addition to 911, the contractor will notify the City and proper county officials. Notify the state Emergency Services Warning Center. The services of a spills contractor or a HAZMAT team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site. Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works and Engineering Department, the Highway Patrol, the City/County Police Department, and the Department of Toxic Substance.

Ensure that hazardous goods and material delivered to or from the construction site meet applicable DOT labeling and placarding requirements. Upon request from the City, supply material safety data sheets (MSDS) for all hazardous material being delivered to the site.

The storage and shipment of hazardous waste shall also comply with the requirements of this section.

It is emphasized, however, that although spills resulting from incidents or accidents should be responded to, securing the well-being of people comes first.

Good housekeeping practices should be utilized during equipment fueling and maintenance operations. Inspect fueling equipment for leaks prior to dispensing. Fueling operations shall be continuously attended while dispensing fuel. Fueling and maintenance operations shall not be performed within 50-feet of a storm drain, inlet, ditch, surface water, wetland, etc. to allow adequate time for containment in the event of a spill.

9. Notification of construction activities
   a. Responsible representatives/points of contact

| Points of Contact | | | |
|---|---|---|---|
| **Name** | **Representing** | **Office** | **Cell** |
| Keri Navratil | City of Storm Lake | 712-732-8000 | |
| Jim Bartholomew | FBO | 712-732-6495 | |
| Anthony Pollard | Federal Aviation Administration | 816-329-2619 | |
| Carl Byers | Bolton & Menk | 515-233-6100 | 515-520-3631 |
| Greg Broussard | Bolton & Menk | 515-233-6100 | 515-509-1287 |

   b. Notices to Airmen (NOTAMs)

      Only the City may initiate or cancel a NOTAM on airport conditions and is the only entity that can close or open a runway. Points of contact for issuing NOTAMS are as follows: Main Contact – Jim Bartholomew – 712-732-6495 (office), Alternate Contact – Keri Navratil – 712-732-8000.

   c. Emergency notification procedures
      - Emergency – DIAL 911
      - City of Storm Lake – 712-732-8000 (Keri Navratil – City Manager)
      - CTAF radio emergency – 122.70 MHz
      - Storm Lake Police Department – 712-732-8010
      - Storm Lake Fire Department – 712-732-8010
      - Hospital – Buena Vista Regional Medical Center -712-732-4030
      - Iowa Poison Control – 800-222-1222

   d. Notification to the FAA
      i. Part 77

         The project will affect navigable airspace. Therefore, the City will file an FAA 7460-1, Notice of Proposed Construction or Alteration, for the project. Any equipment, (cranes, graders, other equipment) used by the contractor that exceed the 20' height limitation must also have a 7460-1 airspace evaluation and determination prior to use.

10. Inspection requirements
   a. Daily inspections

      Inspections should be conducted by the Contractor at least daily, but more frequently if necessary to ensure conformance with the CSPP. Special attention shall be given to areas shared by construction traffic and air traffic. The City will have the final authority in determining if the area is suitable for aircraft use. *Attachment 2* contains a safety inspection checklist that may be used by the Contractor or City. Any deficiencies, whether caused by negligence, oversight, or project scope change are to be addressed immediately.

b. Final inspection

A final inspection shall be conducted by the City prior to the commissioning of any newly constructed areas open to air traffic. The City will have the final authority in determining if the area is suitable for aircraft use. *Attachment 2* contains a safety inspection checklist that may be used by the Contractor or City.

11. Underground utilities

Notify Iowa One Call and owners of underground utilities within the construction area or within affected public rights-of-way or easements, via the “one-call” notification system (1-800-222-1222) in advance of the commencement of excavation activities. Notify the City when the “one-call” request is being initiated. Contractor shall not cross electrical or communication cables unless protected by approved means. In the event of interruption to field-located utility services as a result of the work, promptly notify the City first, and then the proper authority. Cooperate with said authority in restoring service as promptly as possible. If required, the Contractor shall install suitable temporary service until permanent repair is completed.

12. Penalties

The Contractor is responsible for compliance with the CSPP as detailed herein. Violations will be cause for the project to be stopped and project safety procedures evaluated. Contractor working days will continue to be charged, even if the City ceases construction operations. The City will decide if and when work will continue. Enforcement of these regulations will be by the City. Refer to General Provision Section 80-06, Temporary Suspension of the Work, for further details. Failure to comply with the CSPP is a failure on the part of the contractor to carry out orders given or perform any provisions of the contract.

13. Special conditions

Low visibility conditions will trigger specific safety mitigation actions outlined in this CSPP. For the purposes of this project, low visibility conditions will exist when the prevailing visibility is less than 1 statute mile and/or the runway visual range (RVR) is less than 6,000-feet. The City will notify the Contractor when these conditions exist so adequate safety measures can be taken by the Contractor.

An aircraft in distress may require the Contractor to immediately move equipment away from an aircraft movement area. The City will notify the Contractor in the unlikely event of an aircraft in distress. The Contractor will be required to comply with all City and/or Air Traffic instructions. Various circumstances, such as an aircraft accident, security breach, or other unforeseen event may require suspension of the construction. The City will notify the Contractor when suspension of the work will be required. See Section 9 – Notification of Construction Activities for emergency contact information.

A VPD (vehicle / pedestrian deviation) is any entry or movement on the movement area by a vehicle or pedestrian that has not been authorized by the City. In the event of a VPD, the City reserves the right to suspend the work or any portion thereof and continue suspension until the completion of any investigation or evaluation by the City and full compliance with any corrective measures which the City may reasonably require. In addition, the City may require the Contractor to provide to the City a written plan, satisfactory to the City, to demonstrate the Contractor’s ability to prevent future violations. See Section 5 – Contractor Access for vehicle and pedestrian operations and two-way radio communication requirements.

14. Runway and taxiway visual aids
    a. General
        Temporary airport markings must be clearly visible to pilots, not misleading, confusing, or deceptive. All temporary markings must be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

        The nature of the construction project and duration of closures will not require temporary lighting, signs, or visual NAVAIDs to be incorporated into this project.

    b. Markings
        (i) Temporarily Closed Runway

        Runway 13/31, Runway 17/35 and Runway 06/24 will be closed for the duration of Phases 1.

        (ii) Temporarily closed taxiways

        Temporarily closed taxiways are identified on the Construction Operations & Safety Plan and identified in Section 2 – Construction Phasing. Temporarily closed taxiways at runway/taxiway intersections shall have low-profile barricades placed outside the RSA or OFZ, whichever is greater.

    c. Lighting and visual NAVAIDs
        There is no additional lighting or visual NAVAID's being installed as part of this project

    d. Signs
        Any time a sign does not serve its normal function; it must be covered or removed to prevent misdirecting pilots.

15. Marking and signs for access routes
    The Contractor shall place traffic control signs and/or devices, as appropriate, to advise other road users of construction operations and hauling. Signs and/or devices shall conform with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23.

16. Hazard marking and lighting
    Before starting work, the contractor shall provide and have available all signs, barricades, and lights necessary for protection of the work. Install and maintain adequate warning signs and lighted barricades to protect property and personnel in the work area. Barricades shall be weighted or anchored to prevent overturning from wind or aircraft engine blast.

    Barricades are not permitted in any active safety area. Barricades located within a runway or taxiway object free area and/or on aprons must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights. Contractor will be required to fill the low-level barricades with water. Barricaded shall be spaced according to the function. For aircraft movement areas barricades shall be placed at 10' on center. For vehicle movement areas barricades shall be placed at 4' on center. For personnel movement area barricades shall be placed with 0' spacing.

The Contractor shall have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the City. Lighting shall be checked for proper operation at least once per day, preferably at dusk.

Open trenches, excavations, or obstructions not being actively worked shall be marked with lighted and weighted barricades which can be seen from a reasonable distance.

17. Protection of safety areas
    a. Runway Safety Area (RSA)

       No construction may occur within the existing RSA while the runway is open for aircraft operations. Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

       Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the City, and light them with red lights during hours of restricted visibility or darkness.

       Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

       Grading tolerances inside the safety area shall be 5% maximum grade with no humps/depressions/drop-offs greater than 3-inches. The RSA is depicted on the Construction Operations, Safety, and Phasing plan contained in *attachment 1*. The dimension for the Runway 13/31 RSA is 120-FT each side of centerline and 240-FT beyond each runway end.

    b. Runway Object Free Area (ROFA)

       Construction, including excavations, may be permitted within the ROFA. However, equipment must be removed from the ROFA when not in use and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the ROFA requires submittal of a 7460-1 form and City approval. The dimension for the Runway 13/31 ROFA is 250-FT each side of centerline and 240-FT beyond each runway end.

    c. Taxiway Safety Area (TSA)

       No construction may occur in the TSA while the taxiway is open to aircraft operations. Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, backfill trenches before the taxiway is opened. If the taxiway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operations of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.

       Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the City, and light them with red lights during hours of restricted visibility or darkness.

       Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

Grading tolerances inside the safety area shall be 5% maximum grade with no humps/depressions/drop-offs greater than 3-inches. For this project, the TSA will be 39.5-FT each side of centerline for all taxiways.

d. Taxiway Object Free Area (TOFA)

No construction will be allowed within the taxiway object free area while the taxiway is open to aircraft operations. For this project, the TOFA will be 65.5-FT each side of centerline for all taxiways.

e. Obstacle Free Zone (OFZ)

Personnel, material, and/or equipment may not penetrate the OFZ while the runway is open to aircraft operations. The runway OFZ is depicted on the Construction Operations, Safety, and Phasing plan contained in *Attachment 1*. The dimension for Runway 13/31 OFZ is 200-FT each side of centerline and 200-FT beyond each runway end.

f. Runway approach/departure surfaces

All personnel, material, and/or equipment must remain clear of the threshold siting surfaces (approach and departure surfaces).

**i. Runway 17/35 Approach Surface**

Runway 15/33 will be a instrument runway during construction. Using Table 3-2 and Figure 3-3 from AC150/5300-13A for Runway Type 4, the resulting approach surface begins at the runway threshold and consists of a trapezoid with the following dimensions:

- Width at inner approach (runway threshold) – 400-feet
- Width at outer approach – 3,800-feet
- Length of approach – 10,000-feet
- Approach slope – 20:1

**ii. Runway 17/35 Departure Surface**

Runway 17/35 will be a visual use runway during construction. Using Table 3-2 and Figure 3-4 from AC150/5300-13 for Runway Type 9, the resulting departure surface begins at the runway threshold and consists of a trapezoid with the following dimensions:

- Width at inner departure (runway threshold) – 1000-feet
- Width at outer departure – 6,466-feet
- Length of departure – 10,200-feet
- Departure slope – 40:1

18. Other limitations on construction

a. Prohibitions

- Open flame welding or torches are prohibited unless fire safety precautions are provided and the airport has approved their use.

- Electrical blasting caps are prohibited on or within 1,000-feet of the airport property.
- The use of flare pots are prohibited within the Airport Operations Area (AOA).
- No smoking will be allowed within the airfield environment except as designated by the City.

b. Restrictions
- Construction sequence, duration, and time limitations can be found in Section 2 – Construction Phasing and *attachment 1*.

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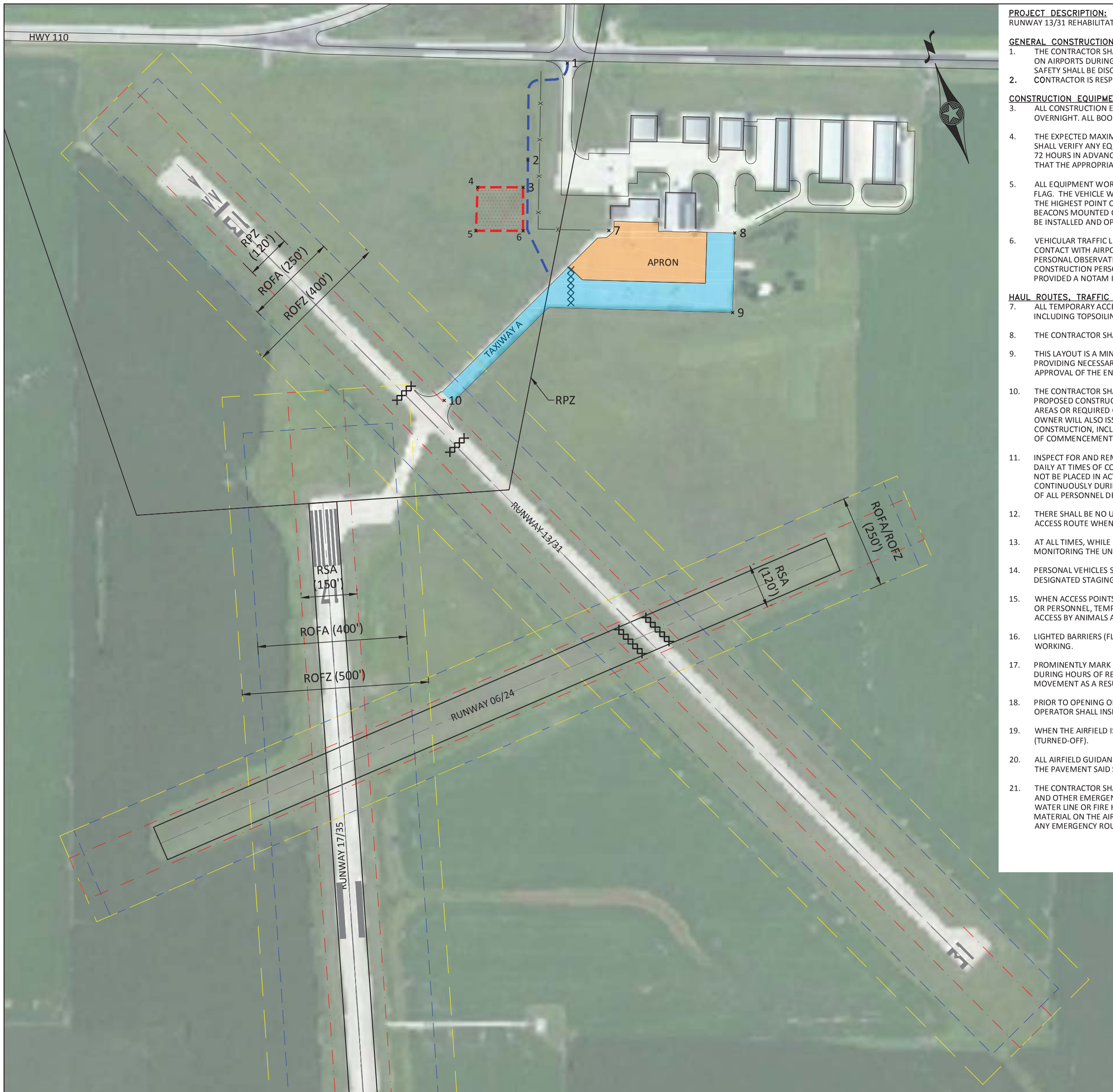
# APPENDIX - 1

## CONSTRUCTION SAFETY PHASING PLAN




**PROJECT DESCRIPTION:**
RUNWAY 13/31 REHABILITATION.

**GENERAL CONSTRUCTION SAFETY:**

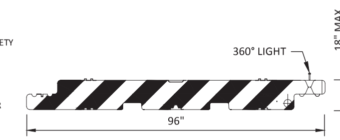
1. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH IN FAA AC 150/5370-2G "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", WHICH IS INCLUDED IN THE PROJECT MANUAL APPENDIX. CONSTRUCTION SAFETY SHALL BE DISCUSSED DURING THE PRE CONSTRUCTION MEETING AND AT WEEKLY PROJECT MEETING
2. CONTRACTOR IS RESPONSIBLE FOR ALL PUBLIC AND PRIVATE UTILITY LOCATIONS DURING CONSTRUCTION.

**CONSTRUCTION EQUIPMENT:**

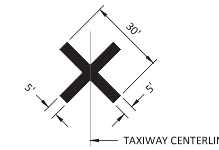
3. ALL CONSTRUCTION EQUIPMENT SHALL BE PARKED IN DESIGNATED STAGING/STORAGE AREAS WHEN NOT IN USE OR OVERNIGHT. ALL BOOMS SHALL BE LOWERED WHEN NOT IN USE.
4. THE EXPECTED MAXIMUM HEIGHT OF CONSTRUCTION EQUIPMENT IS 20 FEET AT ANY LOCATION. THE CONTRACTOR SHALL VERIFY ANY EQUIPMENT HEIGHT MORE THAN 20 FEET AND NOTIFY THE ENGINEER AND OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY CONSTRUCTION THAT REQUIRES EQUIPMENT WITH HEIGHTS OF MORE THAN 20 FEET SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED.
5. ALL EQUIPMENT WORKING ON THE AIRPORT CONSTRUCTION SITE MUST HAVE A ROTATING BEACON AND/OR WARNING FLAG. THE VEHICLE WARNING FLAGS SHALL BE AS PER DETAIL ON SHEET. THE FLAG SHALL BE SECURELY ATTACHED TO THE HIGHEST POINT ON THE CONSTRUCTION EQUIPMENT OR VEHICLE AND BE VISIBLE AT ALL TIMES. AMBER FLASHING BEACONS MOUNTED ON THE HIGHEST POINT OF THE CONSTRUCTION EQUIPMENT OR VEHICLE ARE ALSO REQUIRED TO BE INSTALLED AND OPERATIONAL.
6. VEHICULAR TRAFFIC LOCATED IN OR CROSSING ACTIVE MOVEMENT AREAS MUST HAVE A WORKING TWO-WAY RADIO CONTACT WITH AIRPORT OPERATIONS OR BE ESCORTED BY A PERSON IN RADIO CONTACT. THE DRIVER, THROUGH PERSONAL OBSERVATION, SHOULD CONFIRM THAT NO AIRCRAFT ARE APPROACHING THE VEHICLES POSITION. CONSTRUCTION PERSONNEL MAY OPERATE IN A MOVEMENT AREA WITHOUT TWO-WAY RADIO COMMUNICATION PROVIDED A NOTAM IS ISSUED CLOSING THE AREA AND THE AREA IS PROPERLY MARKED TO PREVENT INCURSIONS.

**HAUL ROUTES, TRAFFIC CONTROL & ACCESS CONTROL**

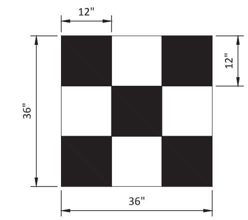
7. ALL TEMPORARY ACCESS, STORAGE/STAGING AREAS AND ROADS SHALL BE RESTORED TO ORIGINAL CONDITION, INCLUDING TOPSOILING, RESEEDING, IF NECESSARY, AFTER USE BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS NECESSARY.
9. THIS LAYOUT IS A MINIMUM REQUIREMENT NECESSARY TO ASSIST THE CONTRACTOR IN DETERMINING THE COST FOR PROVIDING NECESSARY TRAFFIC CONTROL. THE CONTRACTOR MAY ADD ADDITIONAL WARNING DEVICES UPON APPROVAL OF THE ENGINEER.
10. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER A MINIMUM OF 72 HOURS IN ADVANCE OF ANY PROPOSED CONSTRUCTION WITHIN THE APRON OR TAXIWAY SAFETY AREAS, RUNWAY PROTECTION ZONES, APPROACH AREAS OR REQUIRED CLOSURE AREAS SO THAT THE APPROPRIATE NOTICE TO AIRMEN (NOTAM) MAY BE ISSUED. THE OWNER WILL ALSO ISSUE TIMELY NOTAMS WHICH SPECIFICALLY DETAIL THE CURRENT STATUS OF THE AIRPORT DURING CONSTRUCTION, INCLUDING CLOSURE STATUS. THE NOTAM SHALL INCLUDE THE PROPOSED LOCATION, TIME AND DATE OF COMMENCEMENT OF CONSTRUCTION.
11. INSPECT FOR AND REMOVE FOREIGN OBJECT DEBRIS (FOD) ON OR NEAR AIRCRAFT MOVEMENT AREAS BY SWEEPING DAILY AT TIMES OF CONCURRENT CONSTRUCTION AND AIRCRAFT OPERATIONS. WASTE AND LOOSE MATERIAL MUST NOT BE PLACED IN ACTIVE MOVEMENT AREAS. MATERIALS TRACKED ONTO THESE AREAS MUST BE REMOVED CONTINUOUSLY DURING THE PROJECT. THE CONSTRUCTION SITE, INCLUDING THE STAGING AREA, SHALL BE KEPT CLEAN OF ALL PERSONNEL DEBRIS.
12. THERE SHALL BE NO UNAUTHORIZED PERSONNEL ON AIRFIELD. CONTRACTOR SHALL USE THE DESIGNATED AIRPORT ACCESS ROUTE WHEN ENTERING AIRPORT PROPERTY. NO GATES ARE TO BE LEFT OPENED AND UNATTENDED.
13. AT ALL TIMES, WHILE CONSTRUCTION IS IN PROGRESS, THE CONTRACTOR SHALL HAVE A DESIGNATED PERSON MONITORING THE UNICOM OR CTAF.
14. PERSONAL VEHICLES SHALL NOT BE ALLOWED ON THE AIRFIELD. ALL PERSONAL VEHICLES SHOULD BE PARKED IN A DESIGNATED STAGING/STORAGE AREA OR ANOTHER AREA AS DESIGNATED BY THE AIRPORT MANAGER.
15. WHEN ACCESS POINTS ARE CREATED IN THE SECURITY FENCING TO PERMIT THE PASSAGE OF CONSTRUCTION VEHICLES OR PERSONNEL, TEMPORARY GATES SHOULD BE EQUIPPED SO THEY CAN BE SECURELY CLOSED AND LOCKED TO PREVENT ACCESS BY ANIMALS AND PEOPLE.
16. LIGHTED BARRIERS (FLASHERS) SHALL BE INSPECTED AT DUSK EACH DAY TO ENSURE ALL FLASHERS ARE PROPERLY WORKING.
17. PROMINENTLY MARK OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIALS AND LIGHT THESE OBSTACLES DURING HOURS OF RESTRICTED VISIBILITY AND DARKNESS. CONSTRAIN STOCKPILED MATERIAL TO PREVENT ITS MOVEMENT AS A RESULT OF THE MAXIMUM ANTICIPATED AIRCRAFT BLAST AND FORECAST WIND CONDITIONS.
18. PRIOR TO OPENING OR RE-OPENING ANY CLOSED PAVEMENT AREA, THE CONTRACTOR, TOGETHER WITH THE AIRPORT OPERATOR SHALL INSPECT THE PAVEMENT, SAFETY AREAS AND PRIMARY SURFACE FOR ANY OBSTRUCTION OR FOD.
19. WHEN THE AIRFIELD IS CLOSED FOR CONSTRUCTION (RUNWAY CLOSURES), THE BEACON SHALL BE DISENGAGED (TURNED-OFF).
20. ALL AIRFIELD GUIDANCE SIGNS (INCLUDING HOLD SIGNS) SHALL BE COVERED OR OTHERWISE REMOVED FROM SERVICE IF THE PAVEMENT SAID SIGNS ARE IDENTIFYING ARE CLOSED FOR CONSTRUCTION.
21. THE CONTRACTOR SHALL NOTIFY AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) PERSONNEL, MUTUAL AID PROVIDERS AND OTHER EMERGENCY SERVICES IF CONSTRUCTION REQUIRES SHUTTING OFF OR OTHERWISE DISTRUPTING ANY WATER LINE OR FIRE HYDRANT ON THE AIPORT OR ADJOINING AREAS AND IF CONTRACTORS WORK WITH HAZARDOUS MATERIAL ON THE AIRFIELD. NOTIFICATION MUST ALSO BE MADE WHEN THE WORK PERFORMED WILL CLOSE OR AFFECT ANY EMERGENCY ROUTES. ALSO MAKE NOTIFICATION WHEN SERVICES ARE RESTORED.




