TO: PLANHOLDERS

The contract documents for the referenced project are clarified and amended as follows:

MODIFICATIONS/CLARIFICATIONS:

1. **MODIFY** INVITATION TO BID of the Contract as follows:

Last Day for Questions: July 1, 2025 by 12:00 PM

Bid Due Date: July 9, 2025 by 2:00 PM

PROJECT MANUAL:

- 1. **REPLACE** MASTER INDEX with attached MASTER INDEX revised per Addendum 01.
- 2. **REPLACE** BID SCHEDULE with attached BID SCHEDULE revised per Addendum 01.
- 3. **ADD** the following to Page 1 of the Supplemental General Conditions of the Contract:

"Delete Item (G), in Article 1.8 in its entirety."

4. **MODIFY** Section 701-4.1 PIPE in Technical Specification D-701 Pipe for Storm Drains and Culverts of Exhibit D to the Supplemental General Conditions of the Contract as follows:

DELETE the fifth sentence, which reads:

"All trench excavation, <u>dewatering</u>, <u>removal and disposal of existing pipe</u>, <u>preparation of</u> <u>manholes for new pipes</u>, and backfill, topsoil, seeding, and mulching, <u>and all other work</u></u> <u>associated with providing a complete and functional storm drain system</u>, associated with pipe installation is subsidiary to D-701 items used for the work."

And **REPLACE** with the following sentence:

"All trench excavation, dewatering, removal and disposal of existing pipe, preparation of manholes for new pipes, bedding, and backfill, topsoil, seeding, and mulching, and all other work associated with providing a complete and functional storm drain system, associated with pipe installation is subsidiary to D-701 items used for the work."

5. **MODIFY** Section 701-5.1 in Technical Specification D-701 Pipe for Storm Drains and Culverts of Exhibit D to the Supplemental General Conditions of the Contract as follows:

DELETE the second Pay Item, which reads:

Item D701.010.0020 CPEP Pipe, 20-inch – per linear foot

And **REPLACE** with the following Pay Item:

Item D701.010.0021 CPEP Pipe, 21-inch – per linear foot

6. **MODIFY** Section 703-5.1 in Technical Specification D-703 Cured In Place Pipe Storm System of Exhibit D to the Supplemental General Conditions of the Contract as follows:

DELETE the second Pay Item, which reads:

Item D703.010.0020 CIPP Liner, 20-inch – per linear foot

And **REPLACE** with the following Pay Item:

Item D703.010.0021 CIPP Liner, 21-inch – per linear foot

7. **MODIFY** Section 125-5.1.a in Technical Specification L-125 Installation of Airport Lighting Systems of Exhibit D to the Supplemental General Conditions of the Contract as follows:

DELETE the last sentence of the following item, which reads:

- (14) L125.130.0000 Airport Sign, Type L-858 Pay Item. This pay item includes sign, L-867 base, frangible couplings, transformer, concrete base, sign faces as shown. Where required, removal of existing sign and foundation is subsidiary to this pay item.
- 8. **MODIFY** Section 125-5.1.a in Technical Specification L-125 Installation of Airport Lighting Systems of Exhibit D to the Supplemental General Conditions of the Contract as follows:

ADD the following item, which reads:

- (20) L125.250.0000 Remove Airport Sign Pay Item. This pay item includes removal and disposal of airport sign, frangible couplings, transformer, concrete base, conduit, and wire as indicated on the Plans.
- 9. **MODIFY** Section 318-5.5 in Technical Specification P-318 Foamed Asphalt Stabilized Base Course of Exhibit D to the Supplemental General Conditions of the Contract as follows:

DELETE the Table 318-2 Payment Schedule for Lot Densities, which reads:

Percent of Maximum Density from Approved Mix Design	Percent of Payment
98.0 or greater	100
97.0 to less than 98.0	90
96.0 to less than 97.0	75
Less than 96.0	See below

TABLE 318-2: PAYMENT SCHEDULE FOR LOT DENSITIES.