A / 3 LOW PROFILE AIRPORT BARRICADE
NOT TO SCALE




B / 3 TAXIWAY CLOSURE MARKER
NOT TO SCALE




NOTE: FLAG SHALL HAVE A CHECKERED PATTERN OF INTERNATIONAL ORANGE AND WHITE SQUARES

C / 3 VEHICLE WARNING FLAG
NOT TO SCALE

LEGEND

- PHASE 1 CONSTRUCTION
- PHASE 2 CONSTRUCTION

**7460 POINT TABLE**

| POINT NUMBER | LATITUDE | LONGITUDE | DESCRIPTION | ELEVATION |
|---|---|---|---|---|
| 1 | N42°36'15.60" | W95°14'23.46" | HAUL ROUTE | 1479 |
| 2 | N42°36'13.01" | W95°14'24.80" | HAUL ROUTE | 1472 |
| 3 | N42°36'12.29" | W95°14'24.95" | STAGING AREA | 1472 |
| 4 | N42°36'12.26" | W95°14'26.58" | STAGING AREA | 1472 |
| 5 | N42°36'11.11" | W95°14'26.61" | STAGING AREA | 1471 |
| 6 | N42°36'11.13" | W95°14'24.92" | STAGING AREA | 1471 |
| 7 | N42°36'11.19" | W95°14'21.85" | CONSTRUCTION AREA | 1472 |
| 8 | N42°36'11.19" | W95°14'17.33" | CONSTRUCTION AREA | 1474 |
| 9 | N42°36'09.08" | W95°14'17.35" | CONSTRUCTION AREA | 1471 |
| 10 | N42°36'06.60" | W95°14'27.62" | CONSTRUCTION AREA | 1474 |

HORIZ. 0 150 300
SCALE FEET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Email: Ames@bolton-menk.com
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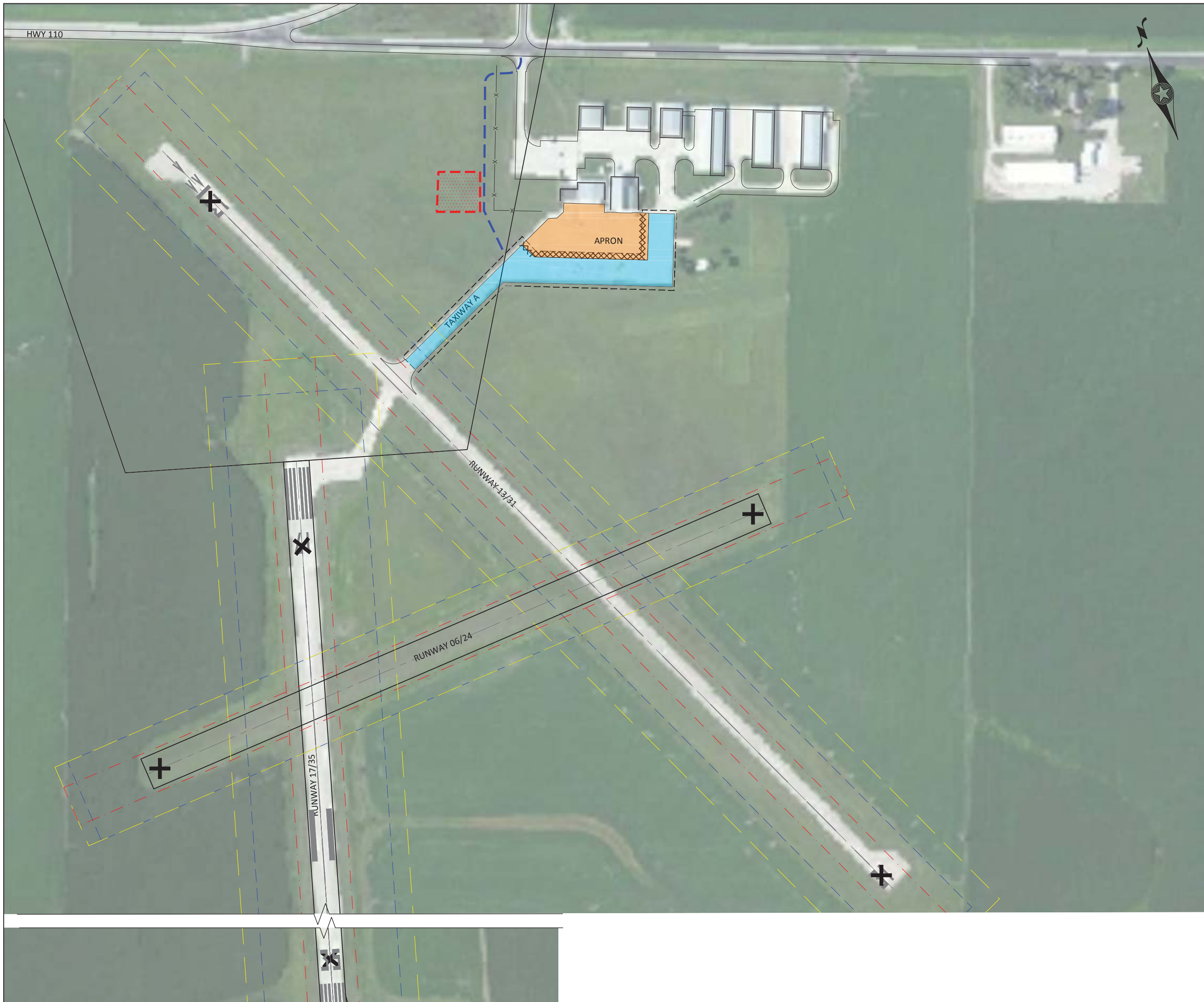
| REV | ISSUED FOR | DATE |
|---|---|---|

DESIGNED DJM
DRAWN DJM
CHECKED GAB

STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
CSPP - OVERALL LAYOUT




PHASE 1 NOTES:

PHASE 1 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PANEL REPLACEMENT

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 06/24 SHALL BE CLOSED FOR PHASE 1.
- RUNWAY 17/35 SHALL BE CLOSED FOR PHASE 1.
- TAXIWAY A SHALL BE CLOSED DURING PHASE 1.

PHASE DURATION
- PHASE 1 SHALL BE COMPLETED IN 7 WORKING DAYS. PHASE 1 CAN BE COMPLETED AT THE SAME TIME AT PHASE 2 WITH THE RUNWAY CLOSURE LIMITED TO A MAXIMUM OF 7 DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER AND FBO FOR ISSUANCE OF NOTAM's.

BARRICADE INFORMATION
- BARRICADES SHALL BE PLACED AT 10' SPACING TO PREVENT AIRCRAFT FROM ENTERING TAXIWAY A.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL BE DISCONNECTED OR COVERED DURING PHASE 1.
- LIGHT ON RUNWAY 17/35 SHALL BE DISCONNECTED OR COVERED DURING PHASE 1
- TAXIWAY LIGHT SHALL BE DISCONNECTED OR COVERED DURING PHASE 1

LEGEND

- PHASE 1 CONSTRUCTION
- CONTRACTORS ACCESS ROUTE
- CONSTRUCTION LIMITS
- LOW PROFILE BARRICADES
- RUNWAY/TAXIWAY CLOSURE MARKER
- CONSTRUCTION STAGING/STORAGE

HORIZ. SCALE 0 150 300 FEET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| | | | DESIGNED DJM |
| | | | DRAWN DJM |
| | | | CHECKED GAB |

STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
CSPP - PHASE 1

SHEET 4 OF 8


PHASE 2 NOTES:

PHASE 2 WORK ELEMENTS:
- JOINT AND CRACK SEALING
- PARTIAL DEPTH PATCHING
- PANEL REPLACEMENTS

ACTIVE AREAS AFFECTED
- RUNWAY 13/31 SHALL REMAIN OPEN DURING PHASE 2.
- RUNWAY 06/24 SHALL REMAIN OPEN DURING 2.
- RUNWAY 17/35 SHALL REMAIN OPEN DURING PHASE 2.
- TAXIWAY A SHALL REMAIN OPEN DURING PHASE 2.
- PHASE 2 SHALL BE CONSTRUCTED TO ALLOW AIRCRAFT ACCESS TO TAXIWAY A AT ALL TIMES. IF AIRPORT ACTIVITY IS PRESENT, A FLAGGER SHALL BE PRESENT TO DIRECT AIRPORT TRAFFIC FROM CONSTRUCTION ACTIVITY.

PHASE DURATION
- PHASE 2 SHALL BE COMPLETED IN 8 WORKING DAYS.

NOTAMs
- CONTRACTOR TO COORDINATE WITH OWNER FOR ISSUANCE OF NOTAM's.

LIGHTING
- LIGHTS ON RUNWAY 13/31 SHALL REMAIN ON DURING PHASE 2
- LIGHT ON RUNWAY 17/35 SHALL REMAIN ON DURING PHASE 2.
- TAXIWAY LIGHT SHALL REMAIN ON DURING PHASE 2.

LEGEND

PHASE 2 CONSTRUCTION
CONTRACTORS ACCESS ROUTE
CONSTRUCTION LIMITS
LOW PROFILE BARRICADES
RUNWAY/TAXIWAY CLOSURE MARKER
CONSTRUCTION STAGING/STORAGE

HORIZ. 0 150 300 SCALE FEET


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| REV | ISSUED FOR | DATE |
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DESIGNED DJM
DRAWN DJM
CHECKED GAB

STORM LAKE MUNICIPAL AIRPORT
REHABILITATE APRON & CONNECTOR TAXIWAY
CSPP - PHASE 2

SHEET 5 OF 8

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# APPENDIX - 2

## INSPECTION CHECKLISTS

# Construction Project Daily Safety Inspection Checklist

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project

**Potentially Hazardous Conditions**

| ITEM | ACTION REQUIRED | NONE |
|---|---|---|
| Excavation adjacent to runways, taxiways, and aprons improperly backfilled. | | ☐ |
| Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking. | | ☐ |
| Runway resurfacing projects resulting in lips exceeding 3 in (7.6 cm) from pavement edges and ends. | | ☐ |
| Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ. | | ☐ |
| Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown. | | ☐ |
| Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and approach zones. | | ☐ |
| Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area. | | ☐ |
| Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage. | | ☐ |
| Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards. | | ☐ |
| Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards. | | ☐ |
| Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports. | | ☐ |
| Obliterated or faded temporary markings on active operational areas. | | ☐ |

| | | |
|---|---|---|
| Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards. | | ☐ |
| Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions. | | ☐ |
| Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications. | | ☐ |
| Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings. | | ☐ |
| Lack of radio communications with construction vehicles in airport movement areas. | | ☐ |
| Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations. | | ☐ |
| Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction. | | ☐ |
| Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways. | | ☐ |
| Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system). | | ☐ |
| Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits. | | ☐ |
| Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf. | | ☐ |
| Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it. | | ☐ |
| Site burning, which can cause possible obscuration. | | ☐ |
| Construction work taking place outside of designated work areas and out of phase. | | ☐ |

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# APPENDIX - 3

## SAFETY PLAN COMPLIANCE DOCUMENT

## (SPCD) REQUIREMENTS

# Safety Plan Compliance Document

The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I , Name of Contractor , have read the Title of Project CSPP, approved on Date , and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

(1) **Coordination**. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
(2) **Phasing**. Discuss proposed construction schedule elements, including:
    (a) Duration of each phase.
    (b) Daily start and finish of construction, including "night only" construction.
    (c) Duration of construction activities during:
        (i) Normal runway operations.
        (ii) Closed runway operations.
        (iii) Modified runway "Aircraft Reference Code" usage.
(3) **Areas and operations affected by the construction activity**. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
(4) **Protection of NAVAIDs**. Discuss specific methods proposed to protect operating NAVAIDs.
(5) **Contractor access**. Provide the following:
    (a) Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
    (b) Listing of individuals requiring driver training (for certificated airports and as requested).
    (c) Radio communications.
        (i) Types of radios and backup capabilities.
        (ii) Who will be monitoring radios.
        (iii) Whom to contact if the ATCT cannot reach the contractor's designated person by radio.
    (d) Details on how the contractor will escort material delivery vehicles.
(6) **Wildlife management**. Discuss the following:
    (a) Methods and procedures to prevent wildlife attraction.
    (b) Wildlife reporting procedures.
(7) **Foreign Object Debris (FOD) management**. Discuss equipment and methods for control of FOD, including construction debris and dust.
(8) **Hazardous material (HAZMAT) management**. Discuss equipment and methods for responding to hazardous spills.
(9) **Notification of construction activities**. Provide the following:
    (a) Contractor points of contact.
    (b) Contractor emergency contact.
    (c) Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.

(d) Batch plant details, including 7460-1 submittal.

(10) **Inspection requirements**. Discuss daily (or more frequent) inspections and special inspection procedures.

(11) **Underground utilities**. Discuss proposed methods of identifying and protecting underground utilities.

(12) **Penalties**. Penalties should be identified in the CSPP and should not require an entry in the SPCD.

(13) **Special conditions**. Discuss proposed actions for each special condition identified in the CSPP.

(14) **Runway and taxiway visual aids**. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:

(a) Equipment and methods for covering signage and airfield lights.

(b) Equipment and methods for temporary closure markings (paint, fabric, other).

(c) Types of temporary Visual Guidance Slope Indicators (VGSI).

(15) **Marking and signs for access routes**. Discuss proposed methods of demarcating access routes for vehicle drivers.

(16) **Hazard marking and lighting**. Discuss proposed equipment and methods for identifying excavation areas.

(17) **Protection of runway and taxiway safety areas**. Including object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

(a) Equipment and methods for maintaining Taxiway Safety Area standards.

(b) Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

(18) **Other limitations on construction** should be identified in the CSPP and should not require an entry in the SPCD.

Construction Materials Testing

# GEOTECHNICAL INVESTIGATION

# FOR

# STORM LAKE MUNICIPAL AIRPORT

# RUNWAY 13/31 PAVEMENT REHABILITATION

# STORM LAKE, IOWA

**Prepared For:**

Bolton & Menk, Inc.
2730 Ford Street
P.O. Box 668
Ames, IA 50010

**Prepared By:**

Construction Materials Testing, Inc.
1610 E. Madison Avenue
Des Moines, IA 50313

**August 6, 2013**

| | |
|---|---|
| LICENSED PROFESSIONAL ENGINEER<br>SYBIL K. FERRIER<br>20479<br>IOWA | I herby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.<br><br>Sybil K. Ferrier     8-6-13<br>Sybil K. Ferrier, P.E.     Date<br>License No. 20479<br><br>My License renewal date is **December 31,** 2014.<br>Pages or sheets covered by this seal: All Pages. |


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www.cmt-iowa.com

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# GEOTECHNICAL ENGINEERING REPORT

## Storm Lake Municipal Airport

## Runway 13/31 Pavement Rehabilitation

## Storm Lake, Iowa

**August 6, 2013**

### INTRODUCTION

Bolton & Menk is assisting the Storm Lake Municipal Airport in rehabilitating the pavement sections of Runway 13/31 and associated taxiway and apron pavements. Nine soil borings and nine pavement cores were completed around the site to evaluate the current pavement conditions. The soil borings were conducted to a depth of 5 feet below existing grades to evaluate the subgrade soil conditions. Individual Boring Logs and a Site Plan are included in the attachments of this report showing the findings and locations of the borings.

The purposes of this report are to describe the subsurface conditions encountered in the borings, analyze and evaluate the test data, and provide geotechnical recommendations regarding the design, construction, and rehabilitation of the pavements.

### FIELD EXPLORATION

Field exploration was conducted on July 15$^{th}$, 2013. The soil boring and pavement core locations were selected by Bolton & Menk and located in the field by CMT. A Site Plan indicating the approximate locations is enclosed in the appendix of this report.

The borings were drilled with a truck-mounted drill rig using continuous flight augers to advance the boreholes. Representative samples were obtained at various intervals using augers and split spoon samplers in general accordance with ASTM procedures. Field logs of each boring were recorded by the drill crew during drilling operations. These logs contain visual classifications of the materials encountered as well as the driller's interpretation of the subsurface conditions between samples during drilling. Soil samples were sealed and returned to the laboratory for further testing and classification. The final Boring Logs (see attached) represent an interpretation of the field logs and include modifications based on laboratory observations and test results for the samples.

## SITE AND SUBSURFACE CONDITIONS

### Site Description

The site is located on the southwest side of Storm Lake and this geologic region of Iowa is on the border of the Des Moines Glacial Lobe and Northwest Iowa Plains soil profiles. After the last glacier advanced through Iowa, it left behind a poorly drained landscape consisting of pebbly deposits striated with sand and gravel seams from glacial meltwater streams. Many of the natural soils present consist of Wisconsinan glacial till, loess and Pre-Illinoian glacial till underlain by the Pennsylvanian bedrock system. Wisconsinan glacial till typically consists of a lower sand content glacial till, generally mixed with sand seams and layers. The upper more weathered portion of the Pre-Illinoian glacial till, referred to as paleosol, is typically a higher clay content soil.

### Soil Conditions

Specific subsurface soil conditions at each boring location are presented on the individual Boring Logs, enclosed in the appendix. The stratification boundaries shown on the Boring Logs represented the approximate boundary lines where changes in soil formations may occur. In-situ the transition between materials is more gradual than what is presented on the Boring Logs. Based on the borings, the subsurface conditions can be generalized as follows:

The borings consisted of approximately three feet of very dark brown to very dark gray lean clay (CL) topsoil in a damp to moist condition. This was underlain by loess soils comprised of very dark brown, very dark gray to brown and gray lean clay (CL), with some traces of sand. These loess soils were moist to very moist. Near a depth of 4 ft below existing grades, the loess graded to some localized pockets of glacial outwash soils, consisting of gray clayey sand (SP) and brown fine to coarse sand (SP). The glacial outwash soils were in a moist condition. The borings terminated near a depth of 5 feet below existing grades.

### Groundwater Observations

No groundwater accumulation was noted during drilling operations, however very high soil moisture contents were observed. Based on boring data, past groundwater levels may have been as high as 3 feet below existing ground surface and have the potential to return to that level, should weather conditions allow. These short term observations are not necessarily an accurate indication of normal groundwater levels. Long-term observations would be required to better define the natural groundwater level. Fluctuations in groundwater can occur from varying amounts of precipitation, changes in surface coverage (i.e. adding pavements or vegetation), irrigation practices, etc. Brown-gray coloring is an indication of potential groundwater levels.
The groundwater levels observed during site exploration can be seen on the attached Boring Logs in the appendix.

## PROCEDURES

### Laboratory Testing

The soil samples were classified in the laboratory based on visual observations, moisture content and soil strength tests. The soil descriptions and group symbols presented on the Boring Logs for native soils are in general accordance with the Unified Soil Classification System (USCS).

In addition to obtaining continuous samples in the field, a calibrated hand penetrometer was used to estimate the compressive strength of several cohesive soil samples. The calibrated hand penetrometer has been correlated with unconfined compressive tests and provides a better estimate of soil strength than visual examination alone. The results of the laboratory tests are shown on the boring logs attached to this report.

## ENGINEERING ANALYSIS AND RECOMMENDATIONS

### Exterior Pavement Rehabilitation Design Considerations

Nine pavement cores were taken from within the existing runway and apron. Eight of the cores were obtained from Runway 13/31 and one core was taken from the south side of the fuel station on the apron. Locations of these cores can be seen on the attached site map. On average, the pavement tested consisted of 5 inches of Portland Cement concrete (PCC) underlain by 4 to 5 inches of hot mix asphalt (HMA). In two locations (Core Nos. 2 and 9), no HMA was noted. These two cores were taken in Taxiway 01 and the apron pavement around the fueling station. The core cross sections can be summarized as follows:

| Core No. | PCC Length, inches | HMA Length, inches | Total Length, inches |
|---|---|---|---|
| 1 | 5.75 | 5.25 | 11.00 |
| 2 | 5.50 | 0.00 | 5.50 |
| 3 | 5.75 | 4.50 | 10.50 |
| 4 | 5.00 | 4.00 | 9.00 |
| 5 | 5.00 | 4.50 | 9.50 |
| 6 | 5.50 | 4.00 | 9.50 |
| 7 | 5.75 | 3.75 | 9.50 |
| 8 | 5.50 | 2.50 | 8.00 |
| 9 | 6.25 | 0.00 | 6.25 |

Soils at this site were deemed non-expansive and high soil moisture contents were observed in several borings with the top six feet of the existing ground surface. Typically, moisture contents between 20-30% in these types of soils will reduce soil strength dramatically. This can also cause severe frost heave if the frost occurs when moisture contents are near this level. The soils immediately beneath the pavements are capable of providing adequate strength and bearing pressures to support the proposed traffic loads, however, fluctuating moisture contents create an unstable soil subgrade. As a result of fluctuating moisture contents and a lack of drainable subbase, joint deterioration has occurred and will continue to be a concern.

At the southeast end of Runway 13/31, a large number of voids are present which extend either completely through or partially through the concrete overlay. These voids appear to be caused by contamination of the aggregate stockpiles during production. Based on the localized locations of the voids at the end of the runway, it appears that during initial construction of the concrete overlay, this area may have been near the final stage of construction. When a project nears completion, aggregate stockpiles are at a minimal level and it is not uncommon for operators to inadvertently pick up soils when nearing the bottom of the stockpiles, thus contaminating the aggregate supply. This manifests itself as the voids being observed when the soil expands and breaks the surface cream of the concrete and is then further exposed to moisture infiltration and freeze/thaw cycles.

Based on the current pavement materials and the relatively shallow water table, a large scale milling or remove/replace operation is not recommended at this time. The shallow water table creates high moistures and low strength soils within a few feet of the pavements. The smoothness of the pavement has been compromised by panel settling, deterioration of joints, and deleterious material contamination. In addition, there are small areas of D-cracking in panels which are candidates for a complete remove/replace operation.

For immediate rehabilitation, route and seal operations along with very limited remove/replace operations could be conducted, which would provide an acceptable short term solution.

For short term rehabilitation, there are two construction techniques which can be applied for correcting pavement distress. First, it is recommended to remove and replace any full panels or partial panels showing signs of settlement, D-cracking or deleterious material contamination. Most of the deleterious material contamination is occurring at the southeast end of Runway 13/31. Photographs of the cores removed from this area can be seen in the appendix of this report. For this construction method, the panels would be sawed out and the pavement sections removed. The replacement panel would need to be doweled into the adjacent panels to assist in proper load transfer across the joints. The subgrade in these areas would need to be tested for compaction/bearing and soil moisture content prior to replacing paving. These tests would also indicate if any additional measures are necessary, such as utilizing a granular subbase beneath the new pavement panels. The pavement could then be replaced with an IDOT C4WRC20 concrete mix or an FAA P-501 concrete mix with a target air content of 6 percent. This part of the design would have a life expectancy between 10-15 years. The second phase of the short term rehabilitation would be to address the observed joint deterioration. Panels which are suffering severe joint deterioration should be routed and sealed. These areas may require minimal grinding to avoid localized elevation changes. The route and seal technique will require maintenance and typically has a life expectancy of 5-10 years.

The short term rehabilitation option could also be coupled with subdrains or edge drains, which would extend the life expectancy of the rehabilitation efforts. The edge drains are designed to stabilize the moisture content of the subgrade within three feet of the bottom of the subbase, helping to provide consistent pavement support. Subdrains are typically a small investment at the time of construction and can enhance the life expectancy of any pavement dramatically.

For long term rehabilitation, based on the soil structure and the available in-place materials, it is recommended to recycle the existing pavement materials into a suitable subbase gradation and re-use the material for a granular subbase. The runway could then be reconstructed using a FAA P-501 mix placed at a thickness of 6 inches. Additional thickness could be added to the design if larger aircraft loads are anticipated in the future. The final phase to this rehabilitation would be the installation of edge drains along both sides of the runway. This design would be the most expensive, however it would have a life expectancy in excess of 30 years.

## GENERAL CONSTRUCTION PRACTICES

### Site Preparation

Site preparation will include the stripping of any organic or loose material, such as the existing pavement sections present near the surface. If encountered, any mature vegetation, roots, or other large areas of organic materials, should be removed from under the pavements and properly backfilled prior to further grading or construction operations. Topsoil could be stockpiled for re-use at a later date during construction operations.

During the initial site exploration, the moisture contents of the natural soils were generally above to well above the recommended moisture content for compaction. Adjustment of the moisture content will likely be required during grading operations to achieve the desired amount of compaction at the preferred moisture content. Weather permitting, soil farming is a very economical way to lower the moisture content of the soils. If farming is not a feasible option, chemical stabilization can be conducted with fly ash or quick lime.

### Earthwork Considerations

It is anticipated that minor grading operations will be required to achieve the desired final grades across the site. The on-site natural soils would be suitable for general grading applications. It is recommended that any fill or borrow material needed consist of a non-expansive (CL) cohesive material, free of organics and rubble, or a granular material. Cohesive material should be compacted to a minimum of 95 percent of the maximum dry density as determined by ASTM D-698 (Standard Proctor Test) at a moisture content of -1 to +4 percent of optimum. No fill should be placed in lifts greater than one foot in thickness. A non-expansive cohesive fill material should exhibit a Liquid Limit less than 45 and a Plasticity Index less than 23 when tested in compliance with ASTM D-4318. All fill materials, cohesive or granular, should be pre-approved prior to placement.

Areas of increased sand content or sand pockets were identified during drilling operations. Sand seams or layers will not support trenching operations, especially if water is flowing freely through the excavation. All excavations should be adequately sloped or braced for safety if it is necessary for personnel to enter excavations. If moisture seepage is encountered during excavations, it can typically be controlled by allowing it to drain into temporary sumps and pumped outside the excavations. Excavation side slopes should be constructed and maintained in accordance with all local, state and federal requirements, including OSHA 29 CFR, part 1926.

Additional earthwork considerations will be completed through the plan development process. We recommend personnel be on-site during construction to verify compaction, bearing capacity or material suitability during the construction process.

## GENERAL COMMENTS

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations, which may occur between borings. If, during construction, the nature and extent of such variations appear evident; it will be necessary to reevaluate the recommendations of this report.

The scope of service for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid, unless the changes are reviewed and the conclusions of this report are modified or verified in writing by the geotechnical engineer.