And **REPLACE** with the following table:

Percent of Maximum Density from Approved Mix Design	Percent of Payment		
98 97.0 or greater	100		
97.0 to less than 98.0	90		
96.0 to less than 97.0	75 95		
Less than 96.0	See below		

TABLE 318-2: PAYMENT SCHEDULE FOR LOT DENSITIES.

10. **MODIFY** Section 621-2.1 in Technical Specification P-621 Saw-Cut Grooves of Exhibit D to the Supplemental General Conditions of the Contract as follows:

DELETE the third sentence in the second paragraph, which reads:

"They must be saw-cut transversely in the runway and high speed taxiway pavement to not less than 10 feet from the runway shoulder to the outside pavement edge, or as shown in the plans, to allow adequate space for equipment operation."

And **REPLACE** with the following sentence:

"They must be saw-cut transversely in the runway and high speed taxiway pavement to not less than 10 feet from the runway shoulder 8 feet beyond the edge of the runway, or as shown in the plans, to allow adequate space for equipment operation."

- 11. **DELETE** Technical Specification P-401 Asphalt Mix Pavement (34 pages) of Exhibit D to the Supplemental General Conditions of the Contract and **REPLACE** with attached Technical Specification P-401 Asphalt Mix Pavement (34 pages) revised per Addendum 01.
- 12. **ADD** the HDL memorandum documenting impacts to the Waters of the U.S. and Notification requirements to the U.S Army Corps of Engineers to the back of EXHIBIT I to the Supplemental General Conditions of the Contract with attached EXHIBIT I per Addendum 01. (*The memorandum was also uploaded electronically in the link referenced in EXHIBIT I in the Project Manual*)

DRAWINGS:

- 1. **REPLACE** Sheet C1.01 with the attached drawing sheet C1.01 revised per Addendum 01.
- 2. **REPLACE** Sheet C1.02 with the attached drawing sheet C1.02 revised per Addendum 01.
- 3. **REPLACE** Sheet C2.01 with the attached drawing sheet C2.01 revised per Addendum 01.
- 4. **REPLACE** Sheet C2.08 with the attached drawing sheet C2.08 revised per Addendum 01.

- 5. **REPLACE** Sheet C3.01 with the attached drawing sheet C3.01 revised per Addendum 01.
- 6. **REPLACE** Sheet C4.02 with the attached drawing sheet C4.02 revised per Addendum 01.
- 7. **REPLACE** Sheet C4.04 with the attached drawing sheet C4.04 revised per Addendum 01.
- 8. **REPLACE** Sheet C4.05 with the attached drawing sheet C4.05 revised per Addendum 01.

MISCELLANEOUS ATTACHMENTS:

- 1. **ATTACH** Runway cross sections (28 pages). Cross sections are for informational purposes only and are not part of the Contract Documents.
- 2. **ATTACH** Taxiway cross sections (10 pages). Cross sections are for informational purposes only and are not part of the Contract Documents.
- 3. **ATTACH** HDL Memorandum documenting the impacts to the Waters of the U.S. and Notification requirements to the U.S Army Corps of Engineers (37 pages).

RESPONSES TO BIDDERS' QUESTIONS:

1. <u>Question:</u> Can cross sections be provided to plan holders for estimating purposes?

<u>Response:</u> Yes. Cross sections are attached to Addendum 01. Cross sections are provided for informational purposes only and are not part of the Contract Documents.

2. <u>Question:</u> Can the designer's quantity computations be provided to plan holders for estimating and take-off comparison purposes?

Response: No. Design quantity computations will not be provided.

3. <u>Question:</u> The question deadline is 1 week ahead of the bid due date. This leaves any questions that come up in that last week unanswered. For example, the Alaska Department of Transportation allows questions to be asked all the way up to the bid due date. For a project of this size a due date that is far ahead of the bid due date is restrictive. Another option is the bid and question due dates could both be moved back a week to relieve some of this concern.

<u>Response:</u> Deadline for questions has been extended to July 2, 2025, per Addendum 01. The bid due date has been extended to July 9, 2025, per Addendum 01. The question deadline will remain 1 week ahead of the bid due date.

4. <u>Question:</u> Remarks in pipe summary on sheet C4.05 appear to be in error. The "See Note 3" remark looks as though it should be "See Note 4" & "See Note 2" should be "See Note 3"?

<u>Response:</u> The Pipe Summary Table has been updated. See revised Sheet C4.05 per Addendum 01.

5. <u>Question:</u> Section 1.8 of the General Conditions references the MASS. Municipality of Anchorage Standard Specs.

<u>Response:</u> See Addendum 01 that creates a new Special Condition deleting Item (G), in Article 1.8 of the General Conditions, removing the reference to MASS.

6. <u>Question:</u> In the method of measurement section of D-701 backfill was crossed out as subsidiary. Is the bedding/backfill expected to be paid under a separate existing pay item? If so, which pay item?

<u>Response:</u> See Addendum 01. Changes to Technical Specification D-701 have been made to reflect that bedding and backfill are subsidiary to D-701 pay items.

7. <u>Question:</u> P-401 Asphalt Binder Grade: The Bid Schedule lists PG 52-40. Is the intent to specify PG 52-40V with MSCR testing requirements which are intended to provide a higher quality binder including rutting resistance? Note, Project Manual Section 401-6.2(g.) specifies acceptance and payment for the binder based on properties listed in Table 401-15 that are not included in Section 401-2.3 or Table 401-4 for PG 52-40 without a traffic designation.

<u>Response:</u> See Addendum 01. Technical Specification P-401 have been replaced to specify that asphalt binder shall be PG 52-40E.

8. <u>Question:</u> P-209 CABC Gradation: Table 209-2 specifies the top end of the percentage passing the 200 sieve at 5% but does not allow for the Job Control Grading Band Tolerances to be applied to the "Contractors Final Gradation". Would the project consider increasing the allowable maximum percentage passing the 200 sieve to the typical 6%?

<u>Response:</u> No. P-209 CABC Gradation shall meet the requirements as shown in Table 209-2.

9. <u>Question:</u> P-401 HMA Aggregate Quality Testing: Is the Contractor responsible for providing the aggregate quality tests specified in Section 401-2.1 that are not included in Section 401-3.3?

Response: Yes.

10. <u>Question:</u> P-401 Table 401-6 HMA APA Testing: To our knowledge the specified APA testing is not performed by anyone in Alaska other than AKDOT CRML. It has also been reported to us that the out of state labs that do perform the APA test use a hose pressure of 100 psi rather than the specified 250 psi hose pressure. Would the project consider allowing rutting and moisture sensitivity testing to be performed in accordance with AASHTO T 340(APA) or AASHTO T 324(Hamburg) in lieu of the specified ATM 419 at 250 psi?

INVITATION TO BID KENAI MUNICIPAL AIRPORT REHABILITATE RUNWAY 02L/20R

<u>Response:</u> If APA is not available in Alaska, compacted mix design samples may be sent to a laboratory that has an APA or the Hamburg wheel test (AASHTO T 324) 10 mm @ 20,000 passes at 50°C may be used.

11. <u>Question:</u> P-401 HMA Joints: Will it be acceptable to use a joint heater in lieu of cutting back cold joints?

<u>Response:</u> See Addendum 01. New Technical Specification P-401 is provided clarifying that cold joints shall be cut. Bidders shall assume all cold joints will be cut in accordance with the specification.

12. <u>Question:</u> HMA Adhesive: The Bid Schedule includes joint adhesive. Section 401 of the Project Manual requires all joints to either be paved in echelon or heated. Section 401 also indicates joint adhesive is not required for joints that are heated or echelon paved. Why is joint adhesive included in the Bid Schedule?