Sincerely,

Sybil K. Ferrier, P.E.
Principal Engineer

Doug Clement
President/CEO

Construction Materials Testing

# APPENDIX

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# GENERAL NOTES - BORING LOG DESCRIPTIONS

Soil descriptions stated on the Boring Logs are based on the Unified Soil Classification System as stated in ASTM Designations D-2487 and D-2488. The Unified Soil Classification group symbol listed in the table below correlate to the group symbols listed on the Boring Logs. The classification is mainly based on visual observations to define the soil characteristics. If a more detailed soil description is required, additional soil testing will be conducted to better define the soil characteristics.

| Group Symbol | Group Name | Group Symbol | Group Name | Group Symbol | Group Name | Group Symbol | Group Name |
|---|---|---|---|---|---|---|---|
| SW | Well-graded Sand | GW | Well-graded Gravel | CL | Lean Clay | CH | Fat Clay |
| SP | Poorly-graded Sand | GP | Poorly-graded Gravel | ML | Silt | MH | Elastic Silt |
| SM | Silty Sand | GM | Silty Gravel | OL or OH | Organic Silt<br>Organic Clay | Pt | Peat |
| SC | Clayey Sand | GC | Clayey Gravel | | | | |

| RELATIVE DENSITY OF COARSE-GRANED SOILS | | CONSISTENCY OF FINE-GRAINED SOILS | | |
|---|---|---|---|---|
| *SPT, bpf* | *Relative Density* | *Unconfined Compressive Strength, $Q_u$, psf* | *Consistency* | *SPT, bpf* |
| 0-3 | Very Loose | < 500 | Very Soft | 0 – 2 |
| 4-9 | Loose | 500 - 1,000 | Soft | 2 – 4 |
| 10-29 | Medium Dense | 1,001 - 2,000 | Medium Stiff | 4 – 8 |
| 30-49 | Dense | 2,001 – 4,000 | Stiff | 8 – 15 |
| 50-80 | Very Dense | 4,001 – 8,000 | Very Stiff | 15 – 30 |
| 80+ | Extremely Dense | 8,001 – 16,000 | Hard | 30 – 100 |
| | | >16,000 | Very Hard | >100 |

| GRAIN SIZE TERMINOLOGY | | RELATIVE PROPORTIONS | | |
|---|---|---|---|---|
| *Major Component of Sample* | *Size Range* | *Descriptive Terms(s) (of components also present in sample)* | *Fines Percent of Dry Weight* | *Sand and Gravel Percent of Dry Weight* |
| Cobbles | 12 in. to 3 in. (300 mm to 75 mm) | Trace | < 5 | < 15 |
| Gravel | 3 in. to #4 sieve (75 mm to 4.75 mm) | With | 5 – 12 | 15 – 29 |
| Sand | #4 to #200 sieve (4.75 mm to 0.074 mm) | Modifier | > 12 | > 30 |
| Silt or Clay | Passing #200 sieve (> 0.074 mm) | | | |

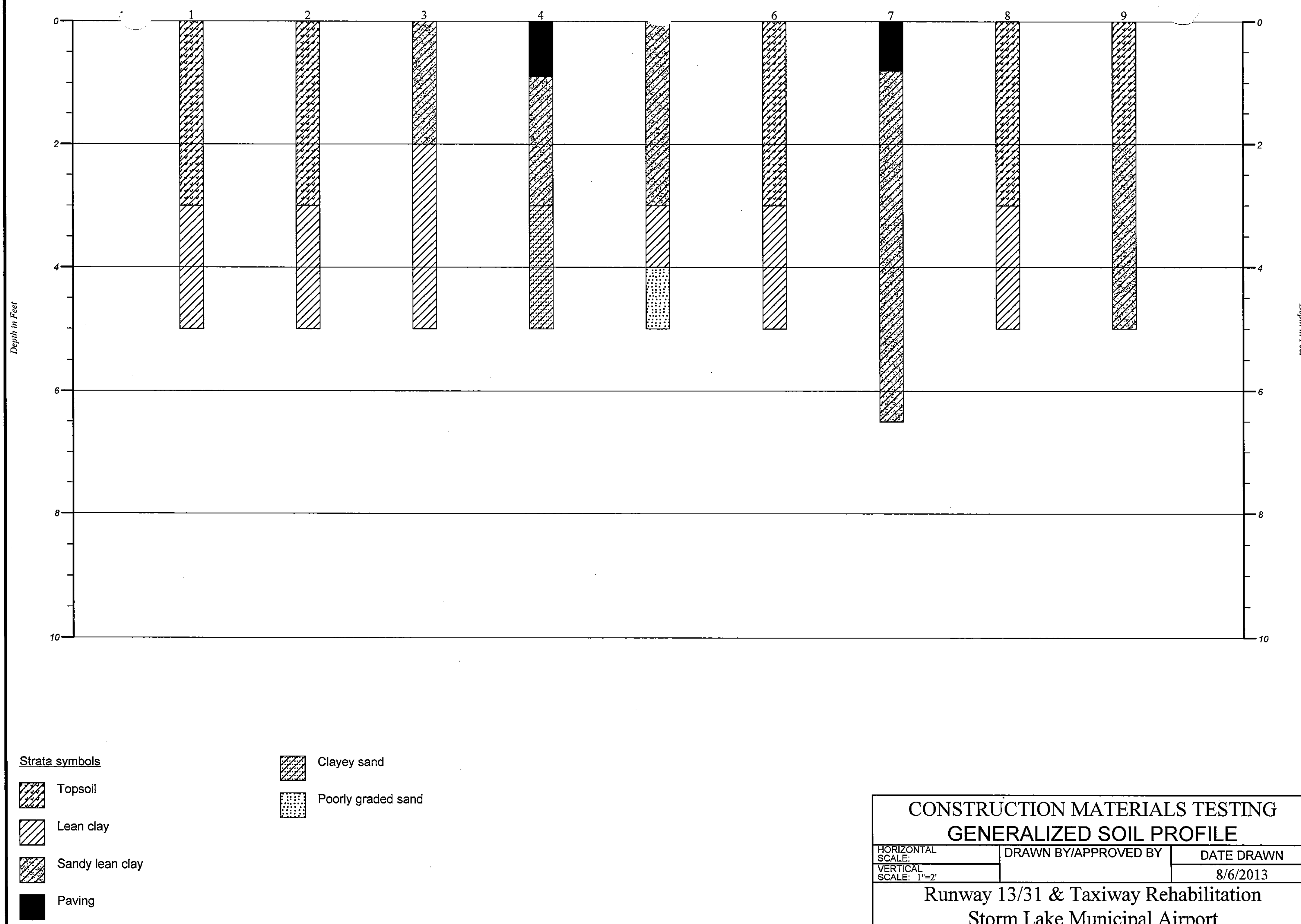
**DRILLING AND SAMPLING ABBREVIATIONS**

*Drilling Methods*

CFA – Continuous Flight Auger; typically, 4, 6, or 8 inches in diameter (ASTM D 1452)
HSA – Hollow Stem Auger; 6 or 8 inches in diameter, continuous flight auger remains in bore hole with undisturbed soil samples obtained from center of auger.
HA – Hand Auger; typically with a 4 inch or less diameter auger

*Sample Types*

SS - Split Spoon; samples obtained with a 140 lb manual hammer in accordance with ASTM D1586.
SSA – Split Spoon; samples obtained with a 140 lb automatic hammer in accordance with ASTM D 1586.
ST – Shelby Tube; thin walled tube samples, typically for cohesive soils, in accordance with ASTM D1587.
SPT- Standard Penetration Test: The number of blows required to drive a sampler, either split spoon or drive cone, into the soil with a 140 lb mass dropped a distance of 30 inches, in accordance with ASTM D 1586, and the number of blows are recorded in each 6 inch interval over a distance of 18 inches. Blow counts are reported for each 6 inch interval or the sum of the last two intervals is reported. The sum of the last two intervals is referred to as N, in blows per foot.
BS – Bulk Disturbed Sample
CPT – Cone Penetration Test; A device in which a 60° cone is pushed continuously into the soil and the cone end resistance is measured for skin friction and end bearing (ASTM D3441).




| CONSTRUCTION MATERIALS TESTING<br>GENERALIZED SOIL PROFILE | | |
|---|---|---|
| HORIZONTAL SCALE:<br>VERTICAL SCALE: 1"=2' | DRAWN BY/APPROVED BY | DATE DRAWN<br>8/6/2013 |
| Runway 13/31 & Taxiway Rehabilitation<br>Storm Lake Municipal Airport | | |
| PROJECT NO. | | FIGURE NUMBER |

CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| **Project** | **Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport** |
| **Boring #** | **1** |
| **Client** | **Bolton & Menk** |
| **Surface Elev.** | **Ground Surface** |

**Material Description** *

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Very dark brown clay, moist<br>TOPSOIL | CL | |
| 2 | 1 | CS | | 21.3 | | 1,500** | | | | |
| | | | | | | | | Gray lean clay, moist to very moist<br>LOESS | CL | |
| 4 | 2 | CS | | 26.3 | | 1,000** | | | | |
| 6 | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

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CONSTRUCTION MATERIALS TESTING

**Project** Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport

**Boring #** 2

**Client** Bolton & Menk

**Surface Elev.** Ground Surface

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description * | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Very dark brown clay, damp<br>TOPSOIL | CL | |
| 2 | 1 | CS | | 13.7 | | 2,000** | | | | |
| | | | | | | | | Brown lean clay, very moist<br>LOESS | CL | |
| 4 | 2 | CS | | 28.3 | | 500** | | | | |
| | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| Project | Runway 13/31 & Taxiway Rehabilitation<br>Storm Lake Municipal Airport |
| Boring # | 3 |
| Client | Bolton & Menk |
| Surface Elev. | Ground Surface |

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description * <br> * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual. | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Brown very sandy clay, traces of pea gravel, dry<br>TOPSOIL | CL | |
| 2 | 1 | CS | | 5.0 | | 3,000** | | Dark brown lean clay, trace pea gravel, moist<br>LOESS | CL | |
| 4 | 2 | CS | | 21.2 | | 1,500** | | Brown after 4 feet | | |
| | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

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CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| **Project** | **Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport** |
| **Boring #** | **4** |
| **Client** | **Bolton & Menk** |
| **Surface Elev.** | **Ground Surface** |

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | **Material Description** * <br> * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual. | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | ± 10.5 inches Pavement | | |
| | | | | | | | | Very dark gray lean clay with sand, moist to very moist | CL | |
| 2 | 1 | CS | | 29.2 | | 500** | | LOESS <br> Gray after 2 feet | | |
| | | | | | | | | Gray clayey sand, moist <br> GLACIAL OUTWASH | SC | |
| 4 | 2 | CS | | 16.0 | | 2,000** | | | | |
| | | | | | | | | End of Boring <br> **Estimated using calibrated penetrometer <br> No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

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CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| **Project** | **Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport** |
| **Boring #** | **5** |
| **Client** | **Bolton & Menk** |
| **Surface Elev.** | **Ground Surface** |

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description * <br> * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual. | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Very dark brown sandy clay, dry to moist <br> TOPSOIL | CL | |
| 2 | 1 | CS | | 19.8 | | 2,000** | | | | |
| | | | | | | | | Brown lean clay, very moist <br> LOESS | CL | |
| 4 | 2 | CS | | 27.0 | | 500** | | Brown fine to coarse sand, very moist <br> GLACIAL OUTWASH | SP | |
| | | | | | | | | End of Boring <br> **Estimated using calibrated penetrometer <br> No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

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CMT CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| **Project** | **Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport** |
| **Boring #** | **6** |
| **Client** | **Bolton & Menk** |
| **Surface Elev.** | **Ground Surface** |

**Material Description** *

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Very dark gray lean clay, moist<br>TOPSOIL | CL | |
| 2 | 1 | CS | | 20.8 | | 1,500** | | | | |
| | | | | | | | | Brown lean clay, very moist<br>LOESS | CL | |
| 4 | 2 | CS | | 27.0 | | 1,000** | | | | |
| | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| **Project** | **Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport** |
| **Boring #** | **7** |
| **Client** | **Bolton & Menk** |
| **Surface Elev.** | **Ground Surface** |

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description * | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | ± 9.5 inches Pavement | | |
| | | | | | | | | Very dark gray lean clay with sand, moist to very moist<br>Gray after 1 foot | CL | |
| 2 | 1 | CS | | 30.9 | | 500** | | | | |
| | | | | | | | | LOESS<br>Very dark gray after 3 feet | | |
| 4 | 2 | CS | | 20.7 | | 1,500** | | | | |
| | | | | | | | | Wet after 5 feet | | |
| 6 | 3 | CS | | 29.9 | | 500** | | | | |
| | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| Project | Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport |
| Boring # | 8 |
| Client | Bolton & Menk |
| Surface Elev. | Ground Surface |

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description * (* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.) | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | Very dark gray lean clay, damp to moist<br>TOPSOIL | CL | |
| 2 | 1 | CS | | 24.1 | | 1,000** | | | | |
| | | | | | | | | Very dark gray lean clay, very moist<br>LOESS | CL | |
| 4 | 2 | CS | | 28.0 | | 500** | | | | |
| | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

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CONSTRUCTION MATERIALS TESTING

| | |
|---|---|
| **Project** | **Runway 13/31 & Taxiway Rehabilitation Storm Lake Municipal Airport** |
| **Boring #** | **9** |
| **Client** | **Bolton & Menk** |
| **Surface Elev.** | **Ground Surface** |

| Depth Ft. | Sample # | Method | SPT bpf | Moisture % | Dry Density pcf | Unconfined Compressive Strength | Cross Section | Material Description * | USCS | Water Level |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | * The stratification lines represent approximate boundary lines between material types -- the transition may be gradual. | | |
| 0 | | | | | | | | Very dark brown sandy clay, moist<br>TOPSOIL | CL | |
| 2 | 1 | CS | | 23.7 | | 1,500** | | Brown lean clay with sand, moist<br>LOESS | CL | |
| 4 | 2 | CS | | 17.4 | | 2,000** | | Increasing sand content near 4 feet. | | |
| | | | | | | | | End of Boring<br>**Estimated using calibrated penetrometer<br>No groundwater noted during drilling operations. | | |
| 6 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 12 | | | | | | | | | | |

Storm Lake Municipal Airport

Runway 13/31 Rehabilitation

Core No. 6

Core No. 8

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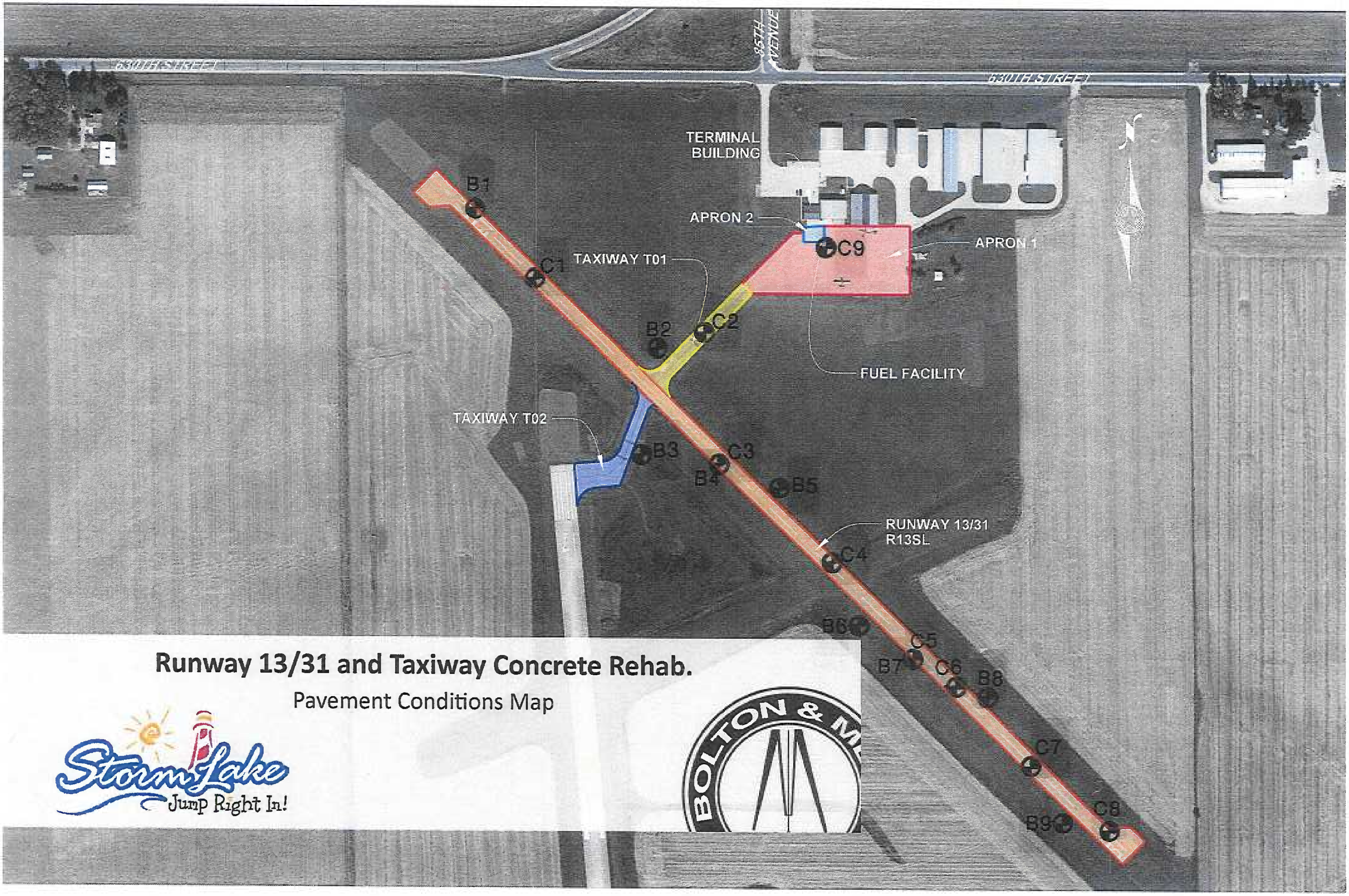


Runway 13/31 and Taxiway Concrete Rehab.

Pavement Conditions Map

U.S. Department
of Transportation
**Federal Aviation
Administration**

# Advisory Circular

**Subject:** Operational Safety on Airports During Construction

**Date:** 12/13/2017

**Initiated By:** AAS-100

**AC No:** 150/5370-2G

**Change:**

1 **Purpose.**

This AC sets forth guidelines for operational safety on airports during construction.

2 **Cancellation.**

This AC cancels AC 150/5370-2F, *Operational Safety on Airports during Construction*, dated September 29, 2011.

3 **Application.**

This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*. While we do not require non-certificated airports without grant agreements or airports using Passenger Facility Charge (PFC) Program funds for construction projects to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.

4 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version. Appendix A contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Notification about impacts to both airport owned and FAA-owned NAVAIDs was added. See paragraph 2.13.5.3, NAVAIDs.

2. Guidance for the use of orange construction signs was added. See paragraph 2.18.4.2, Temporary Signs.
3. Open trenches or excavations may be permitted in the taxiway safety area while the taxiway is open to aircraft operations, subject to restrictions. See paragraph 2.22.3.4, Excavations.
4. Guidance for temporary shortened runways and displaced thresholds has been enhanced. See Figure 2-1 and Figure 2-2.
5. Figures have been improved and a new Appendix F on the placement of orange construction signs has been added.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the “ALT” and “ ←” keys simultaneously.

Figures in this document are schematic representations and are not to scale.

## 6 Use of Metrics.

Throughout this AC, U.S. customary units are used followed with “soft” (rounded) conversion to metric units. The U.S. customary units govern.

## 7 Where to Find this AC.

You can view a list of all ACs at http://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at http://www.faa.gov/regulations_policies/faa_regulations/.

## 8 Feedback on this AC.

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.

John R. Dermody
Director of Airport Safety and Standards

# CONTENTS

**Paragraph** **Page**

## FIGURES



## TABLES

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# CHAPTER 1. PLANNING AN AIRFIELD CONSTRUCTION PROJECT

## 1.1 Overview.

Airports are complex environments, and procedures and conditions associated with construction activities often affect aircraft operations and can jeopardize operational safety. Safety considerations are paramount and may make operational impacts unavoidable. However, careful planning, scheduling, and coordination of construction activities can minimize disruption of normal aircraft operations and avoid situations that compromise the airport's operational safety. The airport operator must understand how construction activities and aircraft operations affect one another to be able to develop an effective plan to complete the project. While the guidance in this AC is primarily used for construction operations, the concepts, methods and procedures described may also enhance the day-to-day airport maintenance operations, such as lighting maintenance and snow removal operations.

## 1.2 Plan for Safety.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the airport operator must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities, and associated costs will be identified and their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project, and/or to airport operations to maintain operational safety. This planning effort will ultimately result in a project Construction Safety and Phasing Plan (CSPP). The development of the CSPP takes place through the following five steps:

### 1.2.1 Identify Affected Areas.

The airport operator must determine the geographic areas on the airport affected by the construction project. Some, such as a runway extension, will be defined by the project. Others may be variable, such as the location of haul routes and material stockpiles.

### 1.2.2 Describe Current Operations.

Identify the normal airport operations in each affected area for each phase of the project. This becomes the baseline from which the impact on operations by construction activities can be measured. This should include a narrative of the typical users and aircraft operating within the affected areas. It should also include information related to airport operations: the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the airplanes that operate on each runway; the ADG and Taxiway Design Group (TDG)[1] for each affected taxiway; designated approach visibility minimums;

[1] Find Taxiway Design Group information in AC 150/5300-13, *Airport Design.*

available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System (SMGCS) plan; and others. The applicable seasons, days and times for certain operations should also be identified as applicable.

1.2.3 Allow for Temporary Changes to Operations.

To the extent practical, current airport operations should be maintained during the construction. In consultation with airport users, Aircraft Rescue and Fire Fighting (ARFF) personnel, and FAA Air Traffic Organization (ATO) personnel, the airport operator should identify and prioritize the airport's most important operations. The construction activities should be planned, through project phasing if necessary, to safely accommodate these operations. When the construction activities cannot be adjusted to safely maintain current operations, regardless of their importance, then the operations must be revised accordingly. Allowable changes include temporary revisions to approach procedures, restricting certain aircraft to specific runways and taxiways, suspension of certain operations, decreased weights for some aircraft due to shortened runways, and other changes. An example of a table showing temporary operations versus current operations is shown in Appendix E.

1.2.4 Take Required Measures to Revise Operations.

Once the level and type of aircraft operations to be maintained are identified, the airport operator must determine the measures required to safely conduct the planned operations during the construction. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also loss of revenue from impacted operations. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary widely among airports, this AC presents general guidance on those subjects.

1.2.5 Manage Safety Risk.

The FAA is committed to incorporating proactive safety risk management (SRM) tools into its decision-making processes. FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS),* requires the FAA to conduct a Safety Assessment for certain triggering actions. Certain airport projects may require the airport operator to provide a Project Proposal Summary to help the FAA determine whether a Safety Assessment is required prior to FAA approval of the CSPP. The airport operator must coordinate with the appropriate FAA Airports Regional or District Office early in the development of the CSPP to determine the need for a Safety Risk Assessment. If the FAA requires an assessment, the airport operator must at a minimum:

1. Notify the appropriate FAA Airports Regional or District Office during the project "scope development" phase of any project requiring a CSPP.
2. Provide documents identified by the FAA as necessary to conduct SRM.
3. Participate in the SRM process for airport projects.
4. Provide a representative to participate on the SRM panel.

5. Ensure that all applicable SRM identified risks elements are recorded and mitigated within the CSPP.

## 1.3 Develop a Construction Safety and Phasing Plan (CSPP).

Development of an effective CSPP will require familiarity with many other documents referenced throughout this AC. See Appendix A for a list of related reading material.

### 1.3.1 List Requirements.

A CSPP must be developed for each on-airfield construction project funded by the Airport Improvement Program (AIP) or located on an airport certificated under Part 139. For on-airfield construction projects at Part 139 airports funded without AIP funds, the preparation of a CSPP represents an acceptable method the certificate holder may use to meet Part 139 requirements during airfield construction activity. As per FAA Order 5200.11, projects that require Safety Assessments do not include construction, rehabilitation, or change of any facility that is entirely outside the air operations area, does not involve any expansion of the facility envelope and does not involve construction equipment, haul routes or placement of material in locations that require access to the air operations area, increase the facility envelope, or impact line-of-sight. Such facilities may include passenger terminals and parking or other structures. However, extraordinary circumstances may trigger the need for a Safety Assessment and a CSPP. The CSPP is subject to subsequent review and approval under the FAA's Safety Risk Management procedures (see paragraph 1.2.5).

### 1.3.2 Prepare a Safety Plan Compliance Document (SPCD).

The Safety Plan Compliance Document (SPCD) details how the contractor will comply with the CSPP. Also, it will not be possible to determine all safety plan details (for example specific hazard equipment and lighting, contractor's points of contact, construction equipment heights) during the development of the CSPP. The successful contractor must define such details by preparing an SPCD that the airport operator reviews for approval prior to issuance of a notice-to-proceed. The SPCD is a subset of the CSPP, similar to how a shop drawing review is a subset to the technical specifications.

### 1.3.3 Assume Responsibility for the CSPP.

The airport operator is responsible for establishing and enforcing the CSPP. The airport operator may use the services of an engineering consultant to help develop the CSPP. However, writing the CSPP cannot be delegated to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award are developed by the contractor and submitted for approval as the SPCD. The SPCD does not restate nor propose differences to provisions already addressed in the CSPP.

## 1.4 Who Is Responsible for Safety During Construction?

1.4.1 Establish a Safety Culture.

Everyone has a role in operational safety on airports during construction: the airport operator, the airport's consultants, the construction contractor and subcontractors, airport users, airport tenants, ARFF personnel, Air Traffic personnel, including Technical Operations personnel, FAA Airports Division personnel, and others, such as military personnel at any airport supporting military operations (e.g. national guard or a joint use facility). Close communication and coordination between all affected parties is the key to maintaining safe operations. Such communication and coordination should start at the project scoping meeting and continue through the completion of the project. The airport operator and contractor should conduct onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

1.4.2 Assess Airport Operator's Responsibilities.

An airport operator has overall responsibility for all activities on an airport, including construction. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on the responsibilities listed below can be found throughout this AC. The airport operator must:

1.4.2.1 Develop a CSPP that complies with the safety guidelines of Chapter 2, Construction Safety and Phasing Plans, and Chapter 3, Guidelines for Writing a CSPP. The airport operator may develop the CSPP internally or have a consultant develop the CSPP for approval by the airport operator. For tenant sponsored projects, approve a CSPP developed by the tenant or its consultant.

1.4.2.2 Require, review and approve the SPCD by the contractor that indicates how it will comply with the CSPP and provides details that cannot be determined before contract award.

1.4.2.3 Convene a preconstruction meeting with the construction contractor, consultant, airport employees and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. The appropriate FAA representatives should be invited to attend the meeting. See AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects.* (Note "FAA" refers to the Airports Regional or District Office, the Air Traffic Organization, Flight Standards Service, and other offices that support airport operations, flight regulations, and construction/environmental policies.)