<u>Response:</u> See Addendum 01. New Technical Specification P-401 is provided clarifying that cold joints shall be cut. Longitudinal joint adhesive shall be applied to cold joints in the top lift of asphalt and where the top lift of new asphalt abuts existing asphalt.

13. <u>Question:</u> P-209 CABC Fracture: Could the single face fracture requirement be lowered to 98% as has previously been done on AKDOT aviation projects and is also in accordance with FAA standards for CABC? The high aggregate fracture requirements of the newer P-209 specification are not conducive to economically producing CABC using local alluvial aggregate sources.

Response: No. CABC shall meet the requirements of Table 209-1.

14. <u>Question:</u> We are looking at bidding the Kenai Airport Project. After reviewing the CCTV Inspections, we noticed that you do not have inspection for P7A and P7B which are both 24" pipes. Do you happen to have CCTV inspections for those two lines?

Response: No. P7A and P7B CCTV footage was not performed.

15. <u>Question:</u> Section 703-3.11: Would you consider specifying and mandating the use of VeriCure for temperature monitoring of the CIPP lining as part of the QA/QC process?

Response: No.

16. <u>Question:</u> Section 703-2.1: Would you consider United Felts as an approved CIPP lining manufacturer with EnviroCure UV as an approved UV CIPP lining solution for this project?

<u>Response:</u> CIPP Liner work shall meet the requirements of Technical Specification D-703.

17. <u>Question:</u> In the bid schedule, page 1, Pay Item Number A-4, its description states CIPP Liner, 20-Inch. When going through the blue prints, specifically the pipe summary, it does

not show any pipe to be CIPP that is 20 inch. It does show however two pipes at 21 inch and just a slight increase of linear feet.

Is the 20 inch suppose to be the 21 inch and if so, which measurement of feet is correct?

<u>Response:</u> See Addendum 01. Changes to Technical Specification D-701, Technical Specification D-703, Sheet C4.02, Sheet C4.04, and Sheet C4.05 have been made to update pipe information. 20-inch pipe has been updated to 21-inch pipe. Contractor shall be responsible for field verifying all pipe invert elevations, pipe diameters, and condition prior to performing the work.

18. <u>Question:</u> Due to the slight grade changes on the runway, can cross sections be provided for this project?

<u>Response</u>: See response to Question 1.

19. <u>Question:</u> Per the modified specification for P-621 Saw-Cut Grooves provided in the Project Manuel, grooving is to be completed to runway shoulder to the outside pavement edge. Typically, there is a 10-foot offset from the pavement edge in the standard FAA P-621 Spec. This is due to design of the machine that is required to cut the grooving. The steering wheels are around 10-12 feet in front of the groove cutting head. In order groove to the edge of the pavement, the front steering wheels would be required to drive onto the soil. This will cause a few problems. Primarily, the front of the machine will sink into the soil, due to the weight of the machine, and the grooving head will dip into the pavement causing deeper grooves than allowed. It will also cause damage to the soil surrounding the runway pavement. Furthermore, the machine itself may get stuck causing unnecessary delays to the project.

Additionally, there is edge lighting set into the pavement 10ft off the edge of the runway, with a slope change for the remaining 15 feet. This slope change (along with the slope change again for the soil outside the shoulder) will cause grooving depth issues previously mentioned.

Will the City consider revising the specification back to the standard FAA P-621 Spec, or terminate them the required 6-18in from the runway edge lights?

<u>Response</u>: See Addendum 01. New Technical Specification P-621 and Sheet C1.01 are provided to update runway groove limits in the runway shoulder to stop 8 feet beyond the edge of the runway.

20. <u>Question:</u> Spec 401-4.12 requires lanes to be paved 25' minimum width. Most pavers are 20', please consider changing the specification back to 20' lane widths. If 25' lane widths are to be required can this minimum be achieved with hot lapped joints instead of one 25' panel.