1.4.2.4 Ensure contact information is accurate for each representative/point of contact identified in the CSPP and SPCD.

1.4.2.5 Hold weekly or, if necessary, daily safety meetings with all affected parties to coordinate activities.

1.4.2.6 Notify users, ARFF personnel, and FAA ATO personnel of construction and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAM) and other methods, as appropriate. Convene a meeting for review and discussion if necessary.

1.4.2.7 Ensure construction personnel know applicable airport procedures and changes to those procedures that may affect their work.

1.4.2.8 Ensure that all temporary construction signs are located per the scheduled list for each phase of the project.

1.4.2.9 Ensure construction contractors and subcontractors undergo training required by the CSPP and SPCD.

1.4.2.10 Ensure vehicle and pedestrian operations addressed in the CSPP and SPCD are coordinated with airport tenants, the airport traffic control tower (ATCT), and construction contractors.

1.4.2.11 At certificated airports, ensure each CSPP and SPCD is consistent with Part 139.

1.4.2.12 Conduct inspections sufficiently frequently to ensure construction contractors and tenants comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.2.13 Take immediate action to resolve safety deficiencies.

1.4.2.14 At airports subject to 49 CFR Part 1542, *Airport Security*, ensure construction access complies with the security requirements of that regulation.

1.4.2.15 Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (for example, implementation of low-visibility operations).

1.4.2.16 Ensure prompt submittal of a Notice of Proposed Construction or Alteration (Form 7460-1) for conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. A separate form may be filed for each potential obstruction, or one form may be filed describing the entire construction area and maximum equipment height. In the latter case, a separate form must be filed for any object beyond or higher than the originally evaluated area/height. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp. The appropriate FAA Airports Regional or District Office can provide assistance in determining which objects require an aeronautical study.

1.4.2.17 Ensure prompt transmission of the Airport Sponsor Strategic Event Submission, FAA Form 6000-26, located at https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT_SPONSOR_STRATEGIC_EVENT_SUBMISSION_FORM.pdf, to assure proper coordination for NAS Strategic Interruption per Service Level Agreement with ATO.

1.4.2.18 Promptly notify the FAA Airports Regional or District Office of any proposed changes to the CSPP prior to implementation of the change. Changes to the CSPP require review and approval by the airport operator and the FAA. The FAA Airports Regional or District office will determine if further coordination within the FAA is needed. Coordinate with appropriate local and other federal government agencies, such as Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Transportation Security Administration (TSA), and the state environmental agency.

1.4.3 Define Construction Contractor's Responsibilities.

The contractor is responsible for complying with the CSPP and SPCD. The contractor must:

1.4.3.1 Submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how it will comply with the requirements of the CSPP and supply any details that could not be determined before contract award. The SPCD must include a certification statement by the contractor, indicating an understanding of the operational safety requirements of the CSPP and the assertion of compliance with the approved CSPP and SPCD unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP and SPCD may impact the airport's operational safety and will require a revision to the CSPP and SPCD and re-coordination with the airport operator and the FAA in advance.

1.4.3.2 Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and contractor employees.

1.4.3.3 Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.

1.4.3.4 Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.

1.4.3.5 Conduct sufficient inspections to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.3.6 Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate, and as specified in the CSPP and SPCD.

1.4.3.7 Ensure that no contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.

1.4.3.8 Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, and other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

1.4.3.9 Ensure that all necessary safety mitigations are understood by all parties involved, and any special requirements of each construction phase will be fulfilled per the approved timeframe.

1.4.3.10 Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

1.4.4 Define Tenant's Responsibilities.

If planning construction activities on leased property, Airport tenants, such as airline operators, fixed base operators, and FAA ATO/Technical Operations sponsoring construction are strongly encouraged to:

1. Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator. The airport operator may forgo a complete CSPP submittal and instead incorporate appropriate operational safety principles and measures addressed in the advisory circular within their tenant lease agreements.
2. In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval issued prior to issuance of a Notice to Proceed.
3. Ensure that construction personnel are familiar with safety procedures and regulations on the airport during all phases of the construction.
4. Provide a point of contact of who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
5. Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
6. Ensure that no tenant or contractor employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.
7. Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate, as specified in the CSPP and SPCD.
8. Ensure prompt submittal through the airport operator of Form 7460-1 for conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.
9. Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

# CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

## 2.1 Overview.

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's CSPP and the contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard. They must provide information necessary for the Airport Operations department to conduct airfield inspections and expeditiously identify and correct unsafe conditions during construction. All aviation safety provisions included within the project drawings, contract specifications, and other related documents must also be reflected in the CSPP and SPCD.

## 2.2 Assume Responsibility.

Operational safety on the airport remains the airport operator's responsibility at all times. The airport operator must develop, certify, and submit for FAA approval each CSPP. It is the airport operator's responsibility to apply the requirements of the FAA approved CSPP. The airport operator must revise the CSPP when conditions warrant changes and must submit the revised CSPP to the FAA for approval. The airport operator must also require and approve a SPCD from the project contractor.

## 2.3 Submit the CSPP.

Construction Safety and Phasing Plans should be developed concurrently with the project design. Milestone versions of the CSPP should be submitted for review and approval as follows. While these milestones are not mandatory, early submission will help to avoid delays. Submittals are preferred in 8.5 × 11 inch or 11 × 17 inch format for compatibility with the FAA's Obstruction Evaluation / Airport Airspace Analysis (OE / AAA) process.

### 2.3.1 Submit an Outline/Draft.

By the time approximately 25% to 30% of the project design is completed, the principal elements of the CSPP should be established. Airport operators are encouraged to submit an outline or draft, detailing all CSPP provisions developed to date, to the FAA for review at this stage of the project design.

### 2.3.2 Submit a CSPP.

The CSPP should be formally submitted for FAA approval when the project design is 80 percent to 90 percent complete. Since provisions in the CSPP will influence contract costs, it is important to obtain FAA approval in time to include all such provisions in the procurement contract.

2.3.3 Submit an SPCD.

The contractor should submit the SPCD to the airport operator for approval to be issued prior to the Notice to Proceed.

2.3.4 Submit CSPP Revisions.

All revisions to a previously approved CSPP must be re-submitted to the FAA for review and approval/disapproval action.

## 2.4 Meet CSPP Requirements.

2.4.1 To the extent possible, the CSPP should address the following as outlined in Chapter 3, Guidelines for Writing a CSPP. Details that cannot be determined at this stage are to be included in the SPCD.

1. Coordination.
    a. Contractor progress meetings.
    b. Scope or schedule changes.
    c. FAA ATO coordination.
2. Phasing.
    a. Phase elements.
    b. Construction safety drawings.
3. Areas and operations affected by the construction activity.
    a. Identification of affected areas.
    b. Mitigation of effects.
4. Protection of navigation aids (NAVAIDs).
5. Contractor access.
    a. Location of stockpiled construction materials.
    b. Vehicle and pedestrian operations.
6. Wildlife management.
    a. Trash.
    b. Standing water.
    c. Tall grass and seeds.
    d. Poorly maintained fencing and gates.
    e. Disruption of existing wildlife habitat.
7. Foreign Object Debris (FOD) management.
8. Hazardous materials (HAZMAT) management.
9. Notification of construction activities.

a. Maintenance of a list of responsible representatives/ points of contact.

b. NOTAM.

c. Emergency notification procedures.

d. Coordination with ARFF Personnel.

e. Notification to the FAA.

10. Inspection requirements.

a. Daily (or more frequent) inspections.

b. Final inspections.

11. Underground utilities.

12. Penalties.

13. Special conditions.

14. Runway and taxiway visual aids. Marking, lighting, signs, and visual NAVAIDs.

a. General.

b. Markings.

c. Lighting and visual NAVAIDs.

d. Signs, temporary, including orange construction signs, and permanent signs.

15. Marking and signs for access routes.

16. Hazard marking and lighting.

a. Purpose.

b. Equipment.

17. Work zone lighting for nighttime construction (if applicable).

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.

a. Runway Safety Area (RSA).

b. Runway Object Free Area (ROFA).

c. Taxiway Safety Area (TSA). Provide details for any adjustments to Taxiway Safety Area width to allow continued operation of smaller aircraft. See paragraph 2.22.3.

d. Taxiway Object Free Area (TOFA). Provide details for any continued aircraft operations while construction occurs within the TOFA. See paragraph 2.22.4.

e. Obstacle Free Zone (OFZ).

f. Runway approach/departure surfaces.

19. Other limitations on construction.

a. Prohibitions.

b. Restrictions.

2.4.2 The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I, (Name of Contractor), have read the (Title of Project) CSPP, approved on (Date), and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

1. Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
2. Phasing. Discuss proposed construction schedule elements, including:
   a. Duration of each phase.
   b. Daily start and finish of construction, including "night only" construction.
   c. Duration of construction activities during:
      i. Normal runway operations.
      ii. Closed runway operations.
      iii. Modified runway "Aircraft Reference Code" usage.
3. Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
4. Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.
5. Contractor access. Provide the following:
   a. Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
   b. Listing of individuals requiring driver training (for certificated airports and as requested).
   c. Radio communications.
      i. Types of radios and backup capabilities.
      ii. Who will be monitoring radios.
      iii. Who to contact if the ATCT cannot reach the contractor's designated person by radio.

   d. Details on how the contractor will escort material delivery vehicles.

6. Wildlife management. Discuss the following:
   a. Methods and procedures to prevent wildlife attraction.
   b. Wildlife reporting procedures.
7. Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.
8. Hazardous Materials (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.
9. Notification of construction activities. Provide the following:
   a. Contractor points of contact.
   b. Contractor emergency contact.
   c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
   d. Batch plant details, including 7460-1 submittal.
10. Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.
11. Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.
12. Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.
13. Special conditions. Discuss proposed actions for each special condition identified in the CSPP.
14. Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
   a. Equipment and methods for covering signage and airfield lights.
   b. Equipment and methods for temporary closure markings (paint, fabric, other).
   c. Temporary orange construction signs.
   d. Types of temporary Visual Guidance Slope Indicators (VGSI).
15. Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.
16. Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.
17. Work zone lighting for nighttime construction (if applicable). Discuss proposed equipment, locations, aiming, and shielding to prevent interference with air traffic control and aircraft operations.

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
    a. Equipment and methods for maintaining Taxiway Safety Area standards.
    b. Equipment and methods to ensure the safe passage of aircraft where Taxiway Safety Area or Taxiway Object Free Area standards cannot be maintained.
    c. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
19. Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

## 2.5 **Coordination.**

Airport operators, or tenants responsible for design, bidding and conducting construction on their leased properties, should ensure at all project developmental stages, such as predesign, prebid, and preconstruction conferences, they capture the subject of airport operational safety during construction (see AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects*). In addition, the following should be coordinated as required:

### 2.5.1 Progress Meetings.

Operational safety should be a standing agenda item for discussion during progress meetings throughout the project developmental stages.

### 2.5.2 Scope or Schedule Changes.

Changes in the scope or duration at any of the project stages may require revisions to the CSPP and review and approval by the airport operator and the FAA (see paragraph 1.4.2.17).

### 2.5.3 FAA ATO Coordination.

Early coordination with FAA ATO is highly recommended during the design phase and is required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. Formal agreements between the airport operator and appropriate FAA offices are recommended. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO. Reimbursable agreements should be coordinated a minimum of 12 months prior to the start of construction. (See paragraph 2.13.5.3.2 for required FAA notification regarding FAA-owned NAVAIDs.)

## 2.6 Phasing.

Once it has been determined what types and levels of airport operations will be maintained, the most efficient sequence of construction may not be feasible. In this case, the sequence of construction may be phased to gain maximum efficiency while allowing for the required operations. The development of the resulting construction phases should be coordinated with local Air Traffic personnel and airport users. The sequenced construction phases established in the CSPP must be incorporated into the project design and must be reflected in the contract drawings and specifications.

### 2.6.1 Phase Elements.

For each phase the CSPP should detail:

- Areas closed to aircraft operations.
- Duration of closures.
- Taxi routes and/or areas of reduced TSA and TOFA to reflect reduced ADG use.
- ARFF access routes.
- Construction staging, disposal, and cleanout areas.
- Construction access and haul routes.
- Impacts to NAVAIDs.
- Lighting, marking, and signing changes.
- Available runway length and/or reduced RSA and ROFA to reflect reduced ADG use.
- Declared distances (if applicable).
- Required hazard marking, lighting, and signing.
- Work zone lighting for nighttime construction (if applicable).
- Lead times for required notifications.

### 2.6.2 Construction Safety Drawings.

Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) should be developed for each construction phase. Such drawings should be included in the CSPP as referenced attachments and should also be included in the contract drawing package.

## 2.7 Areas and Operations Affected by Construction Activity.

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety. Pre-meetings with the FAA ATO will support operational simulations. See Appendix E for an example of a table showing temporary operations versus current operations. The tables in Appendix E can be useful for coordination among all interested parties, including FAA Lines of Business.

2.7.1 Identification of Affected Areas.

Identifying areas and operations affected by the construction helps to determine possible safety problems. The affected areas should be identified in the construction safety drawings for each construction phase. (See paragraph 2.6.2.) Of particular concern are:

2.7.1.1 **Closing, or Partial Closing, of Runways, Taxiways and Aprons, and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing, landing, or takeoff in either direction on that pavement is prohibited. A displaced threshold, by contrast, is established to ensure obstacle clearance and adequate safety area for landing aircraft. The pavement prior to the displaced threshold is normally available for take-off in the direction of the displacement and for landing and takeoff in the opposite direction. Misunderstanding this difference, may result in issuance of an inaccurate NOTAM, and can lead to a hazardous condition.

2.7.1.1.1 Partially Closed Runways.

The temporarily closed portion of a partially closed runway will generally extend from the threshold to a taxiway that may be used for entering and exiting the runway. If the closed portion extends to a point between taxiways, pilots will have to back-taxi on the runway, which is an undesirable operation. See Figure 2-1 for a desirable configuration.

2.7.1.1.2 Displaced Thresholds.

Since the portion of the runway pavement between the permanent threshold and a standard displaced threshold is available for takeoff and for landing in the opposite direction, the temporary displaced threshold need not be located at an entrance/exit taxiway. See Figure 2-2.

2.7.1.2 Closing of aircraft rescue and fire fighting access routes.

2.7.1.3 Closing of access routes used by airport and airline support vehicles.

2.7.1.4 Interruption of utilities, including water supplies for fire fighting.

2.7.1.5 Approach/departure surfaces affected by heights of objects.

2.7.1.6 Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.

**Figure 2-1. Temporary Partially Closed Runway**

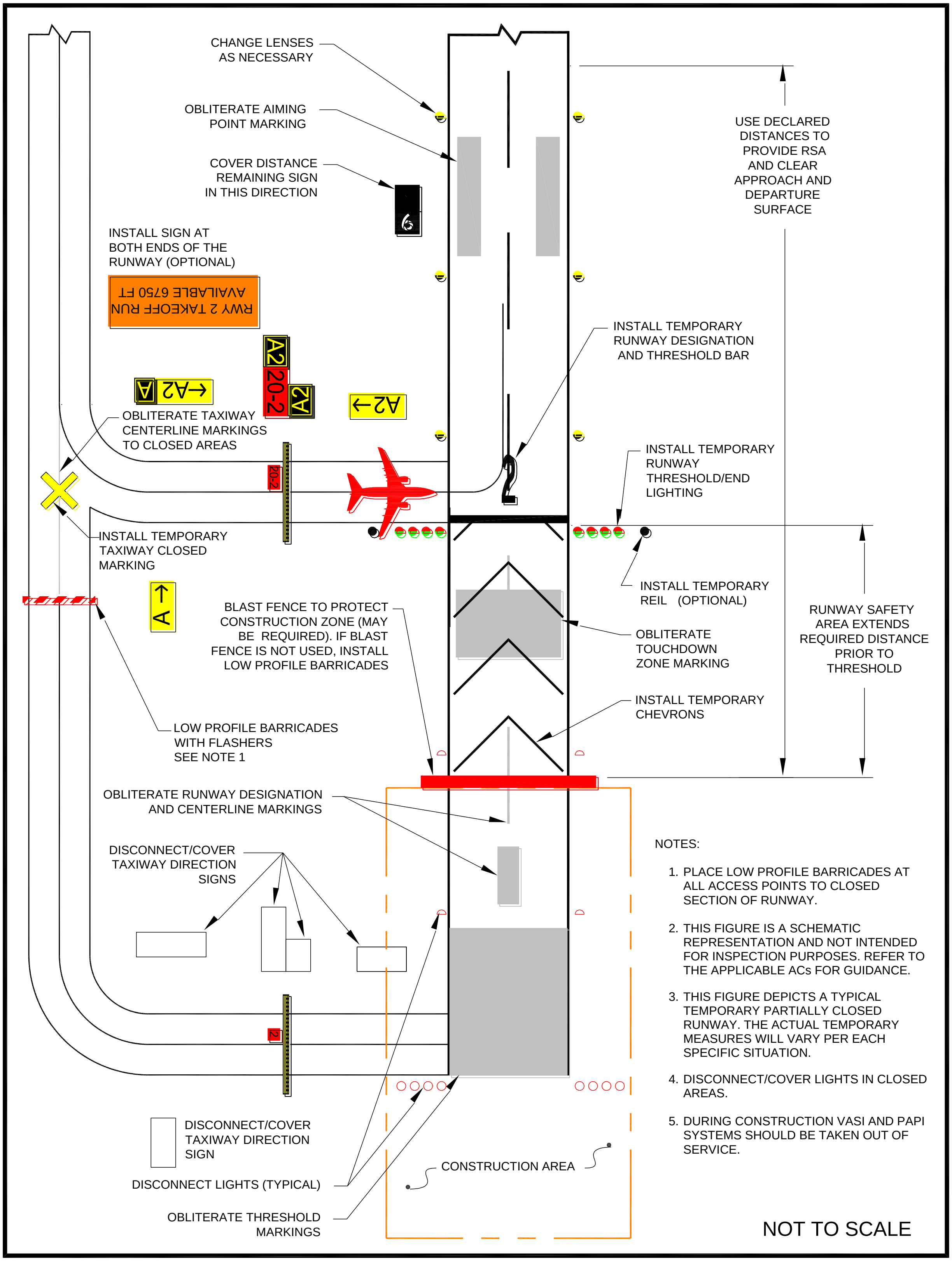
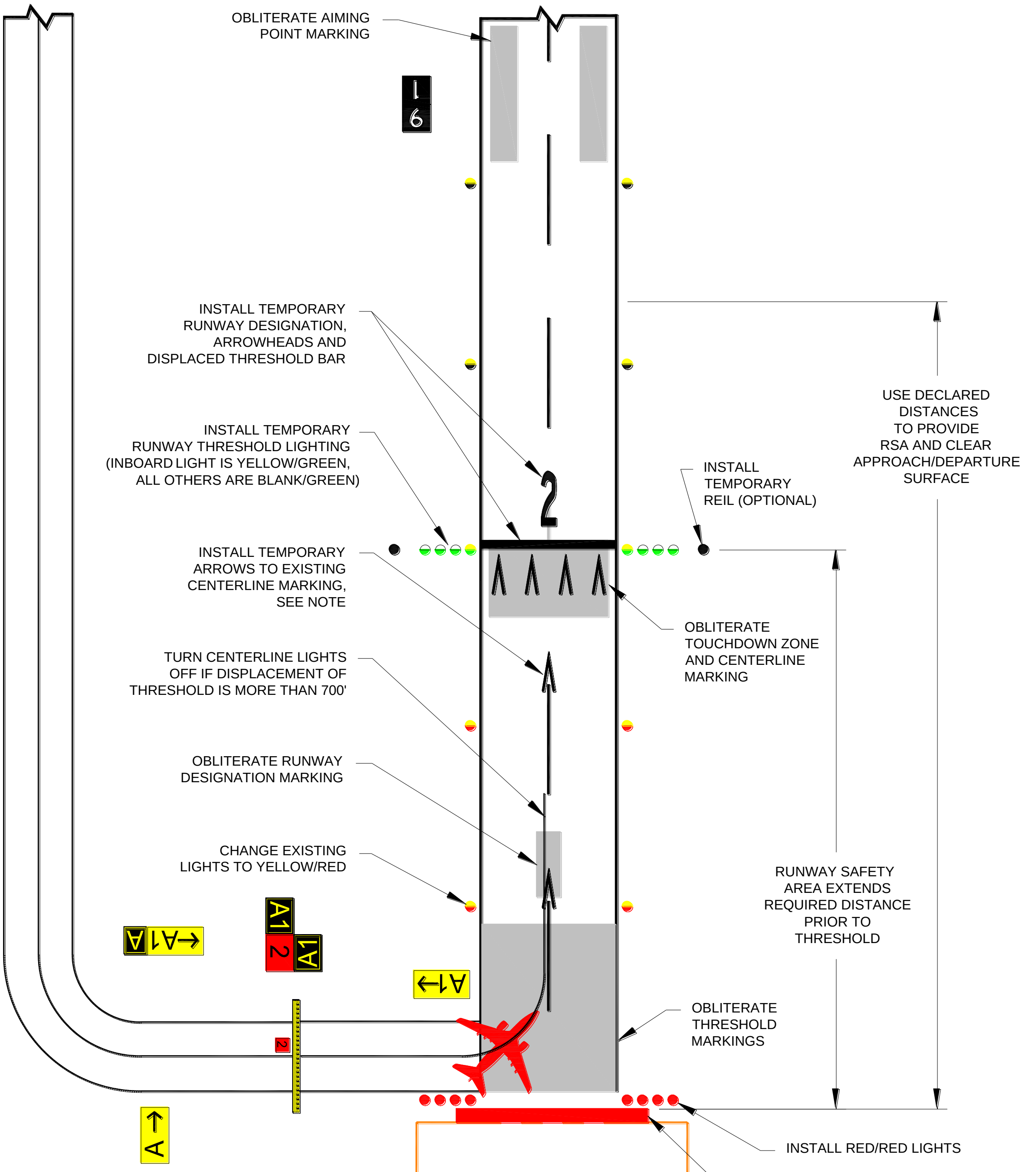


**Figure 2-2. Temporary Displaced Threshold**




NOTES:

1. THIS FIGURE IS A SCHEMATIC REPRESENTATION AND NOT INTENDED FOR INSPECTION PURPOSES. REFER TO THE APPLICABLE ACs FOR GUIDANCE.
2. THIS FIGURE DIPICTS A TYPICAL TEMPORARY DISPLACED THRESHOLD. THE ACTUAL TEMPORARY MEASURES WILL VARY PER EACH SPECIFIC SITUATION.
3. DURING CONSTRUCTION VASI AND PAPI SYSTEMS SHOULD BE TAKEN OUT OF SERVICE.

**Note:** See paragraph 2.18.2.5.

2.7.2 Mitigation of Effects.

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. The CSPP must address:

2.7.2.1 Temporary changes to runway and/or taxi operations.

2.7.2.2 Detours for ARFF and other airport vehicles.

2.7.2.3 Maintenance of essential utilities.

2.7.2.4 Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

## 2.8 Navigation Aid (NAVAID) Protection.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. (See paragraph 2.13.5.3.) Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the "critical area" associated with each NAVAID and describe how it will be protected. Where applicable, the operational critical areas of NAVAIDs should be graphically delineated on the project drawings. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed (see paragraph 2.13.2). Construction activities and materials/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs. (See paragraph 2.13.5.3.)

## 2.9 Contractor Access.

The CSPP must detail the areas to which the contractor must have access, and explain how contractor personnel will access those areas. Specifically address:

2.9.1 Location of Stockpiled Construction Materials.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ, and if possible should not be permitted within the Object Free Area (OFA) of an operational runway. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. (See paragraph 2.18.2.) This includes determining and verifying that materials are stabilized and stored at an approved location so as not to be a hazard to aircraft operations and to prevent attraction of wildlife and foreign object damage from blowing or tracked material. See paragraphs 2.10 and 2.11.

2.9.2 Vehicle and Pedestrian Operations.

The CSPP should include specific vehicle and pedestrian requirements. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The airport operator should coordinate requirements for vehicle operations with airport tenants, contractors, and the FAA air traffic manager. In regard to vehicle and pedestrian operations, the CSPP should include the following, with associated training requirements:

2.9.2.1 **Construction Site Parking.**

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the AOA. These areas should provide reasonable contractor employee access to the job site.

2.9.2.2 **Construction Equipment Parking.**

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP). See paragraph 2.13.1 for further information.

2.9.2.3 **Access and Haul Roads.**

Determine the construction contractor’s access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Access routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Pay special attention to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul roads does not interfere with NAVAIDs or approach surfaces of operational runways. Address whether access gates will be blocked or inoperative or if a rally point will be blocked or inaccessible.

2.9.2.4 Marking and lighting of vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport.*

2.9.2.5 Description of proper vehicle operations on various areas under normal, lost communications, and emergency conditions.

2.9.2.6 Required escorts.

2.9.2.7 **Training Requirements for Vehicle Drivers to Ensure Compliance with the Airport Operator's Vehicle Rules and Regulations.**

Specific training should be provided to vehicle operators, including those providing escorts. See AC 150/5210-20, *Ground Vehicle Operations on Airports*, for information on training and records maintenance requirements.

2.9.2.8 **Situational Awareness.**

Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time. At non-towered airports, all aircraft movements and flight operations rely on aircraft operators to self-report their positions and intentions. However, there is no requirement for an aircraft to have radio communications. Because aircraft do not always broadcast their positions or intentions, visual checking, radio monitoring, and situational awareness of the surroundings is critical to safety.

2.9.2.9 **Two-Way Radio Communication Procedures.**

2.9.2.9.1 General.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCT. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact, as directed by the airport operator, with:

1. Airport operations
2. ATCT

3. Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.
4. Automatic Terminal Information Service (ATIS). This frequency is useful for monitoring conditions on the airport. Local air traffic will broadcast information regarding construction related runway closures and "shortened" runways on the ATIS frequency.