<u>Response</u>: See Addendum 01. Changes to Technical Specification P-401 have been made to update the minimum pavement width to 20 feet.

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21. <u>Question:</u> There is no Basis of Payment for Item L125.250.0000 Removal of Airport Signs, this is relevant because L125.130.0000 says removal is subsidiary. Please clarify.

<u>Response</u>: See Addendum 01. Changes to Technical Specification L-125 have been made to clarify basis of payment for removal of airport signs.

22. <u>Question:</u> Please confirm that for detail 3/G2.06 there is only one each taxiway closed sign at each taxiway abutting the active construction area and that there is not a taxiway closed sign on each low-profile barricade separating active construction area and closed taxiway?

<u>Response</u>: Only one taxiway closed sign is required at each closed taxiway abutting the active construction area.

23. <u>Question:</u> P-318 FASBC: As per 318-3.1 Composition of Mixture, who is responsible for sampling, proportioning, and performing the FASBC Mix Design?

<u>Response</u>: Contractor is responsible for sampling, proportioning, and performing the FASBC Mix Design.

24. <u>Question:</u> P-318 FASBC: As per 318-4.4, Is the intent to require a Foamed Asphalt Manufactures Representative to supervise the control strip or should this state "Foamed Asphalt Personnel or Foamed Asphalt Manufactures Representative?

<u>Response</u>: Both Foamed Asphalt Personnel and Manufacturers Representative shall supervise the control strip process.

- 25. <u>Question:</u> P-318 FASBC: As per Table 318-2 below, very aggressive payment disincentives could be applied for slightly lower than specified densities. As per the widely accepted <u>Wirtgen Cold Recycling Technology Manual Appendix 3, Section 8.3</u>: "Determining the field density of a layer constructed from recycled material is seldom a straightforward exercise due to two features of recycled material:
 - a. Variability of the recycled material that effects the maximum dry density value against which field density is compared; and
 - b. Bitumen in that portion of the material recycled from existing asphalt and/or bitumen surfacing that affects the moisture content reading of nuclear gauges"

Would it be considered to delete the payment disincentive portion of this specification and accept the materials based on observed performance?

TABLE 318-2: PAYMENT SCHEDULE FOR LOT DENSITIES.

Percent of Maximum Density from Approved Mix Design	Percent of Payment
98 or greater	100
97.0 to less than 98.0	90
96.0 to less than 97.0	75
Less than 96.0	See below

If payment disincentive not deleted from the specifications, would it be considered to adjust the payment schedule similar to previous DOT projects as shown in the table below?

TABLE 318-2: PAYMENT SCHEDULE FOR LOT DENSITIES.

Percent of Maximum Density from Approved Mix Design	Percent of Payment
98 97.0 or greater	100
97.0 to less than 98.0	90
96.0 to less than 97.0	75 95
Less than 96.0	See below

Bethel Airport

Bethel Airport Main Runway Reconstruction Project No. CFAT00430 / AIP 3-02-0029-028-2021 (DOT&PF rev. 05/19/20) (R&M rev. 08/23/21)

<u>Response</u>: See Addendum 01. Table 318-2 has been updated to reflect changes in payment.

26. <u>Question:</u> Please advise what is the input voltage for the new L829 CCR?

Response: CCR input voltage is 208V.

Where any requirements of the Invitation to Bid are in conflict with an item in an Addendum, the Addendum shall govern.

All other terms and conditions of the Invitation to Bid shall remain unchanged and in full force and effect.