2.9.2.9.2 Areas Requiring Two-Way Radio Communication with the ATCT.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport.

2.9.2.9.3 Frequencies to be Used.

The airport operator will specify the frequencies to be used by the contractor, which may include the CTAF for monitoring of aircraft operations. Frequencies may also be assigned by the airport operator for other communications, including any radio frequency in compliance with Federal Communications Commission requirements. At airports with an ATCT, the airport operator will specify the frequency assigned by the ATCT to be used between contractor vehicles and the ATCT.

2.9.2.9.4 Proper radio usage, including read back requirements.

2.9.2.9.5 Proper phraseology, including the International Phonetic Alphabet.

2.9.2.9.6 Light Gun Signals.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings." This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/runway_safety/publications/ (see "Signs & Markings Vehicle Dashboard Sticker") or obtained from the FAA Airports Regional Office.

2.9.2.10 **Maintenance of the secured area of the airport, including:**

2.9.2.10.1 Fencing and Gates.

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-

00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

2.9.2.10.2 Badging Requirements.

Airports subject to 49 CFR Part 1542, *Airport Security*, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

## 2.10 **Wildlife Management.**

The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports,* and CertAlert 98-05, *Grasses Attractive to Hazardous Wildlife.* Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports, such as:

2.10.1 Trash.

Food scraps must be collected from construction personnel activity.

2.10.2 Standing Water.

2.10.3 Tall Grass and Seeds.

Requirements for turf establishment can be at odds with requirements for wildlife control. Grass seed is attractive to birds. Lower quality seed mixtures can contain seeds of plants (such as clover) that attract larger wildlife. Seeding should comply with the guidance in AC 150/5370-10, *Standards for Specifying Construction of Airports,* Item T-901, Seeding. Contact the local office of the United Sates Department of Agriculture Soil Conservation Service or the State University Agricultural Extension Service (County Agent or equivalent) for assistance and recommendations. These agencies can also provide liming and fertilizer recommendations.

2.10.4 Poorly Maintained Fencing and Gates.

See paragraph 2.9.2.10.1.

2.10.5 Disruption of Existing Wildlife Habitat.

While this will frequently be unavoidable due to the nature of the project, the CSPP should specify under what circumstances (location, wildlife type) contractor personnel should immediately notify the airport operator of wildlife sightings.

## 2.11 Foreign Object Debris (FOD) Management.

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, *Foreign Object Debris (FOD) Management.*

## 2.12 Hazardous Materials (HAZMAT) Management.

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel or hydraulic fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. See AC 150/5320-15, *Management of Airport Industrial Waste.*

## 2.13 Notification of Construction Activities.

The CSPP and SPCD must detail procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport. It must address the notification actions described below, as applicable.

2.13.1 List of Responsible Representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

2.13.2 NOTAMs.

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must either enter the NOTAM into NOTAM Manager, or provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators*, for a sample NOTAM form. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator. See paragraph 2.7.1.1 about issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

2.13.3 Emergency notification procedures for medical, fire fighting, and police response.

2.13.4 Coordination with ARFF.

The CSPP must detail procedures for coordinating through the airport sponsor with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

1. The deactivation and subsequent reactivation of water lines or fire hydrants, or
2. The rerouting, blocking and restoration of emergency access routes, or
3. The use of hazardous materials on the airfield.

2.13.5 Notification to the FAA.

2.13.5.1 **Part 77.**

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. See Appendix A to download the form. Further guidance is available on the FAA web site at oeaaa.faa.gov.

2.13.5.2 **Part 157.**

With some exceptions, Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, *Notice of Landing Area Proposal*, to the nearest FAA Airports Regional or District Office. See Appendix A to download the form.

2.13.5.3 **NAVAIDs.**

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

2.13.5.3.1 Airport Owned/FAA Maintained.

If construction operations require a shutdown of 24 hours or greater in duration, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown, using Strategic Event Coordination (SEC) Form 6000.26 contained within FAA Order 6000.15, *General Maintenance Handbook for National Airspace System (NAS) Facilities*.

2.13.5.3.2 FAA Owned.

1. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs, using SEC Form 6000.26.
2. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. Refer to active Service Level Agreement with ATO for specifics.

## 2.14 Inspection Requirements.

2.14.1 Daily Inspections.

Inspections should be conducted at least daily, but more frequently if necessary to ensure conformance with the CSPP. A sample checklist is provided in Appendix D, Construction Project Daily Safety Inspection Checklist. See also AC 150/5200-18, *Airport Safety Self-Inspection.* Airport operators holding a Part 139 certificate are required to conduct self-inspections during unusual conditions, such as construction activities, that may affect safe air carrier operations.

2.14.2 Interim Inspections.

Inspections should be conducted of all areas to be (re)opened to aircraft traffic to ensure the proper operation of lights and signs, for correct markings, and absence of FOD. The contractor should conduct an inspection of the work area with airport operations personnel. The contractor should ensure that all construction materials have been secured, all pavement surfaces have been swept clean, all transition ramps have been properly constructed, and that surfaces have been appropriately marked for aircraft to operate safely. Only if all items on the list meet with the airport operator's approval should the air traffic control tower be notified to open the area to aircraft operations. The contractor should be required to retain a suitable workforce and the necessary equipment at the work area for any last minute cleanup that may be requested by the airport operator prior to opening the area.

2.14.3 Final Inspections.

New runways and extended runway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

## 2.15 Underground Utilities.

The CSPP and/or SPCD must include procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas. This may involve coordinating with public utilities and FAA ATO/Technical Operations. Note that "One Call" or "Miss Utility" services do not include FAA ATO/Technical Operations.

## 2.16 Penalties.

The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (for example, if a vehicle is involved in a runway incursion). Such penalties typically include rescission of driving privileges or access to the AOA.

## 2.17 Special Conditions.

The CSPP must detail any special conditions that affect the operation of the airport and will require the activation of any special procedures (for example, low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, Vehicle / Pedestrian Deviation (VPD) and other activities requiring construction suspension/resumption).

## 2.18 Runway and Taxiway Visual Aids.

This includes marking, lighting, signs, and visual NAVAIDs. The CSPP must ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs that are to continue to perform their functions during construction remain in place and operational. Visual NAVAIDs that are not serving their intended function during construction must be temporarily disabled, covered, or modified as necessary. The CSPP must address the following, as appropriate:

### 2.18.1 General.

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, and other wind currents and constructed of materials that will minimize damage to an aircraft in the event of inadvertent contact. Items used to secure such markings must be of a color similar to the marking.

### 2.18.2 Markings.

During the course of construction projects, temporary pavement markings are often required to allow for aircraft operations during or between work periods. During the design phase of the project, the designer should coordinate with the project manager, airport operations, airport users, the FAA Airports project manager, and Airport Certification Safety Inspector for Part 139 airports to determine minimum temporary markings. The FAA Airports project manager will, wherever a runway is closed, coordinate with the appropriate FAA Flight Standards Office and disseminate findings to all parties. Where possible, the temporary markings on finish grade pavements should be placed to mirror the dimensions of the final markings. Markings must be in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings,* except as noted herein. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X. The preferred visual aid to depict temporary runway closure is the lighted X signal placed on or near the runway designation numbers. (See paragraph 2.18.2.1.2.)

#### 2.18.2.1 **Closed Runways and Taxiways.**

2.18.2.1.1 Permanently Closed Runways.

For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place an X at each end and at 1,000-foot (300 m) intervals. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X.

2.18.2.1.2 Temporarily Closed Runways.

For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X. See Figure 2-3. See also paragraph 2.18.3.3.

2.18.2.1.3 Partially Closed Runways and Displaced Thresholds.

When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings must comply with AC 150/5340-1. An X is not used on a partially closed runway or a runway with a displaced threshold. See paragraph 2.7.1.1 for the difference between partially closed runways and runways with displaced thresholds. Because of the temporary nature of threshold displacement due to construction, it is not necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach. Some of the requirements below may be waived in the cases of low-activity airports and/or short duration changes that are measured in days rather than weeks. Consider whether the presence of an airport traffic control tower allows for the development of special procedures. Contact the appropriate FAA Airports Regional or District Office for assistance.

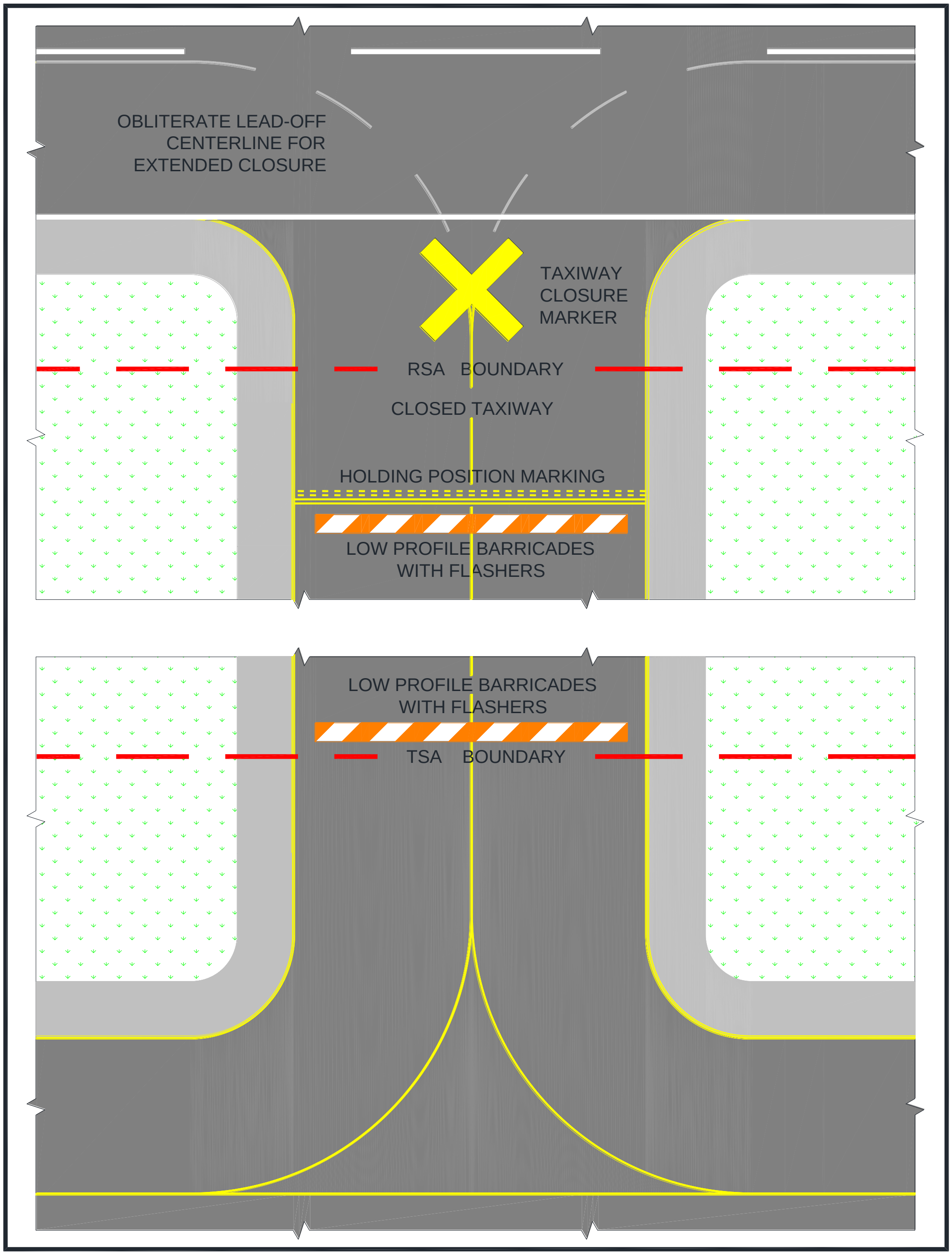
**Figure 2-3. Markings for a Temporarily Closed Runway**

1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see AC 150/5340-1). Obliterate or cover markings prior to the moved threshold. Existing touchdown zone markings beyond the moved threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-4.
2. **Displaced Thresholds.** Pavement markings for a displaced threshold consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See AC 150/5340-1. Obliterate markings prior to the displaced threshold. Existing touchdown zone markings beyond the displaced threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-2.

2.18.2.1.4 Taxiways.

1. **Permanently Closed Taxiways.** AC 150/5300-13 *Airport Design*, notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway. See Figure 2-4.

**Figure 2-4. Temporary Taxiway Closure**



2. **Temporarily Closed Taxiways.** Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section. Always obliterate runway lead-off lines for high speed exits, regardless of the duration of the closure. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed. See Figure 2-4.

2.18.2.1.5 Temporarily Closed Airport.

When the airport is closed temporarily, mark all the runways as closed.

2.18.2.2 If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking.

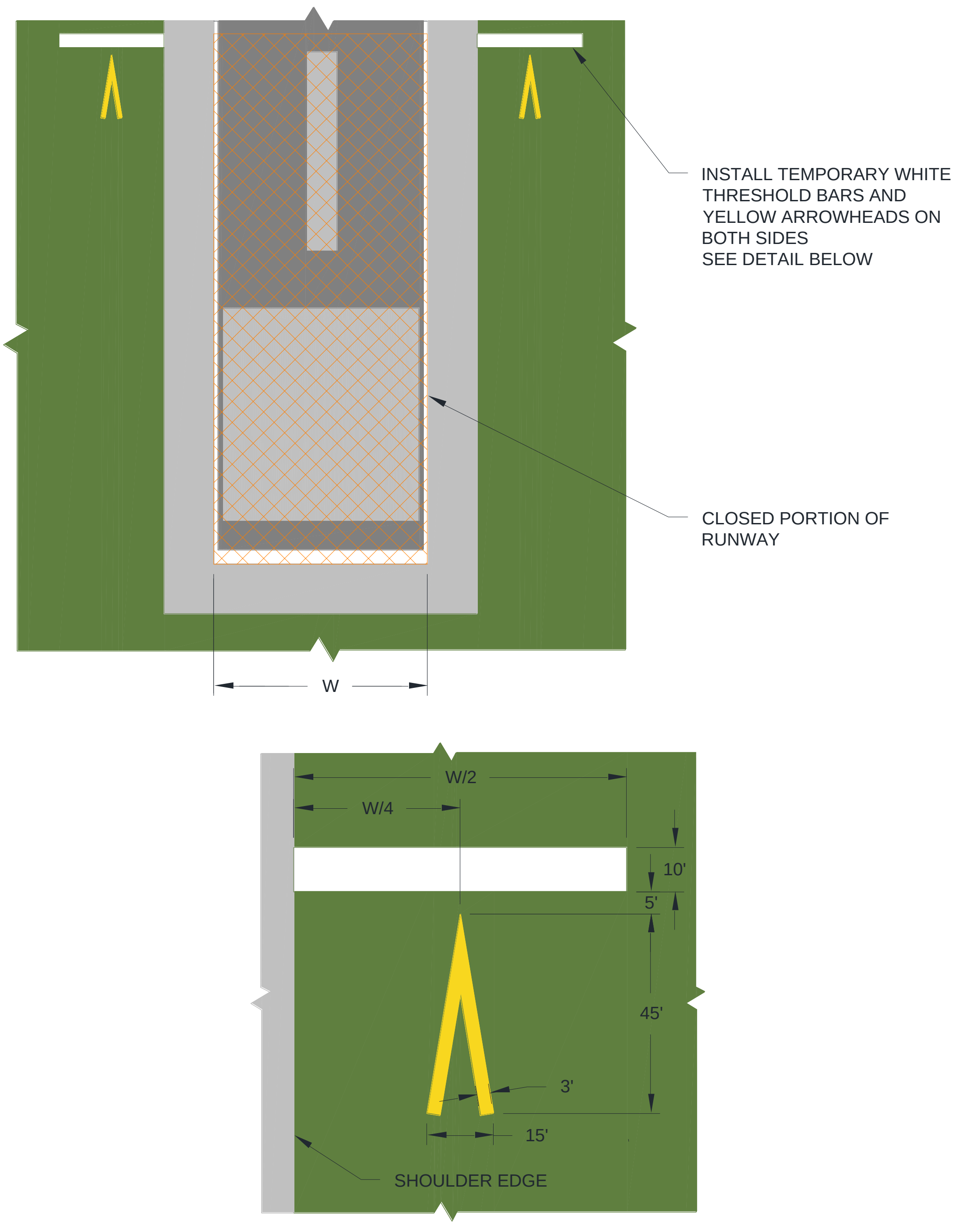
2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. When removing runway markings, apply the same treatment to areas between stripes or numbers, as the cleaned area will appear to pilots as a marking in the shape of the treated area.

2.18.2.4 If it is not possible to install threshold bars, chevrons, and arrows on the pavement, "temporary outboard white threshold bars and yellow arrowheads", see Figure 2-5, may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimensions must be as shown in Figure 2-5. If the markings are not discernible on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

2.18.2.5 The application rate of paint to mark a short-term temporary runway and taxiway markings may deviate from the standard (see Item P-620, "Runway and Taxiway Painting," in AC 150/5370-10), but the dimensions must meet the existing standards. When applying temporary markings at night, it is recommended that the fast curing, Type II paint be used to help offset the higher humidity and cooler temperatures often experienced at night. Diluting the paint will substantially increase cure time and is not recommended. Glass beads are not recommended for temporary markings. Striated markings may also be used for certain temporary markings. AC

150/5340-1, *Standards for Airport Markings*, has additional guidance on temporary markings.

**Figure 2-5. Temporary Outboard White Threshold Bars and Yellow Arrowheads**




YELLOW ARROWHEAD DETAIL

2.18.3 Lighting and Visual NAVAIDs.

This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting installation must be in conformance with AC 150/5340-30, *Design and Installation Details for Airport Visual Aids*, and fixture design in conformance with AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights*. When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. See AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*, for disconnect procedures and safety precautions. Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources. Maintain mandatory hold signs to operate normally in any situation where pilots or vehicle drivers could mistakenly be in that location. At towered airports certificated under Part 139, holding position signs are required to be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, install a jumper to the taxiway circuit to provide power to the holding position sign for nighttime operations. Where it is not possible to maintain power to signs that would normally be operational, install barricades to exclude aircraft. Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4 illustrate temporary changes to lighting and visual NAVAIDs.

2.18.3.1 **Permanently Closed Runways and Taxiways.**

For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

2.18.3.2 **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.**

If available, use a lighted X, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note that the lighted X must be illuminated at all times that it is on a runway.) The use of a lighted X is required if night work requires runway lighting to be on. See AC 150/5345-55, *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure*. For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation. For runways that will be opened periodically, coordinate procedures with the FAA air traffic manager or, at airports without an ATCT, the airport operator. Activate stop bars if available. Figure 2-6 shows a lighted X by day. Figure 2-7 shows a lighted X at night.

**Figure 2-6. Lighted X in Daytime**

**Figure 2-7. Lighted X at Night**

2.18.3.3 **Partially Closed Runways and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

2.18.3.3.1 Partially Closed Runways.

Disconnect edge and threshold lights on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed). Alternately, cover the light fixtures in such a way as to prevent light leakage. See Figure 2-1.

2.18.3.3.2 Temporary Displaced Thresholds.

Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, blank out centerline lights in the direction of approach or place the centerline lights out of service. If the displacement is over 700 feet, place the centerline lights out of service. See AC 150/5340-30 for details on lighting displaced thresholds. See Figure 2-2.

2.18.3.3.3 Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.

2.18.3.3.4 A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 2.18.2.1.3. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39, *Specification for L-853, Runway and Taxiway Retroreflective Markers.*

2.18.3.3.5 Temporary threshold lights and runway end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.

2.18.3.3.6 Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operations but may be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

2.18.3.3.7 When runway thresholds are temporarily displaced, reconfigure yellow lenses (caution zone), as necessary, and place the centerline lights out of service.

2.18.3.3.8 Relocate the Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI, coordinate its installation or disabling with the local ATO/Technical Operations Office. Relocation of such visual aids will depend on the duration of the project and the benefits gained from the relocation, as this can result in great expense. See FAA JO 6850.2, *Visual Guidance Lighting Systems*, for installation criteria for FAA owned and operated NAVAIDs.

2.18.3.3.9 Issue a NOTAM to inform pilots of temporary lighting conditions.

2.18.3.4 **Temporarily Closed Taxiways.**

If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), cover the light fixture in a way as to prevent light leakage.

2.18.4 Signs.

To the extent possible, signs must be in conformance with AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and AC 150/5340-18, *Standard for Airport Sign Systems.*

2.18.4.1 **Existing Signs.**

Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

2.18.4.2 **Temporary Signs.**

Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot "information overload," the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. Temporary signs must meet the standards for such signs in Engineering Brief 93, *Guidance for the Assembly and Installation of Temporary Orange Construction Signs.* Many criteria in AC 150/5345-44, *Specification for Runway and Taxiway Signs*, are referenced in the Engineering Brief. Permissible sign legends are:

1. CONSTRUCTION AHEAD,
2. CONSTRUCTION ON RAMP, and
3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

2.18.4.2.1 Takeoff Run Available (TORA) signs.

**Recommended:** Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position. See EB 93 for sign size and location.

2.18.4.2.2 Sign legends are shown in Figure F-1.

**Note:** See Figure E-1, Figure E-2, Figure E-3, Figure F-2, and Figure F-3 for examples of orange construction sign locations.

## 2.19 Marking and Signs for Access Routes.

The CSPP should indicate that pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections*, which may require modification to size and height guidance in the MUTCD.

## 2.20 Hazard Marking, Lighting and Signing.

2.20.1 Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP must specify prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting must also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

2.20.2 Equipment.

2.20.2.1 **Barricades.**

Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. For example, if barricades are intended to exclude aircraft, gaps between barricades must be smaller than the wingspan of the smallest aircraft to be excluded; if barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

2.20.2.2 **Lights.**

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

2.20.2.3 **Supplement Barricades with Signs (for example) As Necessary.**

Examples are “No Entry” and “No Vehicles.” Be aware of the increased effects of wind and jet blast on barricades with attached signs.

2.20.2.4 **Air Operations Area – General.**

Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground. Figure 2-8 and Figure 2-9 show sample barricades with proper coloring and flags.

**Figure 2-8. Interlocking Barricades**

**Figure 2-9. Low Profile Barricades**

2.20.2.5 **Air Operations Area – Runway/Taxiway Intersections.**

Use highly reflective barricades with lights to close taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, even for closures of relatively short duration, close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

2.20.2.6 **Air Operations Area – Other.**

Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

2.20.2.7 **Maintenance.**

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person’s information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

## 2.21 Work Zone Lighting for Nighttime Construction.

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. Refer to AC 150/5370-10 for minimum illumination levels for nighttime paving projects. Additionally, it is recommended that all support equipment, except haul trucks, be equipped with artificial illumination to safely illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways.

## 2.22 Protection of Runway and Taxiway Safety Areas.

Runway and taxiway safety areas, OFZs, OFAs, and approach surfaces are described in AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material. An FAA airspace study may be required. Coordinate with the appropriate FAA Airports Regional or District Office if there is any doubt as to requirements or dimensions (see paragraph 2.13.5) as soon as the location and height of materials or equipment are known. The CSPP should include drawings showing all safety areas, object free areas, obstacle free zones and approach departure surfaces affected by construction.

### 2.22.1 Runway Safety Area (RSA).

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

2.22.1.1 No construction may occur within the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. (See AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances. Coordinate with the appropriate FAA Airports Regional or District Office to have declared distances information published, and appropriate NOTAMs issued. See AC 150/5300-13 for guidance on the use of declared distances.

2.22.1.2 The airport operator must coordinate the adjustment of RSA dimensions as permitted above with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

2.22.1.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations.

2.22.1.4 **Excavations.**

2.22.1.4.1 Open trenches or excavations are not permitted within the RSA while the runway is open. Backfill trenches before the runway is opened. If backfilling excavations before the runway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

2.22.1.4.2 Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.1.5 **Erosion Control.**

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.2 Runway Object Free Area (ROFA).

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

2.22.3 Taxiway Safety Area (TSA).

2.22.3.1 A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. (See AC 150/5300-13.) Since the width of the TSA is equal to the wingspan of the design aircraft, no construction may occur within the TSA while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction. Give special consideration to TSA dimensions at taxiway turns and intersections. (see AC 150/5300-13).

2.22.3.2 The airport operator must coordinate the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

2.22.3.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations.

2.22.3.4 **Excavations.**

1. Curves. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
2. Straight Sections. Open trenches or excavations are not permitted within the TSA while the taxiway is open for unrestricted aircraft operations. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations to allow the safe passage of ARFF equipment and of the heaviest aircraft operating on the taxiway across the trench without causing damage to the equipment or aircraft. In rare circumstances where the section of taxiway is indispensable for aircraft movement, open trenches or excavations may be permitted in the TSA while the taxiway is open to aircraft operations, subject to the following restrictions:
   a. Taxiing speed is limited to 10 mph.
   b. Appropriate NOTAMs are issued.
   c. Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
   d. Low mass, low-profile lighted barricades are installed.
   e. Appropriate temporary orange construction signs are installed.
3. Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.3.5 **Erosion control.**

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.4 Taxiway Object Free Area (TOFA).

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

2.22.4.1 The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available. Give special consideration to TOFA dimensions at taxiway turns and intersections.

2.22.4.2 Offset taxiway centerline and edge pavement markings (do not use glass beads) may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting, centerline reflectors, or taxiway edge reflectors are required. Existing lighting that does not coincide with the temporary markings must be taken out of service.

2.22.4.3 Construction activity, including open excavations, may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:

2.22.4.3.1 Taxiing speed is limited to 10 mph.

2.22.4.3.2 NOTAMs issued advising taxiing pilots of hazard and recommending reduced taxiing speeds on the taxiway.

2.22.4.3.3 Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.

2.22.4.3.4 If desired, appropriate orange construction signs are installed. See paragraph 2.18.4.2 and Appendix F.

2.22.4.3.5 Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the usable pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.

2.22.4.3.6 Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel. Flaggers must also be used to direct taxiing aircraft. Due to liability issues, the airport operator should require airlines to provide flaggers for directing taxiing aircraft.

2.22.5 Obstacle Free Zone (OFZ).

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6 Runway Approach/Departure Areas and Clearways.

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6.1 Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the airport operator with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

2.22.6.2 **Caution About Partial Runway Closures.**

When filing a NOTAM for a partial runway closure, clearly state that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold). There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

2.22.6.3 **Caution About Displaced Thresholds.**

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA), such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, or other work within the existing RSA of any usable runway end, do not implement a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

## 2.23 Other Limitations on Construction.

The CSPP must specify any other limitations on construction, including but not limited to:

2.23.1 Prohibitions.

2.23.1.1 No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.

2.23.1.2 No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.

2.23.1.3 No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property. See AC 150/5370-10.

2.23.2 Restrictions.

2.23.2.1 Construction suspension required during specific airport operations.

2.23.2.2 Areas that cannot be worked on simultaneously.

2.23.2.3 Day or night construction restrictions.

2.23.2.4 Seasonal construction restrictions.

2.23.2.5 Temporary signs not approved by the airport operator.

2.23.2.6 Grades changes that could result in unplanned effects on NAVAIDs.

# CHAPTER 3. GUIDELINES FOR WRITING A CSPP

## 3.1 General Requirements.

The CSPP is a standalone document written to correspond with the subjects outlined in paragraph 2.4. The CSPP is organized by numbered sections corresponding to each subject listed in paragraph 2.4, and described in detail in paragraphs 2.5 - 2.23. Each section number and title in the CSPP matches the corresponding subject outlined in paragraph 2.4 (for example, 1. Coordination, 2. Phasing, 3. Areas and Operations Affected by the Construction Activity, and so on). With the exception of the project scope of work outlined in Section 2. Phasing, only subjects specific to operational safety during construction should be addressed.

## 3.2 Applicability of Subjects.

Each section should, to the extent practical, focus on the specific subject. Where an overlapping requirement spans several sections, the requirement should be explained in detail in the most applicable section. A reference to that section should be included in all other sections where the requirement may apply. For example, the requirement to protect existing underground FAA ILS cables during trenching operations could be considered FAA ATO coordination (Coordination, paragraph 2.5.3), an area and operation affected by the construction activity (Areas and Operations Affected by the Construction Activity, paragraph 2.7.1.4), a protection of a NAVAID (Protection of Navigational Aids (NAVAIDs), paragraph 2.8), or a notification to the FAA of construction activities (Notification of Construction Activities, paragraph 2.13.5.3.2). However, it is more specifically an underground utility requirement (Underground Utilities, paragraph 2.15). The procedure for protecting underground ILS cables during trenching operations should therefore be described in 2.4.2.11: “The contractor must coordinate with the local FAA System Support Center (SSC) to mark existing ILS cable routes along Runway 17-35. The ILS cables will be located by hand digging whenever the trenching operation moves within 10 feet of the cable markings.” All other applicable sections should include a reference to 2.4.2.11: “ILS cables shall be identified and protected as described in 2.4.2.11” or “See 2.4.2.11 for ILS cable identification and protection requirements.” Thus, the CSPP should be considered as a whole, with no need to duplicate responses to related issues.

## 3.3 Graphical Representations.

Construction safety drawings should be included in the CSPP as attachments. When other graphical representations will aid in supporting written statements, the drawings, diagrams, and/or photographs should also be attached to the CSPP. References should be made in the CSPP to each graphical attachment and may be made in multiple sections.

3.4 **Reference Documents.**

The CSPP must not incorporate a document by reference unless reproduction of the material in that document is prohibited. In that case, either copies of or a source for the referenced document must be provided to the contractor. Where this AC recommends references (e.g. as in paragraph 3.9) the intent is to include a reference to the corresponding section in the CSPP, not to this Advisory Circular.

3.5 **Restrictions.**

The CSPP should not be considered as a project design review document. The CSPP should also avoid mention of permanent ("as-built") features such as pavements, markings, signs, and lighting, except when such features are intended to aid in maintaining operational safety during the construction.

3.6 **Coordination.**

Include in this section a detailed description of conferences and meetings to be held both before and during the project. Include appropriate information from AC 150/5370-12. Discuss coordination procedures and schedules for each required FAA ATO Technical Operations shutdown and restart and all required flight inspections.

3.7 **Phasing.**

Include in this section a detailed scope of work description for the project as a whole and each phase of work covered by the CSPP. This includes all locations and durations of the work proposed. Attach drawings to graphically support the written scope of work. Detail in this section the sequenced phases of the proposed construction. Include a reference to paragraph 3.8, as appropriate.

3.8 **Areas and Operations Affected by Construction.**

Focus in this section on identifying the areas and operations affected by the construction. Describe corresponding mitigation that is not covered in detail elsewhere in the CSPP. Include references to paragraphs below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. See Appendix F for sample operational effects tables and figures.

3.9 **NAVAID Protection.**

List in this section all NAVAID facilities that will be affected by the construction. Identify NAVAID facilities that will be placed out of service at any time prior to or during construction activities. Identify individuals responsible for coordinating each shutdown and when each facility will be out of service. Include a reference to paragraph 3.6 for FAA ATO NAVAID shutdown, restart, and flight inspection coordination. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to paragraph 3.14 for the issuance of NOTAMs as required. Include a reference to paragraph 3.16 for the protection of underground cables and piping serving NAVAIDs. If temporary visual aids are proposed to replace or supplement existing facilities, include a reference to paragraph 3.19. Attach drawings to graphically indicate the affected NAVAIDS and the corresponding critical areas.

## 3.10 Contractor Access.

This will necessarily be the most extensive section of the CSPP. Provide sufficient detail so that a contractor not experienced in working on airports will understand the unique restrictions such work will require. Due to this extent, it should be broken down into subsections as described below:

### 3.10.1 Location of Stockpiled Construction Materials.

Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify stockpiles. Include a reference to paragraph 3.11 for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference to paragraph 3.12 for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

### 3.10.2 Vehicle and Pedestrian Operations.

While there are many items to be addressed in this major subsection of the CSPP, all are concerned with one main issue: keeping people and vehicles from areas of the airport where they don’t belong. This includes preventing unauthorized entry to the AOA and preventing the improper movement of pedestrians or vehicles on the airport. In this section, focus on mechanisms to prevent construction vehicles and workers traveling to and from the worksite from unauthorized entry into movement areas. Specify locations of parking for both employee vehicles and construction equipment, and routes for access and haul roads. In most cases, this will best be accomplished by attaching a drawing. Quote from AC 150/5210-5 specific requirements for contractor vehicles rather than referring to the AC as a whole, and include special requirements for identifying HAZMAT vehicles. Quote from, rather than incorporate by reference, AC 150/5210-20 as appropriate to address the airport’s rules for ground vehicle operations, including its training program. Discuss the airport’s recordkeeping system listing authorized vehicle operators.

### 3.10.3 Two-Way Radio Communications.

Include a special section to identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor CTAF at airports without or with closed ATCT. Include training requirements for all individuals required to communicate with AT. Individuals required to monitor AT frequencies should also be identified. If construction employees are also required to communicate by radio with Airport Operations, this procedure should be described in detail. Usage of vehicle mounted radios and/or portable radios should be addressed. Communication procedures for the event of disabled radio communication (that is, light signals, telephone numbers, others) must be included. All radio frequencies should by identified (Tower, Ground Control, CTAF, UNICOM, ATIS, and so on).

3.10.4 Airport Security.

Address security as it applies to vehicle and pedestrian operations. Discuss TSA requirements, security badging requirements, perimeter fence integrity, gate security, and other needs. Attach drawings to graphically indicate secured and/or Security Identification Display Areas (SIDA), perimeter fencing, and available access points.

## 3.11 Wildlife Management.

Discuss in this section wildlife management procedures. Describe the maintenance of existing wildlife mitigation devices, such as perimeter fences, and procedures to limit wildlife attractants. Include procedures to notify Airport Operations of wildlife encounters. Include a reference to paragraph 3.10 for security (wildlife) fence integrity maintenance as required.

## 3.12 FOD Management.

In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, and so on. Include a reference to paragraph 3.15 for inspection requirements as required.

## 3.13 HAZMAT Management.

Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Safety Data Sheet (SDS), Material Safety Data Sheet (MSDS) or Product Safety Data Sheet (PSDS) availability, and other considerations. Any specific airport HAZMAT restrictions should also be identified. Include a reference to paragraph 3.10 for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

## 3.14 Notification of Construction Activities.

List in this section the names and telephone numbers of points of contact for all parties affected by the construction project. We recommend a single list that includes all telephone numbers required under this section. Include emergency notification procedures for all representatives of all parties potentially impacted by the construction. Identify individual representatives – and at least one alternate – for each party. List both on-duty and off-duty contact information for each individual, including individuals responsible for emergency maintenance of airport construction hazard lighting and barricades. Describe procedures to coordinate immediate response to events that might adversely affect the operational safety of the airport (such as interrupted NAVAID service). Explain requirements for and the procedures for the issuance of Notices to Airmen (NOTAMs), notification to FAA required by 14 CFR Part 77 and Part 157 and in the event of affected NAVAIDs. For NOTAMs, identify an individual, and at least one alternate, responsible for issuing and cancelling each specific type of Notice to

Airmen (NOTAM) required. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police departments and nearby hospitals. Identify the E911 address of the airport and the emergency access route via haul roads to the construction site. Require the contractor to have this information available to all workers. The local Poison Control number should be listed. Procedures regarding notification of Airport Operations and/or the ARFF Department of such emergencies should be identified, as applicable. If airport radio communications are identified as a means of emergency notification, include a reference to paragraph 3.10. Differentiate between emergency and nonemergency notification of ARFF personnel, the latter including activities that affect ARFF water supplies and access roads. Identify the primary ARFF contact person and at least one alternate. If notification is to be made through Airport Operations, then detail this procedure. Include a method of confirmation from the ARFF department.

### 3.15 Inspection Requirements.

Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) or other airport operator's representative and the construction contractors. If the engineering consultants and/or contractors have a Safety Officer who will conduct such inspections, identify this individual. Describe procedures for special inspections, such as those required to reopen areas for aircraft operations. Part 139 requires daily airfield inspections at certificated airports, but these may need to be more frequent when construction is in progress. Discuss the role of such inspections on areas under construction. Include a requirement to immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

### 3.16 Underground Utilities.

Explain how existing underground utilities will be located and protected. Identify each utility owner and include contact information for each company/agency in the master list. Address emergency response procedures for damaged or disrupted utilities. Include a reference to paragraph 3.14 for notification of utility owners of accidental utility disruption as required.

### 3.17 Penalties.

Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, VPD, and others.

### 3.18 Special Conditions.

Identify any special conditions that may trigger specific safety mitigation actions outlined in this CSPP: low visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD, and other activities requiring construction suspension/resumption. Include a reference to paragraph 3.10 for compliance with airport safety and security measures and for radio communications as required. Include a reference to paragraph 3.14 for emergency notification of all involved parties, including police/security, ARFF, and medical services.

## 3.19 Runway and Taxiway Visual Aids.

Include marking, lighting, signs, and visual NAVAIDS. Detail temporary runway and taxiway marking, lighting, signs, and visual NAVAIDs required for the construction. Discuss existing marking, lighting, signs, and visual NAVAIDs that are temporarily, altered, obliterated, or shut down. Consider non-federal facilities and address requirements for reimbursable agreements necessary for alteration of FAA facilities and for necessary flight checks. Identify temporary TORA signs or runway distance remaining signs if appropriate. Identify required temporary visual NAVAIDs such as REIL or PAPI. Quote from, rather than incorporate by reference, AC 150/5340-1, *Standards for Airport Markings;* AC 150/5340-18, *Standards for Airport Sign Systems;* and AC 150/5340-30, as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDs.

## 3.20 Marking and Signs for Access Routes.

Detail plans for marking and signs for vehicle access routes. To the extent possible, signs should be in conformance with the Federal Highway Administration MUTCD and/or State highway specifications, not hand lettered. Detail any modifications to the guidance in the MUTCD necessary to meet frangibility/height requirements.

## 3.21 Hazard Marking and Lighting.

Specify all marking and lighting equipment, including when and where each type of device is to be used. Specify maximum gaps between barricades and the maximum spacing of hazard lighting. Identify one individual and at least one alternate responsible for maintenance of hazard marking and lighting equipment in the master telephone list. Include a reference to paragraph 3.14. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

## 3.22 Work Zone Lighting for Nighttime Construction.

If work is to be conducted at night, specify all lighting equipment, including when and where each type of device is to be used. Indicate the direction lights are to be aimed and any directions that aiming of lights is prohibited. Specify any shielding necessary in instances where aiming is not sufficient to prevent interference with air traffic control and aircraft operations. Attach drawings to graphically indicate the placement and aiming of lighting equipment. Where the plan only indicates directions that aiming of lights is prohibited, the placement and positioning of portable lights must be proposed by the Contractor and approved by the airport operator's representative each time lights are relocated or repositioned.

### 3.23 Protection of Runway and Taxiway Safety Areas.

This section should focus exclusively on procedures for protecting all safety areas, including those altered by the construction: methods of demarcation, limit of access, movement within safety areas, stockpiling and trenching restrictions, and so on. Reference AC 150/5300-13, as required. Include a reference to paragraph 3.10 for procedures regarding vehicle and personnel movement within safety areas. Include a reference to paragraph 3.10 for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify open excavations as required. If runway and taxiway closures are proposed to protect safety areas, or if temporary displaced thresholds and/or revised declared distances are used to provide the required Runway Safety Area, include a reference to paragraphs 3.14 and 3.19. Detail procedures for protecting the runway OFZ, runway OFA, taxiway OFA and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, and so on. Quote from, rather than incorporate by reference, AC 150/5300-13, as required. Include a reference to paragraph 3.24 for height (i.e., crane) restrictions as required. One way to address the height of equipment that will move during the project is to establish a three-dimensional “box” within which equipment will be confined that can be studied as a single object. Attach drawings to graphically indicate the safety area, OFZ, and OFA boundaries.

### 3.24 Other Limitations on Construction.

This section should describe what limitations must be applied to each area of work and when each limitation will be applied: limitations due to airport operations, height (i.e., crane) restrictions, areas which cannot be worked at simultaneously, day/night work restrictions, winter construction, and other limitations. Include a reference to paragraph 3.7 for project phasing requirements based on construction limitations as required.

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## APPENDIX A. RELATED READING MATERIAL

Obtain the latest version of the following free publications from the FAA on its Web site at http://www.faa.gov/airports/.

**Table A-1. FAA Publications**

| Number | Title and Description |
|---|---|
| AC 150/5200-28 | *Notices to Airmen (NOTAMs) for Airport Operators*<br>Guidance for using the NOTAM System in airport reporting. |
| AC 150/5200-30 | *Airport Field Condition Assessments and Winter Operations Safety*<br>Guidance for airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures. |
| AC 150/5200-33 | *Hazardous Wildlife Attractants On or Near Airports*<br>Guidance on locating certain land uses that might attract hazardous wildlife to public-use airports. |
| AC 150/5210-5 | *Painting, Marking, and Lighting of Vehicles Used on an Airport*<br>Guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas. |
| AC 150/5210-20 | *Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports*<br>Guidance to airport operators on developing ground vehicle operation training programs. |
| AC 150/5300-13 | *Airport Design*<br>FAA standards and recommendations for airport design. Establishes approach visibility minimums as an airport design parameter, and contains the Object Free area and the obstacle free-zone criteria. |
| AC 150/5210-24 | *Airport Foreign Object Debris (FOD) Management*<br>Guidance for developing and managing an airport foreign object debris (FOD) program |

| Number | Title and Description |
| --- | --- |
| AC 150/5320-15 | *Management of Airport Industrial Waste*<br>Basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Guidance for developing a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff with particular airport industrial activities. |
| AC 150/5340-1 | *Standards for Airport Markings*<br>FAA standards for the siting and installation of signs on airport runways and taxiways. |
| AC 150/5340-18 | *Standards for Airport Sign Systems*<br>FAA standards for the siting and installation of signs on airport runways and taxiways. |
| AC 150/5345-28 | *Precision Approach Path Indicator (PAPI) Systems*<br>FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing. |
| AC 150/5340-30 | *Design and Installation Details for Airport Visual Aids*<br>Guidance and recommendations on the installation of airport visual aids. |
| AC 150/5345-39 | *Specification for L-853, Runway and Taxiway Retroreflective Markers* |
| AC 150/5345-44 | *Specification for Runway and Taxiway Signs*<br>FAA specifications for unlighted and lighted signs for taxiways and runways. |
| AC 150/5345-53 | *Airport Lighting Equipment Certification Program*<br>Details on the Airport Lighting Equipment Certification Program (ALECP). |
| AC 150/5345-50 | *Specification for Portable Runway and Taxiway Lights*<br>FAA standards for portable runway and taxiway lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway lighting system is inoperative. |
| AC 150/5345-55 | *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure* |

| Number | Title and Description |
|---|---|
| AC 150/5370-10 | *Standards for Specifying Construction of Airports*<br>Standards for construction of airports, including earthwork, drainage, paving, turfing, lighting, and incidental construction. |
| AC 150/5370-12 | *Quality Management for Federally Funded Airport Construction Projects* |
| EB 93 | *Guidance for the Assembly and Installation of Temporary Orange Construction Signs* |
| FAA Order 5200.11 | FAA Airports (ARP) Safety Management System (SMS)<br>Basics for implementing SMS within ARP. Includes roles and responsibilities of ARP management and staff as well as other FAA lines of business that contribute to the ARP SMS. |
| FAA Certalert 98-05 | *Grasses Attractive to Hazardous Wildlife*<br>Guidance on grass management and seed selection. |
| FAA Form 7460-1 | Notice of Proposed Construction or Alteration |
| FAA Form 7480-1 | Notice of Landing Area Proposal |
| FAA Form 6000.26 | National NAS Strategic Interruption Service Level Agreement, Strategic Events Coordination, Airport Sponsor Form |

Obtain the latest version of the following free publications from the Electronic Code of Federal Regulations at http://www.ecfr.gov/.

**Table A-2. Code of Federal Regulation**

| Number | Title |
|---|---|
| Title 14 CFR Part 77 | Safe, Efficient Use and Preservation of the Navigable Airspace |
| Title 14 CFR Part 139 | Certification of Airports |
| Title 49 CFR Part 1542 | Airport Security |

Obtain the latest version of the Manual on Uniform Traffic Control Devices from the Federal Highway Administration at http://mutcd.fhwa.dot.gov/.

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# APPENDIX B. TERMS AND ACRONYMS

**Table B-1. Terms and Acronyms**

| Term | Definition |
|---|---|
| Form 7460-1 | Notice of Proposed Construction or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. (See guidance available on the FAA web site at https://oeaaa.faa.gov.) The form may be downloaded at http://www.faa.gov/airports/resources/forms/, or filed electronically at: https://oeaaa.faa.gov. |
| Form 7480-1 | Notice of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport The form may be downloaded at http://www.faa.gov/airports/resources/forms/. |
| Form 6000-26 | Airport Sponsor Strategic Event Submission Form |
| AC | Advisory Circular |
| ACSI | Airport Certification Safety Inspector |
| ADG | Airplane Design Group |
| AIP | Airport Improvement Program |
| ALECP | Airport Lighting Equipment Certification Program |
| ANG | Air National Guard |
| AOA | Air Operations Area, as defined in 14 CFR Part 107. Means a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secured area of the airport terminal building. |
| ARFF | Aircraft Rescue and Fire Fighting |
| ARP | FAA Office of Airports |
| ASDA | Accelerate-Stop Distance Available |
| AT | Air Traffic |
| ATCT | Airport Traffic Control Tower |
| ATIS | Automatic Terminal Information Service |
| ATO | Air Traffic Organization |
| Certificated Airport | An airport that has been issued an Airport Operating Certificate by the FAA under |

| Term | Definition |
|---|---|
| | the authority of 14 CFR Part 139, *Certification of Airports*. |
| CFR | Code of Federal Regulations |
| Construction | The presence of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft. |
| CSPP | Construction Safety and Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications. |
| CTAF | Common Traffic Advisory Frequency |
| Displaced Threshold | A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction. |
| DOT | Department of Transportation |
| EPA | Environmental Protection Agency |
| FAA | Federal Aviation Administration |
| FOD | Foreign Object Debris/Damage |
| FSS | Flight Service Station |
| GA | General Aviation |
| HAZMAT | Hazardous Materials |
| HMA | Hot Mix Asphalt |
| IAP | Instrument Approach Procedures |
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| LDA | Landing Distance Available |
| LOC | Localizer antenna array |
| Movement Area | The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139). |
| MSDS | Material Safety Data Sheet |
| MUTCD | Manual on Uniform Traffic Control Devices |
| NAVAID | Navigation Aid |
| NAVAID Critical Area | An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal. |
| Non-Movement Area | The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft. |

| Term | Definition |
|---|---|
| NOTAM | Notices to Airmen |
| Obstruction | Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C. |
| OCC | Operations Control Center |
| OE / AAA | Obstruction Evaluation / Airport Airspace Analysis |
| OFA | Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See AC 150/5300-13 for additional guidance on OFA standards and wingtip clearance criteria.) |
| OFZ | Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to AC 150/5300-13 for guidance on OFZ. |
| OSHA | Occupational Safety and Health Administration |
| OTS | Out of Service |
| P&R | Planning and Requirements Group |
| NPI | NAS Planning & Integration |
| PAPI | Precision Approach Path Indicator |
| PFC | Passenger Facility Charge |
| PLASI | Pulse Light Approach Slope Indicator |
| Project Proposal Summary | A clear and concise description of the proposed project or change that is the object of Safety Risk Management. |
| RA | Reimbursable Agreement |
| RE | Resident Engineer |
| REIL | Runway End Identifier Lights |
| RNAV | Area Navigation |
| ROFA | Runway Object Free Area |
| RSA | Runway Safety Area. A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13. |
| SDS | Safety Data Sheet |
| SIDA | Security Identification Display Area |
| SMS | Safety Management System |

| Term | Definition |
|---|---|
| SPCD | Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP. |
| SRM | Safety Risk Management |
| SSC | System Support Center |
| Taxiway Safety Area | A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13. |
| TDG | Taxiway Design Group |
| Temporary | Any condition that is not intended to be permanent. |
| Temporary Runway End | The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold. |
| Threshold | The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced. |
| TODA | Takeoff Distance Available |
| TOFA | Taxiway Object Free Area |
| TORA | Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See AC 150/5300-13 for guidance on declared distances. |
| TSA | Taxiway Safety Area, or<br>Transportation Security Administration |
| UNICOM | A radio communications system of a type used at small airports. |
| VASI | Visual Approach Slope Indicator |
| VGSI | Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicator (PAPI), visual approach slope indicator (VASI), and pulse light approach slope indicator (PLASI). |
| VFR | Visual Flight Rules |
| VOR | Very High Frequency Omnidirectional Radio Range |
| VPD | Vehicle / Pedestrian Deviation |