CITY OF KENAI KENAI MUNICIPAL AIRPORT

REHABILITATE RUNWAY 02L/20R AIP 3-02-0142-XXX-2025

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PAY ITEM NO.	SPEC NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
A-1	D701.010.0018	CPEP PIPE, 18-INCH	LF	330		
A-2	D701.010.0021	CPEP PIPE, 21-INCH	LF	164		
A-3	D703.010.0018	CIPP LINER, 18-INCH	LF	589		
A-4	D703.010.0021	CIPP LINER, 21-INCH	LF	274		
A-5	D703.010.0024	CIPP LINER, 24-INCH	LF	240		
A-6	D703.010.0036	CIPP LINER, 36-INCH	LF	414		
A-7	D703.010.0042	CIPP LINER, 42-INCH	LF	1,322		
A-8	D751.100.0000	ADJUST MANHOLE	Each	1		
A-9	G100.010.0000	MOBILIZATION AND DEMOBILIZATION	Lump Sum	All Req'd		
A-10	G105.000.0000	INTERIM WORK AUTHORIZATION	Contingent Sum	All Req'd	\$400,000.00	\$400,000.00
A-11	G110.010.0000	AIRPORT SAFETY REQUIREMENTS	Lump Sum	All Req'd		
A-12	G115.010.0000	WORKERS MEALS AND LODGING, OR PER DIEM	Lump Sum	All Req'd		
A-13	G130.010.0000	FIELD OFFICE	Lump Sum	All Req'd		
A-14	G130.020.0000	FIELD LABORATORY	Lump Sum	All Req'd		
A-15	G130.060.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	Each	1		
A-16	G135.010.0000	CONSTRUCTION SURVEYING BY THE CONTRACTOR	Lump Sum	All Req'd		
A-17	G135.020.0000	EXTRA THREE PERSON SURVEY PARTY	Hour	40		
A-18	G135.050.0000	CONTRACTOR FURNISHED ENGINEERING TOOLS	Contingent Sum	All Req'd	\$35,900.00	\$35,900.00
A-19	G135.210.0000	ADJUST EXISTING MONUMENT CASE	Each	11		
A-20	G150.010.0075	EQUIPMENT RENTAL, DOZER 75-HP MINIMUM	Hour	80		
A-21	G150.040.0000	EQUIPMENT RENTAL, VAC TRUCK	Hour	40		
A-22	G200.010.0000	CONTRACTOR QUALITY CONTROL PROGRAM	Lump Sum	All Req'd		
A-23	G300.010.0000	CPM SCHEDULING	Lump Sum All Req'd			
A-24	G310.010.0000	PUBLIC UPDATES	Lump Sum	All Req'd		
A-25	L107.011.0008	8-FEET LIGHTED WIND CONE, SUPPLEMENTAL, IN PLACE	Each	3		
A-26	L108.010.2008	UNDERGROUND CABLE #8 AWG, COPPER, 5KV FAA TYPE C, L-824	LF	28,700		