# APPENDIX C. SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

**Table C-1. CSPP Checklist**

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| **General Considerations** | | | | | |
| Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified. | 2.5 | | | | |
| Operational safety is a standing agenda item for construction progress meetings. | 2.5 | | | | |
| Scheduling of the construction phases is properly addressed. | 2.6 | | | | |
| Any formal agreements are established. | 2.5.3 | | | | |
| **Areas and Operations Affected by Construction Activity** | | | | | |
| Drawings showing affected areas are included. | 2.7.1 | | | | |
| Closed or partially closed runways, taxiways, and aprons are depicted on drawings. | 2.7.1.1 | | | | |
| Access routes used by ARFF vehicles affected by the project are addressed. | 2.7.1.2 | | | | |
| Access routes used by airport and airline support vehicles affected by the project are addressed. | 2.7.1.3 | | | | |
| Underground utilities, including water supplies for firefighting and drainage. | 2.7.1.4 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| Approach/departure surfaces affected by heights of temporary objects are addressed. | 2.7.1.5 | | | | |
| Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings. | 2.7.1 | | | | |
| Temporary changes to taxi operations are addressed. | 2.7.2.1 | | | | |
| Detours for ARFF and other airport vehicles are identified. | 2.7.2.2 | | | | |
| Maintenance of essential utilities and underground infrastructure is addressed. | 2.7.2.3 | | | | |
| Temporary changes to air traffic control procedures are addressed. | 2.7.2.4 | | | | |
| **NAVAIDs** | | | | | |
| Critical areas for NAVAIDs are depicted on drawings. | 2.8 | | | | |
| Effects of construction activity on the performance of NAVAIDS, including unanticipated power outages, are addressed. | 2.8 | | | | |
| Protection of NAVAID facilities is addressed. | 2.8 | | | | |
| The required distance and direction from each NAVAID to any construction activity is depicted on drawings. | 2.8 | | | | |
| Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included. | 2.8, 2.13.1, 2.13.5.3.1, 2.18.1 | | | | |
| **Contractor Access** | | | | | |
| The CSPP addresses areas to which contractor will have access and how | 2.9 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| the areas will be accessed. | | | | | |
| The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed. | 2.9 | | | | |
| The location of stockpiled construction materials is depicted on drawings. | 2.9.1 | | | | |
| The requirement for stockpiles in the ROFA to be approved by FAA is included. | 2.9.1 | | | | |
| Requirements for proper stockpiling of materials are included. | 2.9.1 | | | | |
| Construction site parking is addressed. | 2.9.2.1 | | | | |
| Construction equipment parking is addressed. | 2.9.2.2 | | | | |
| Access and haul roads are addressed. | 2.9.2.3 | | | | |
| A requirement for marking and lighting of vehicles to comply with AC 150/5210-5, *Painting, Marking and Lighting of Vehicles Used on an Airport*, is included. | 2.9.2.4 | | | | |
| Proper vehicle operations, including requirements for escorts, are described. | 2.9.2.5, 2.9.2.6 | | | | |
| Training requirements for vehicle drivers are addressed. | 2.9.2.7 | | | | |
| Two-way radio communications procedures are described. | 2.9.2.9 | | | | |
| Maintenance of the secured area of the airport is addressed. | 2.9.2.10 | | | | |
| **Wildlife Management** | | | | | |
| The airport operator's wildlife management procedures are addressed. | 2.10 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| **Foreign Object Debris Management** | | | | | |
| The airport operator's FOD management procedures are addressed. | 2.11 | | | | |
| **Hazardous Materials Management** | | | | | |
| The airport operator's hazardous materials management procedures are addressed. | 2.12 | | | | |
| **Notification of Construction Activities** | | | | | |
| Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed. | 2.13 | | | | |
| Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified. | 2.13.1 | | | | |
| A list of local ATO/Technical Operations personnel is included. | 2.13.1 | | | | |
| A list of ATCT managers on duty is included. | 2.13.1 | | | | |
| A list of authorized representatives to the OCC is included. | 2.13.2 | | | | |
| Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included. | 2.8, 2.13.2, 2.18.3.3.9 | | | | |
| Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified. | 2.13.2 | | | | |
| Emergency notification procedures for medical, fire fighting, and police | 2.13.3 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| response are addressed. | | | | | |
| Coordination with ARFF personnel for non-emergency issues is addressed. | 2.13.4 | | | | |
| Notification to the FAA under 14 CFR parts 77 and 157 is addressed. | 2.13.5 | | | | |
| Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed. | 2.13.5.3.2 | | | | |
| **Inspection Requirements** | | | | | |
| Daily and interim inspections by both the airport operator and contractor are specified. | 2.14.1, 2.14.2 | | | | |
| Final inspections at certificated airports are specified when required. | 2.14.3 | | | | |
| **Underground Utilities** | | | | | |
| Procedures for protecting existing underground facilities in excavation areas are described. | 2.15 | | | | |
| **Penalties** | | | | | |
| Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed. | 2.16 | | | | |
| **Special Conditions** | | | | | |
| Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed. | 2.17 | | | | |
| **Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs** | | | | | |
| The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed. | 2.18.1 | | | | |
| Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified. | 2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| The requirement for markings to be in compliance with AC 150/5340-1, *Standards for Airport Markings,* is specified. | 2.18.2 | | | | |
| Detailed specifications for materials and methods for temporary markings are provided. | 2.18.2 | | | | |
| The requirement for lighting to conform to AC 150/5340-30, *Design and Installation Details for Airport Visual Aids;* AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights;* and AC 150/5345-53, *Airport Lighting Certification Program,* is specified. | 2.18.3 | | | | |
| The use of a lighted X is specified where appropriate. | 2.18.2.1.2, 2.18.3.2 | | | | |
| The requirement for signs to conform to AC 150/5345-44, *Specification for Runway and Taxiway Signs;* AC 50/5340-18, *Standards for Airport Sign Systems;* and AC 150/5345-53, *Airport Lighting Certification Program,* is specified. | 2.18.4 | | | | |
| **Marking and Signs For Access Routes** | | | | | |
| The CSPP specifies that pavement markings and signs intended for construction personnel should conform to AC 150/5340-18 and, to the extent practicable, with the MUTCD and/or State highway specifications. | 2.18.4.2 | | | | |
| **Hazard Marking and Lighting** | | | | | |
| Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified. | 2.20.1 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas. | 2.20.1 | | | | |
| The CSPP considers less obvious construction-related hazards. | 2.20.1 | | | | |
| Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified. | 2.20.2.1 | | | | |
| The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act. | 2.20.2.1 | | | | |
| Red lights meeting the luminance requirements of the State Highway Department are specified. | 2.20.2.2 | | | | |
| Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high. | 2.20.2.3 | | | | |
| Barricades are specified to indicate construction locations in which no part of an aircraft may enter. | 2.20.2.3 | | | | |
| Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways. | 2.20.2.5 | | | | |
| Markings for temporary closures are specified. | 2.20.2.5 | | | | |
| The provision of a contractor’s representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified. | 2.20.2.7 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| **Work Zone Lighting for Nighttime Construction** | | | | | |
| If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways. | 2.21 | | | | |
| **Protection of Runway and Taxiway Safety Areas** | | | | | |
| The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations. | 2.22.1.1, 2.22.3.1 | | | | |
| The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM. | 2.22.1.2, 2.22.3.2 | | | | |
| Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed. | 2.22.3.3 | | | | |
| The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions. | 2.22.1.4 | | | | |
| Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed. | 2.22.1.4 | | | | |
| The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site. | 2.22.1.4 | | | | |
| Grading and soil erosion control to maintain RSA/TSA standards are | 2.22.3.5 | | | | |

| Coordination | Reference | Addressed? | | | Remarks |
|---|---|---|---|---|---|
| | | Yes | No | NA | |
| addressed. | | | | | |
| The CSPP specifies that equipment is to be removed from the ROFA when not in use. | 2.22.2 | | | | |
| The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations. | 2.22.3 | | | | |
| Appropriate details are specified for any construction work to be accomplished in a taxiway object free area. | 2.22.4 | | | | |
| Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included. | 2.22.4.3.6 | | | | |
| Provisions for protection of runway approach/departure areas and clearways are included. | 2.22.6 | | | | |
| **Other Limitations on Construction** | | | | | |
| The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use. | 2.23.1.2 | | | | |
| The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property. | 2.23.1.3 | | | | |

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## APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

**Table D-1. Potentially Hazardous Conditions**

| Item | Action Required (Describe) | No Action Required (Check) |
|---|---|---|
| Excavation adjacent to runways, taxiways, and aprons improperly backfilled. | | |
| Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking. | | |
| Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends. | | |
| Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ. | | |
| Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown. | | |
| Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and | | |

| Item | Action Required (Describe) | No Action Required (Check) |
|---|---|---|
| approach zones. | | |
| Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area. | | |
| Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage. | | |
| Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards. | | |
| Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards. | | |
| Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports. | | |
| Obliterated or faded temporary markings on active operational areas. | | |
| Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards. | | |

| Item | Action Required (Describe) | No Action Required (Check) |
|---|---|---|
| Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions. | | |
| Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications. | | |
| Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings. | | |
| Lack of radio communications with construction vehicles in airport movement areas. | | |
| Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations. | | |
| Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction. | | |
| Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways. | | |
| Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system). | | |

| Item | Action Required (Describe) | No Action Required (Check) |
|---|---|---|
| Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits. | | |
| Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf. | | |
| Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it. | | |
| Site burning, which can cause possible obscuration. | | |
| Construction work taking place outside of designated work areas and out of phase. | | |

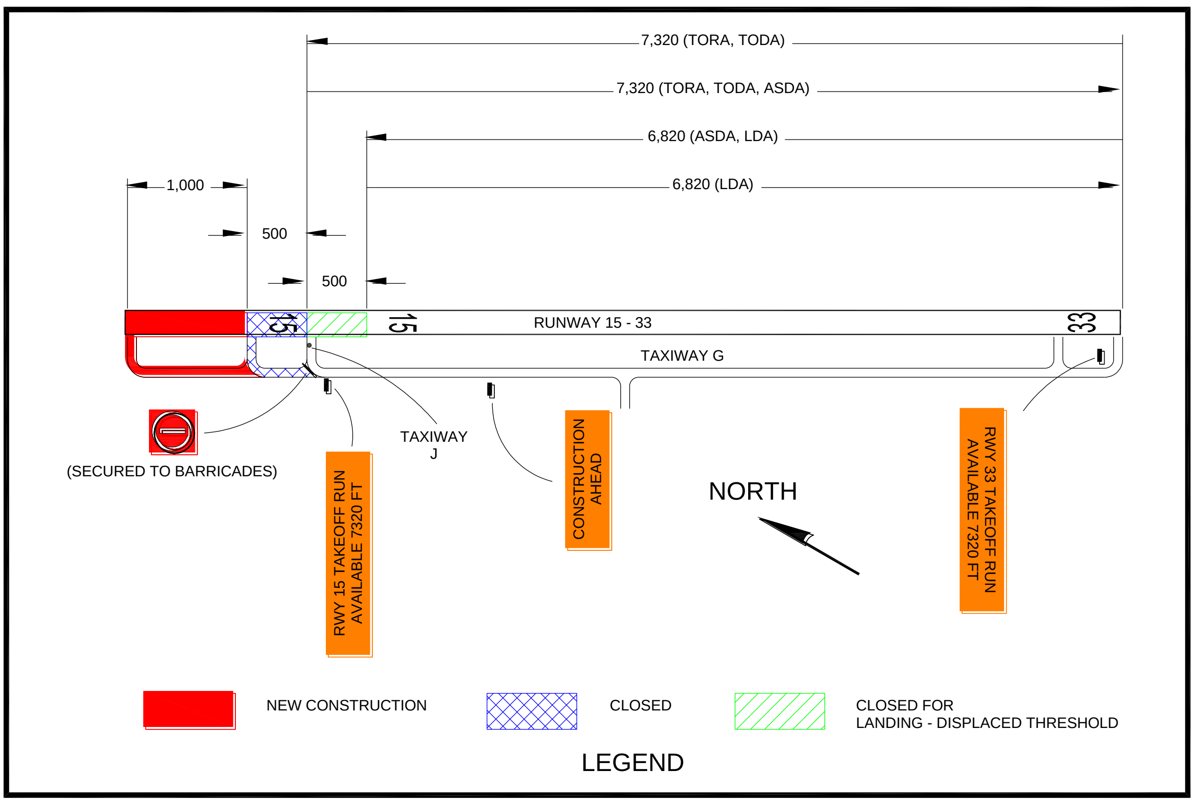
# APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE

## E.1 Project Description.

Runway 15-33 is currently 7820 feet long, with a 500 foot stopway on the north end. This project will remove the stopway and extend the runway 1000 feet to the north and 500 feet to the south. Finally, the existing portion of the runway will be repaved. The runway 33 glide slope will be relocated. The new runway 33 localizer has already been installed by FAA Technical Operations and only needs to be switched on. Runway 15 is currently served only by a localizer, which will remain in operation as it will be beyond the future RSA. Appropriate NOTAMS will be issued throughout the project.

E.1.1 During Phase I, the runway 15 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 15 takeoff and the departure end of runway 33 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 33 will be adjusted to provide the required RSA and applicable departure surface. Excavation near Taxiway G will require its ADG to be reduced from IV to III. See Figure E-1.

**Figure E-1. Phase I Example**

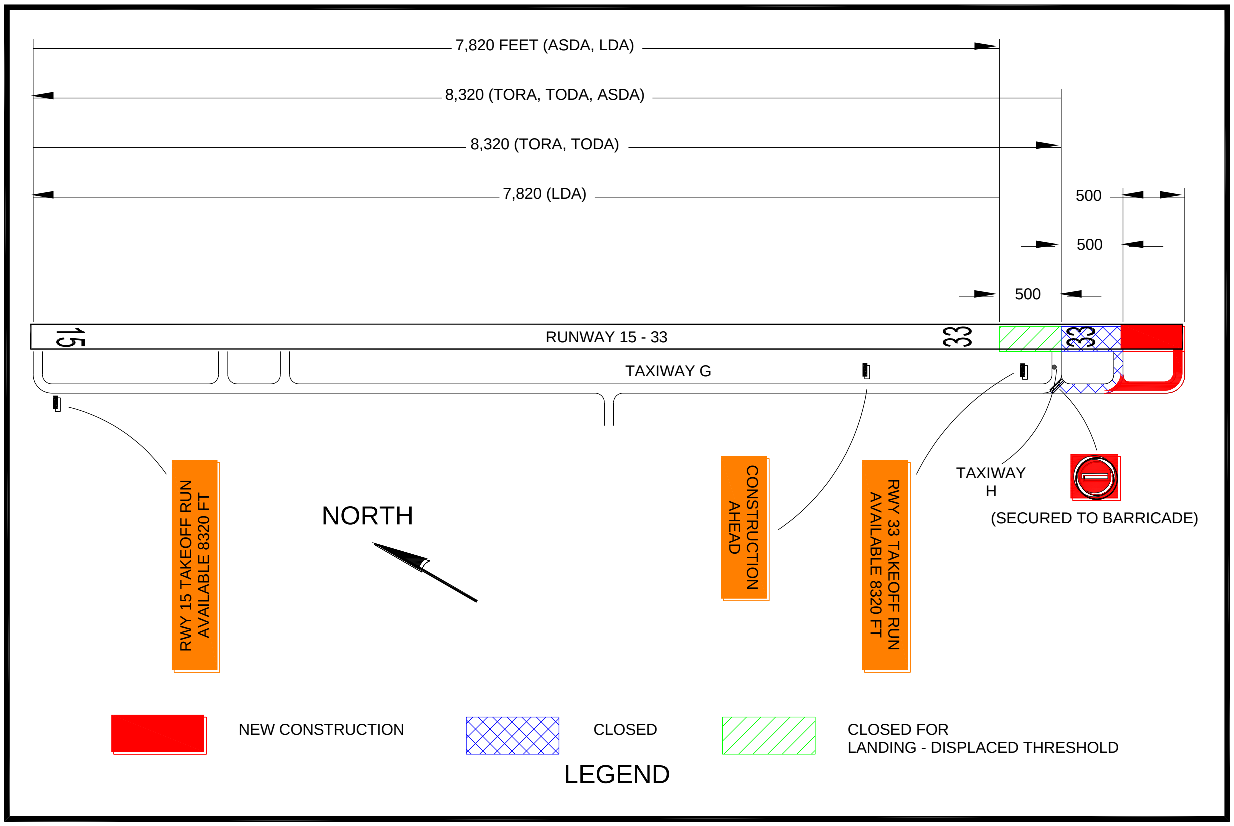



**Note 1:** Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

**Note 2:** Based on the declared distances for Runway 33 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.2 During Phase II, the runway 33 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 33 takeoff and the departure end of runway 15 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 15 will be adjusted to provide the required RSA and applicable departure surface. See Figure E-2.

**Figure E-2. Phase II Example**




**Note 1:** Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

**Note 2:** Based on the declared distances for Runway 15 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.3 During Phase III, the existing portion of the runway will be repaved with Hot Mix Asphalt (HMA) and the runway 33 glide slope will be relocated. Construction will be accomplished between the hours of 8:00 pm and 5:00 am, during which the runway will be closed to operations.

**Figure E-3. Phase III Example**

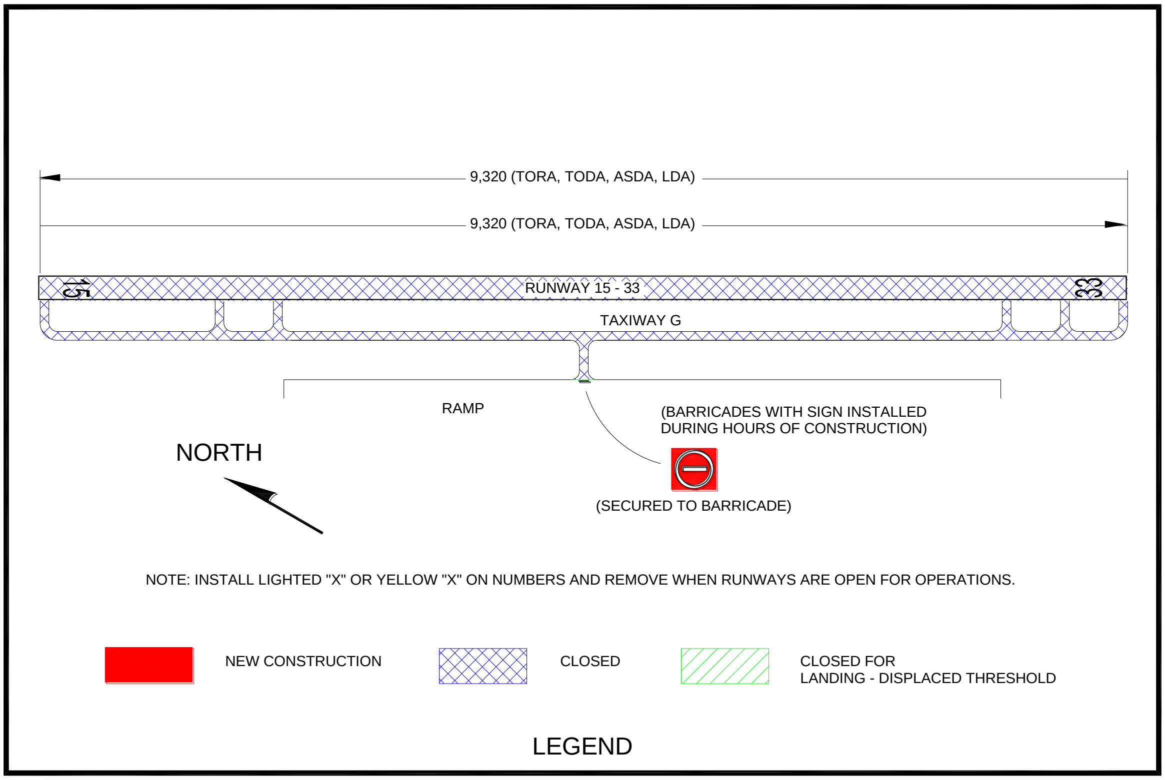


**Table E-1. Operational Effects Table**

| **Project** | **Runway 15-33 Extension and Repaving** | | | |
|---|---|---|---|---|
| **Phase** | **Normal (Existing)** | **Phase I: Extend Runway 15 End** | **Phase II: Extend Runway 33 End** | **Phase III: Repave Runway** |
| **Scope of Work** | N/A | Extend Runway 15-33 1,000 ft on north end with Hot Mix Asphaltic Concrete (HMA). | Extend Runway 15-33 500 ft on south end with Hot Mix Asphaltic Concrete (HMA). | Repave existing runway with HMA<br>Relocate Runway 33 Glide Slope |
| **Effects of Construction Operations** | N/A | Existing North 500 ft closed | Existing South 500 ft closed | Runway closed between 8:00 pm and 5:00 am<br>Edge lighting out of service |
| **Construction Phase** | N/A | Phase I (Anticipated) | Phase II (Anticipated) | Phase III (Anticipated) |
| **Runway 15 Average Aircraft Operations** | Carrier: 52 /day<br>GA: 26 /day<br>Military: 11 /day | Carrier: 40 /day<br>GA: 26 /day<br>Military: 0 /day | Carrier: 45 /day<br>GA: 26 /day<br>Military: 5 /day | Carrier: 45 / day<br>GA: 20 / day<br>Military: 0 /day |
| **Runway 33 Average Aircraft Operations** | Carrier: 40 /day<br>GA: 18 /day<br>Military: 10 /day | Carrier: 30 /day<br>GA: 18 /day<br>Military: 0 /day | Carrier: 25 /day<br>GA: 18 /day<br>Military: 5 /day | Carrier: 20 /day<br>GA: 5 /day<br>Military: 0 /day |
| **Runway 15-33 Aircraft Category** | C-IV | C-IV | C-IV | C-IV |
| **Runway 15 Approach Visibility Minimums** | 1 mile | 1 mile | 1 mile | 1 mile |
| **Runway 33 Approach Visibility Minimums** | ¾ mile | ¾ mile | ¾ mile | 1 mile |

**Note:** Proper coordination with Flight Procedures group is necessary to maintain instrument approach procedures during construction.

| Project | | Runway 15-33 Extension and Repaving | | | |
|---|---|---|---|---|---|
| Phase | | Normal (Existing) | Phase I: Extend Runway 15 End | Phase II: Extend Runway 33 End | Phase III: Repave Runway |
| Runway 15 Declared Distances | TORA | 7,820 | 7,320 | 8,320 | 9,320 |
| | TODA | 7,820 | 7,320 | 8,320 | 9,320 |
| | ASDA | 7,820 | 7,320 | 7,820 | 9,320 |
| | LDA | 7,820 | 6,820 | 7,820 | 9,320 |
| Runway 33 Declared Distances | TORA | 7,820 | 7,320 | 8,320 | 9,320 |
| | TODA | 7,820 | 7,320 | 8,320 | 9,320 |
| | ASDA | 8,320 | 6,820 | 8,320 | 9,320 |
| | LDA | 7,820 | 6,820 | 7,820 | 9,320 |
| Runway 15 Approach Procedures | | LOC only | LOC only | LOC only | LOC only |
| | | RNAV | RNAV | RNAV | RNAV |
| | | VOR | VOR | VOR | VOR |
| Runway 33 Approach Procedures | | ILS | ILS | ILS | LOC only |
| | | RNAV | RNAV | RNAV | RNAV |
| | | VOR | VOR | VOR | VOR |
| Runway 15 NAVAIDs | | LOC | LOC | LOC | LOC |
| Runway 33 NAVAIDs | | ILS, MALSR | ILS, MALSR | ILS, MALSR | LOC, MALSR |
| Taxiway G ADG | | IV | III | IV | IV |
| Taxiway G TDG | | 4 | 4 | 4 | 4 |
| ATCT (hours open) | | 24 hours | 24 hours | 24 hours | 0500 - 2000 |
| ARFF Index | | D | D | D | D |

| Project | Runway 15-33 Extension and Repaving | | | |
|---|---|---|---|---|
| **Phase** | **Normal (Existing)** | **Phase I: Extend Runway 15 End** | **Phase II: Extend Runway 33 End** | **Phase III: Repave Runway** |
| **Special Conditions** | Air National Guard (ANG) military operations | All military aircraft relocated to alternate ANG Base | Some large military aircraft relocated to alternate ANG Base | All military aircraft relocated to alternate ANG Base |
| **Information for NOTAMs** | | Refer above for applicable declared distances.<br>Taxiway G limited to 118 ft wingspan | Refer above for applicable declared distances. | Refer above for applicable declared distances.<br>Airport closed 2000 – 0500.<br>Runway 15 glide slope OTS. |

**Note:** This table is one example. It may be advantageous to develop a separate table for each project phase and/or to address the operational status of the associated NAVAIDs per construction phase.

Complete the following chart for each phase to determine the area that must be protected along the runway and taxiway edges:

**Table E-2. Runway and Taxiway Edge Protection**

| Runway/Taxiway | Aircraft Approach Category*<br>A, B, C, or D | Airplane Design Group*<br>I, II, III, or IV | Safety Area Width in Feet Divided by 2* |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

*See AC 150/5300-13 to complete the chart for a specific runway/taxiway.

Complete the following chart for each phase to determine the area that must be protected before the runway threshold:

**Table E-3. Protection Prior to Runway Threshold**

| Runway End Number | Airplane Design Group* I, II, III, or IV | Aircraft Approach Category* A, B, C, or D | Minimum Safety Area Prior to the Threshold* | Minimum Distance to Threshold Based on Required Approach Slope* | |
|---|---|---|---|---|---|
| | | | ft | ft | : 1 |
| | | | ft | ft | : 1 |
| | | | ft | ft | : 1 |
| | | | ft | ft | : 1 |

*See AC 150/5300-13 to complete the chart for a specific runway.

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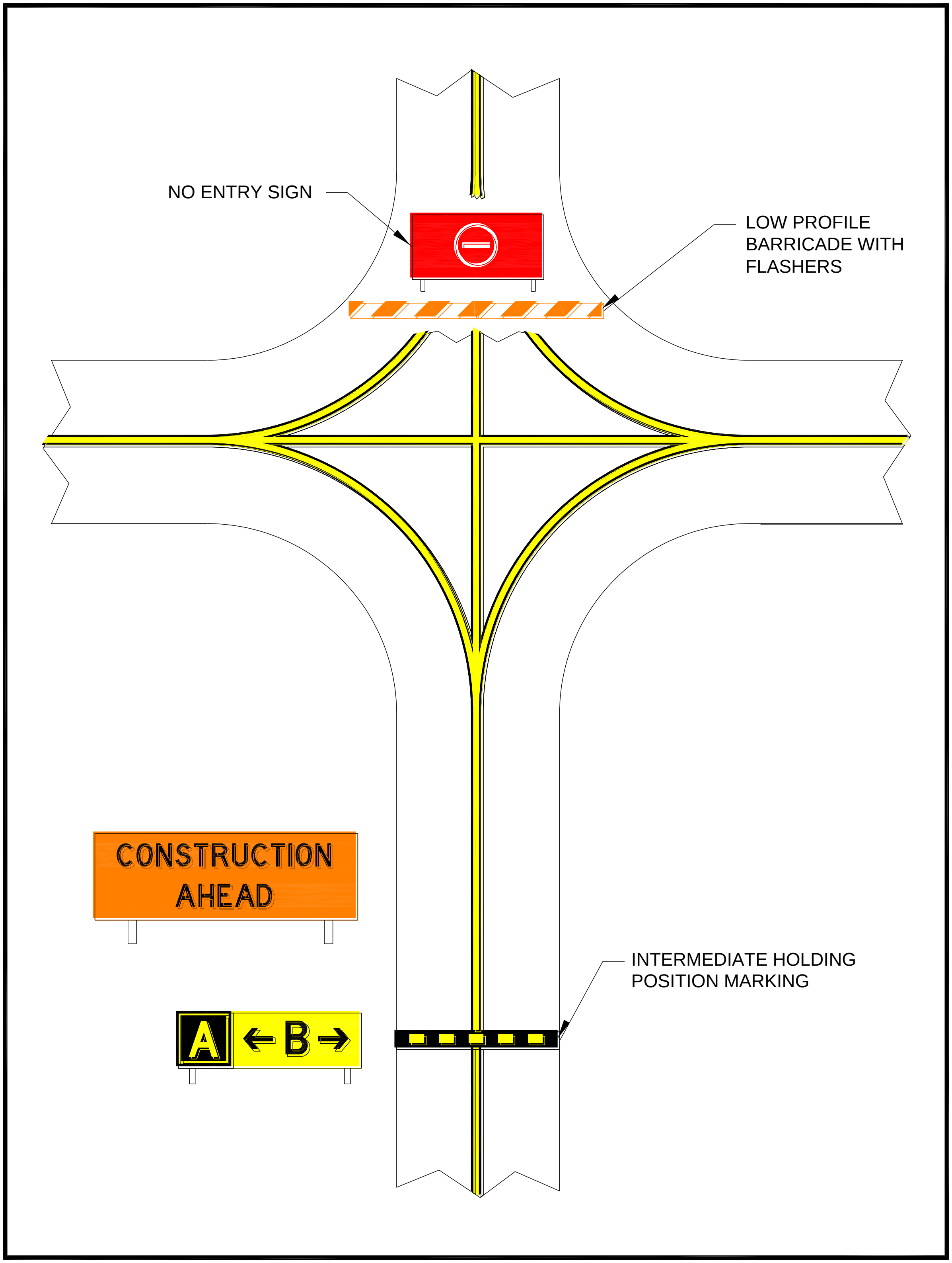
# APPENDIX F. ORANGE CONSTRUCTION SIGNS

**Figure F-1. Approved Sign Legends**

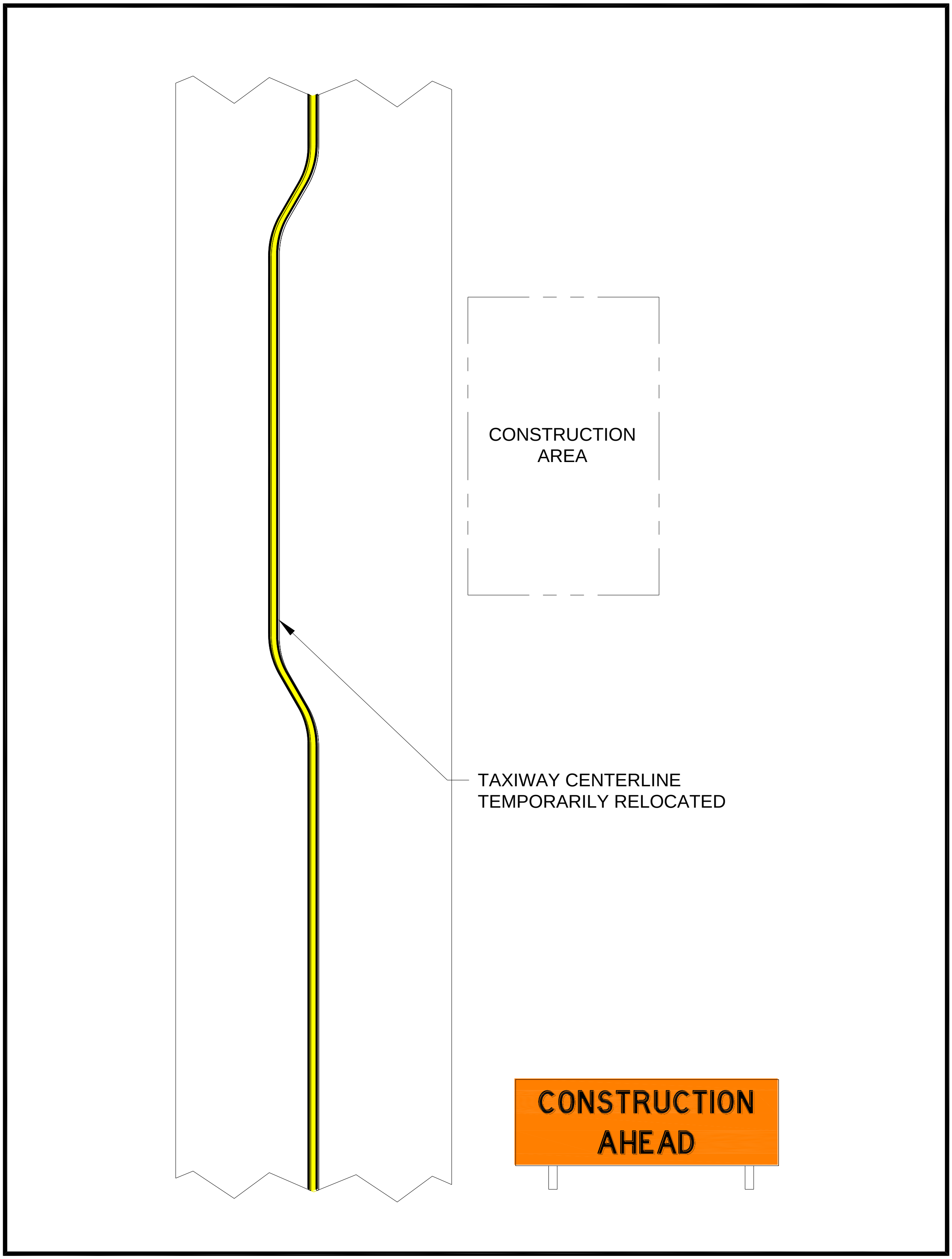


**Figure F-2. Orange Construction Sign Example 1**




**Note:** For proper placement of signs, refer to EB 93.

**Figure F-3. Orange Construction Sign Example 2**




**Note:** For proper placement of signs, refer to EB 93.

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**Advisory Circular Feedback**

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5370-2G Date: ______________________

*Please check all appropriate line items:*

☐ An error (procedural or typographical) has been noted in paragraph ___________ on page ______________.

☐ Recommend paragraph _______________ on page _______________ be changed as follows:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

☐ In a future change to this AC, please cover the following subject:
*(Briefly describe what you want added.)*

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

☐ Other comments:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

☐ I would like to discuss the above. Please contact me at (phone number, email address).

______________________________________________________________________________

Submitted by: ______________________________ Date: ______________________________

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**NOTICE OF PUBLIC HEARING**

Rehabilitate Apron & Connector Taxiway
City of Storm Lake
Storm Lake, Iowa
T51.115389

Public Hearing on Proposed Contract Documents and Estimated Costs for Repair or Improvement. A public hearing will be held by the City of Storm Lake on the proposed contract documents (plans, specifications and form of contract) and estimated cost for the improvement at its meeting at 5:00 P.M. on April 2, 2018, at Storm Lake City Hall, 620 Erie Street, Storm Lake, Iowa 50588.

PROJECT DESCRIPTION: Apron and Taxiway Rehabilitation

This Notice is given by authority of the

City of Storm Lake

/s/ Mayra A. Martinez

Mayra Martinez

City Clerk

## Staff Summary

**3/19/2018**
**Agenda Item # 9.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** Keri Navratil, City Manager

**SUBJECT:** **Motion to Set Public Hearing for United Community Health Center Community Development Block Grant Application**

**BACKGROUND:** United Community Health Center is applying for Community Development Block Grant Funds for expansion of their current practice. The amount requested is $600,000 with a local grant match of $600,000 from United Community Health Center. The proposed expansion will include adding three medical exam rooms and Behavioral Health Services.
The grant requires the City sponsor the application.

Prior to the submittal of the grant application on April 20, 2018 a public hearing must be held on April 2, 2018 at 5:00 p.m in Council Chambers.

**FISCAL IMPACT:** There is no fiscal impact by sponsoring the grant application.

**RECOMMENDATION:** Set public hearing for 5:00 p.m. on April 2 in City Council Chambers

## Staff Summary

**3/19/2018**
**Agenda Item # 10.**

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

**REPORT TO:** Honorable Mayor and City Council

**FROM:** David Derragon, Assistant City Manager

**SUBJECT:** **Motion To Approve And Submit Map 21 Application For Richland Street From Industry Street To Radio Road**

**BACKGROUND:** This project provides for the reconstruction of Richland Street from Industry Street to Radio Road (120th Avenue) in the City. The project includes the removal and replacement of a failing collector street in a 60 foot right of way with a new pavement section to carry the current and projected traffic loading. The pavement is beyond its useful life and would require substantial panel replacement to bring back to a useful level. The road is a main East West corridor connecting Highway 7 to Highway 71. Business located along the roadway include Tyson Foods and Tyson Poultry. The project will include a 31 foot wide, 8" thick PCC pavement from Industry Street 600 feet east. In addition, several full panel patches will be included where individual panels have failed east of expansion Boulevard. Total project cost is approximately $415,357, including $88,300 for engineering. The city is applying for 50% STP funding for covered project costs of $327,057 which is $163,528.50. All improvements are roadway related. This project is in the City's Capital Improvement Program.

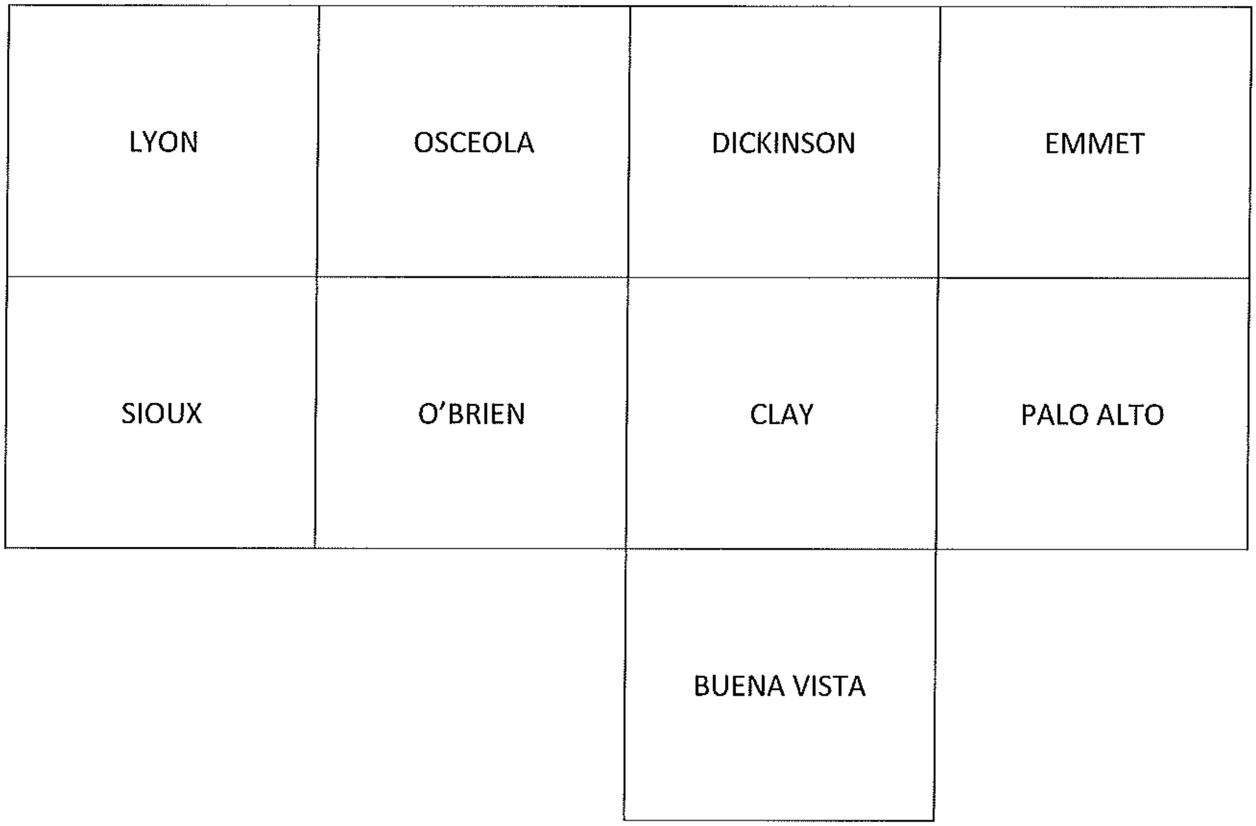
**FISCAL IMPACT:** Construction ($327,057) plus Engineering ($88,300) = Total ($415,357). Grant requested funding is for 50% of eligible costs for $163,528.50. The city portion is $163,528.50 (Const) and $88,300 (Eng) for a total of $251,828.50, or 60.63% of total project cost. Eligible costs are only the construction costs related to the replacement of roads, sub-base, and sidewalks. Engineering and utility work, including storm water utilities, are not grant eligible funds.

**RECOMMENDATION:** Authorize the Mayor to sign the application

**ATTACHMENTS:**

| Description | Type |
| --- | --- |

Application Contract




REGION III

# FAST Act

# APPLICATION

## 2019-2022 Regional Transportation Improvement Program Years

Application Produced by: The Northwest Iowa Planning & Development Commission

# APPLICATION FOR REGION III TRANSPORTATION PROJECTS

Complete and return the original: Ted Kourousis, Executive Director, NWIPDC
P.O. Box 1493, Spencer, Iowa 51301 by 4:30 p.m. **3/16/2018**
( Email fully executed copy to: Ted.Kourousis@nwipdc.org)

| | |
|---|---|
| 1. Project Name: Richland Street Reconstruction | Date: March 16, 2018 |
| 2. Contact Person: David M Derragon, Asst City Mgr | Phone Number: 712-732-8000 |
| 3. Address of Contact Person City County Zip Code<br>PO Box 1086 Storm Lake Buena Vista 50588 | |
| 4. Project Sponsor (lead entity if multi-jurisdictional)<br>City of Storm Lake | Sponsor Signature |

## 5. Classification of Project: (check all that apply)

☒ Highway

☒ Construction, reconstruction resurfacing, restoration, and rehabilitation

☐ Highway safety improvements Capital and operating costs for traffic management and control

☐ Surface Transportation planning, highway And research and development

☐ Operational Improvements

☐ Fringe and corridor parking facilities

☐ Most transportation control measures in The Clean Air Act

☐ Development and establishment of management system

☐ Transit

☐ Capital Costs for transit projects

☐ Surface Trans. planning for transit technology transfer activities

6. Please describe the proposed project within the space provided.

This project provides for the reconstruction of Richland Street from Industry Street to Radio Road (120th Avenue) in the City. This project includes the removal and replacement of a failing collector street in a 60 foot right of way with a new pavement section to carry the current and projected traffic loading. The pavement is beyond its useful life and would require substantial panel replacement to bring back to a useful level. The road is a main East West corridor connecting Highway 7 to Highway 71. Business located along the roadway include Tyson Foods and Hillshire Farms. The project will include a 31 foot wide, 8" thick PCC pavement from Industry Street 600 feet East. In addition, several full panel patches will be included where individual panels have failed East of expansion Boulevard. The total project cost is approximately $415,357, including engineering of $88,300. Construction related costs are estimated at $327,057 and the city is applying for 50% STP funding ($163,528.50). All improvements are roadway related.

7. Please provide a brief description of the project area. Include a map with the area marked (please do not enclose and color maps or maps larger than 8.5" x 14" (legal size) paper

Richland Street is a main East-West collector roadway in the city that runs from Radio Road on the East side of the city to Flindt Drive (Highway 7) on the West. The roadway provides access for both the Tyson Foods turkey and pork processing plants.

8. Project Budget

| EXPENSES | | REVENUE | | |
|---|---|---|---|---|
| ITEM | COST | SOURCE | AMOUNT | % |
| Land/Site Acquisition Costs | -0- | Regional | $163,528.50 | 50% |
| Construction/Materials Costs | $327,057 | Local | 163,528.50 | 50% |
| Engineering/Consulting Costs | $88,300 | Local | $88,300 | |
| Capital Acquisition explain: n/a | -0- | | | |
| Other (expl.) n/a | | | | |
| TOTAL COST | $415,357 | TOTAL COST | $415,357 | 100% |

9. Work plan and schedule for project completion (please be sure to coincide the work plan with the correct federal fiscal year, fiscal year for this cycle is 2019-2022(Federal fiscal year is October 1-September 30)

The proposed schedule for the improvements anticipated to be constructed in CY 2021 is as follows:
Design phase May-October 2020
Letting December 2020- January 2021
Construction April 2021-September 2021
Project Closeout October 2021-December 2021

10. Is there a need to coordinate with another entity in the programming and/or implementation of this project?

☐ Yes ☒ No

If yes, list other entities involved and describe the interaction needed and coordination to date.

n/a

## QUESTIONS 11-13 ARE FOR HIGHWAY PROJECTS ONLY

11. If applicable, what is the Average Daily Traffic of the proposed project?

1280

12. If applicable, what is the Federal Functional Classification(s) of the route within the proposed project?

Collector

13. If applicable, what are the basic roadway sufficiency numbers for the route within the proposed project?

Unknown

## PROJECT CHECKLIST

| 14. The following items are required | | Note: Applications must specifically and directly answer each criterion within the space provided to receive points. Pertinent attachments are allowed such as maps, drawings, and/or photos as long as they are reproducible |
|---|---|---|
| ☒ | Project Description | |
| ☒ | Project Location Map (reproducible) | |
| ☒ | Project Budget | |
| ☒ | Project work plan with schedule | |

Please fill in the following appropriate blanks:

We, the City of Storm Lake Support this application for Richland Street Reconstruction
(City, County or State) (Project Name)
by submitting this application, Regional FAST Act – Surface Transportation
(underline one)
funds in the amount of $163,528.50 are requested. This project has the support of local match

funding of $163,528.50, which is 50% of the anticipated grant eligible project costs, plus $88,300 non-eligible engineering costs. Total local support is $251,828.50 which is 60.63% of the total project costs.

BY: ________________________________________
Michael Porsch, Mayor

ATTEST: ________________________________________
Mayra Martinez, City Clerk

BOLTON & MENK

Real People. Real Solutions.

*ITEMIZED BREAKDOWN OF PROJECT COST*

**Street Rehabilitation**

Richland Street, Phase 2

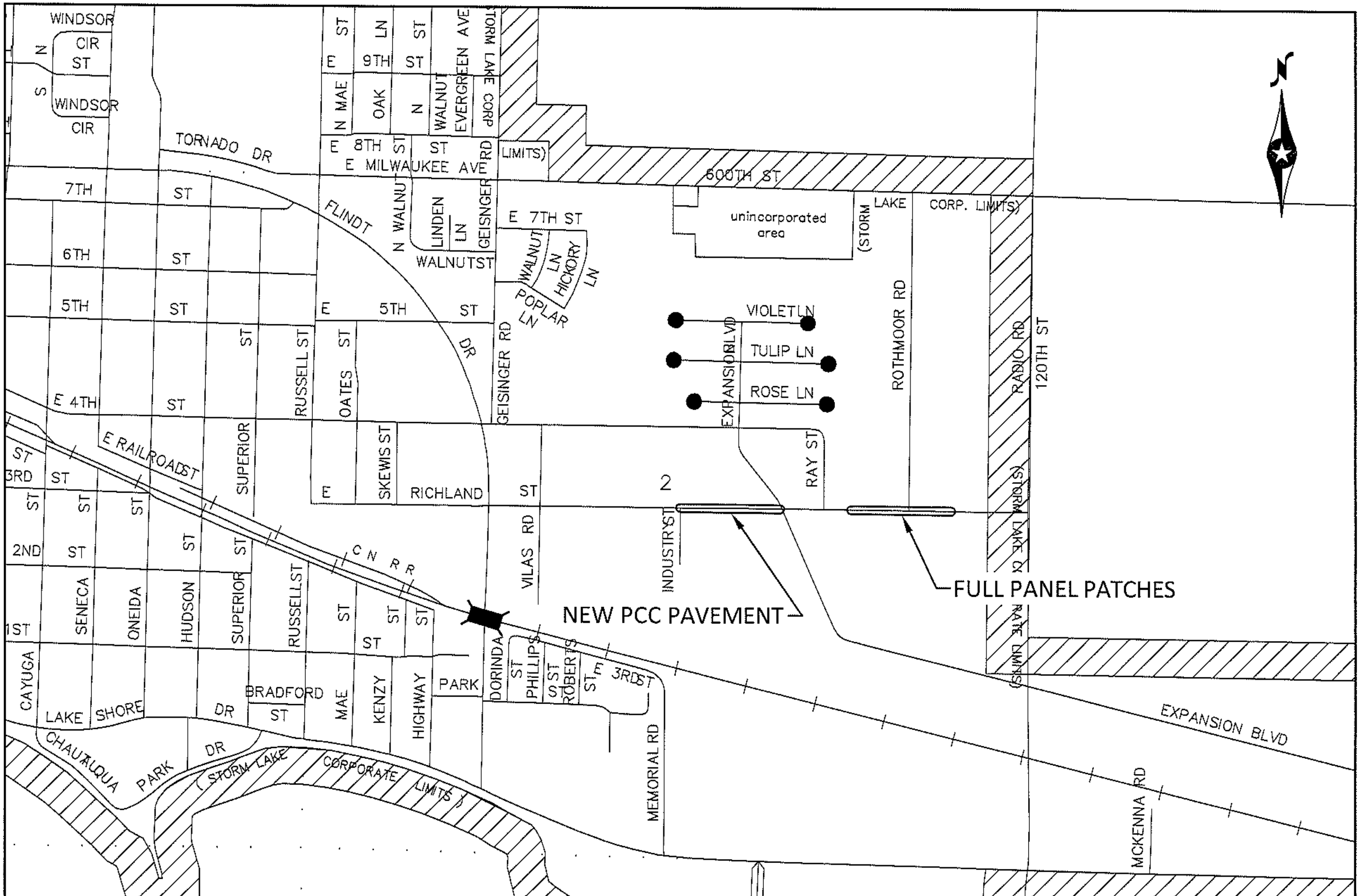
City of Storm Lake, Iowa

Project No. P11.115612

**STREET IMPROVEMENTS** 3/9/2018

| ITEM NO. | IDOT SPEC NO. | ITEM | UNIT | UNIT PRICE | QTY | TOTAL |
|---|---|---|---|---|---|---|
| 1 | 2102-2713070 | EXCAVATION, CLASS 13, ROADWAY AND BORROW | CY | $20.00 | 344.00 | $6,880.00 |
| 2 | 2105-8425005 | TOPSOIL, FURNISH AND SPREAD | CY | $30.00 | 400.00 | $12,000.00 |
| 3 | 2115-0100000 | MODIFIED SUBBASE, 6 IN. | CY | $55.50 | 344.00 | $19,092.00 |
| 4 | 2301-1033080 | STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN. | SY | $60.00 | 2067.00 | $124,020.00 |
| 5 | 2502-8212206 | SUBDRAIN, PERFORATED PLASTIC PIPE, 6 IN. DIA. | LF | $14.50 | 1200.00 | $17,400.00 |
| 6 | 2502-8221006 | SUBDRAIN RISER, 6 IN., AS PER PLAN | EA | $425.00 | 2.00 | $850.00 |
| 7 | 2502-8221303 | SUBDRAIN OUTLET, DR-303 | EA | $500.00 | 2.00 | $1,000.00 |
| 8 | 2510-6745850 | REMOVAL OF PAVEMENT | SY | $15.00 | 2067.00 | $31,005.00 |
| 9 | 2515-2475006 | DRIVEWAY, P.C. CONCRETE, 6 IN. | SY | $50.00 | 180.00 | $9,000.00 |
| 10 | 2515-6745600 | REMOVAL OF PAVED DRIVEWAY | SY | $15.00 | 180.00 | $2,700.00 |
| 11 | 2518-6910000 | SAFETY CLOSURE | EACH | $3,000.00 | 2.00 | $6,000.00 |
| 12 | 2528-8445110 | TRAFFIC CONTROL | LS | $5,700.00 | 1.00 | $5,700.00 |
| 13 | 2529-5070110 | PATCHES, FULL-DEPTH FINISH, BY AREA | SY | $100.00 | 112.00 | $11,200.00 |
| 14 | 2529-5070120 | PATCHES, FULL-DEPTH FINISH, BY COUNT | EA | $1,000.00 | 5.00 | $5,000.00 |
| 15 | 2533-4890005 | MOBILIZATION | LS | $21,150.00 | 1.00 | $21,150.00 |
| 16 | 2601-2636044 | SEEDING AND FERTILIZING (URBAN) | ACRE | $9,000.00 | 0.80 | $7,200.00 |
| 17 | 2602-0000020 | SILT FENCE | LF | $2.50 | 600.00 | $1,500.00 |
| 18 | 2602-0000071 | REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS | LF | $1.00 | 600.00 | $600.00 |
| 19 | 2602-0000101 | MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHE( | LF | $1.00 | 600.00 | $600.00 |
| 20 | 2602-0010010 | MOBILIZATIONS, EROSION CONTROL | EACH | $500.00 | 3.00 | $1,500.00 |
| | | CONSTRUCTION COST CONTINGENCY | LS | $42,660.00 | 1.00 | $42,660.00 |

| SUMMARY OF IMPROVEMENTS | Total Cost |
|---|---|
| TOTAL ESTIMATED CONSTRUCTION COSTS | $327,057.00 |
| DESIGN AND CONSTRUCTION ENGINEERING | $71,950.00 |
| ADMINISTRATION AND LEGAL | $16,350.00 |
| TOTAL ESTIMATED RICHLAND STREET, PHASE 2 PROJECT COSTS | $415,357.00 |

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CITY OF STORM LAKE, IOWA
RICHLAND STREET REHABILITATION

FEBRUARY, 2017

FIGURE NO. 1