Kenai Municipal Airport Rehabilitate Runway 02L/20R BID SCHEDULE

A-27	L108.030.0006	#6 BARE COPPER GROUND CONDUCTOR	LF	44,084		
A-28	L108.070.0000	GROUND ROD	Each	62		
A-29	L108.080.0014	UNDERGROUND CABLE #14 AWG, 2-CONDUCTOR, COPPER, 600V, TYPE "SOOW-A/SOOW"	LF	1,133		
A-30	L109.050.0000	INSTALLATION OF ELECTRICAL EQUIPMENT IN NEW OR EXISTING STRUCTURE	Lump Sum	All Req'd		
A-31	L110.050.1004	RIGID STEEL CONDUIT, 4-INCH	LF	1,970		
A-32	L110.080.1002	HDPE CONDUIT, 2-INCH	LF	20,518		
A-33	L125.020.0010	REGULATOR, L-829	Each	1		
A-34	L125.025.0000	HIGH INTENSITY RUNWAY EDGE AND THRESHOLD LIGHT, L-862 AND L-862E	Each	96		
A-35	L125.040.0000	TAXIWAY EDGE LIGHT, L-861T	Each	88		
A-36	L125.070.0000	REMOVE RUNWAY AND TAXIWAY LIGHT	Each	174		
A-37	L125.120.0000	RUNWAY GUARD LIGHT, L-804	Each	10		
A-38	L125.130.0000	AIRPORT SIGN, L-858	Each	19		
A-39	L125.150.0000	HANDHOLE, L-867, SIZE B	Each	1		
A-40	L125.170.0000	SPARE PARTS	Contingent Sum	All Req'd	\$10,000.00	\$10,000.00
A-41	L125.180.0000	TEMPORARY RUNWAY LIGHTING SYSTEM	Lump Sum	All Req'd		
A-42	L125.250.0000	REMOVE AIRPORT SIGN	Each	19		
A-43	L130.010.0000	SURFACE SENSOR SYSTEM	Lump Sum	All Req'd		
A-44	L132.010.0010	INSTALL APPROACH LIGHTING AIDS, PAPI	Lump Sum	All Req'd		
A-45	L132.010.0020	INSTALL APPROACH LIGHTING AIDS, REIL	Lump Sum	All Req'd		
A-46	L132.020.0020	REMOVE APPROACH LIGHTING AIDS, REIL	Lump Sum	All Req'd		
A-47	L132.020.0030	REMOVE APPROACH LIGHTING AIDS, VASI	Lump Sum	All Req'd		
A-48	L132.040.0000	APPROACH LIGHTING AIDS MODIFICATIONS	Lump Sum	All Req'd		
A-49	P152.010.0000	UNCLASSIFIED EXCAVATION	Cubic Yard	7,150		
A-50	P152.430.0000	DITCH LINEAR GRADING	Linear Foot	6,470		
A-51	P152.440.0000	AREA GRADING	Square Yard	201,000		
A-52	P154.020.0000	SUBBASE COURSE	Ton	3,650		
A-53	P161.010.0000	RECYCLED ASPHALT PAVEMENT	Square Yard	201,000		

Kenai Municipal Airport Rehabilitate Runway 02L/20R BID SCHEDULE

A-55	P318.020.0000	FOAMED ASPHALT STABILIZED BASE COURSE	Square Yard	131,000		
A-56	P318.040.0000	ASPHALT BINDER		800		
A-57	P318.050.0000	PORTLAND CEMENT	Ton	400		
A-58	P401.010.0030	HOT MIX ASPHALT TYPE II, CLASS A	Ton	47,900		
A-59	P401.020.5240	ASPHALT BINDER, PG 52-40E	Ton	2,550		
A-60	P401.070.0000	JOINT ADHESIVE	Linear Foot	84,000		
A-61	P401.130.0000	HMA COMBINED PRICE ADJUSTMENT	Contingent Sum	All Req'd	\$405,000.00	\$405,000.00
A-62	P602.010.0010	PRIME COAT, CSS-1	Ton	28		
A-63	P603.010.0010	TACK COAT, STE-1	Ton	115		
A-64	P608.210.0000	ASPHALT SURFACE TREATMENT, RAPID CURE	Square Yard	5,850		
A-65	P620.020.0000	RUNWAY AND TAXIWAY PAINTING	Lump Sum	All Req'd		
A-66	P620.060.0000	0 PAINTED MARKING REMOVAL		All Req'd		
A-67	7 P620.070.0000 TEMPORARY RUNWAY & TAXIWAY PAINTING		Lump Sum	All Req'd		
A-68	P621.020.0000	SAW-CUT GROOVES	Lump Sum	All Req'd		
A-69	P641.010.0000	EROSION, SEDIMENT AND POLLUTION CONTROL ADMINISTRATION	Lump Sum	All Req'd		
A-70	P641.020.0000	D.0000 TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL		All Req'd		
A-71	P641.060.0000	WITHHOLDING	Contingent Sum	All Req'd	-	\$0.00
A-72	T901.010.0000	SEEDING	Acre	14.0		
A-73	T905.010.0020	TOPSOILING, CLASS B	Square Yard	65,900		
			TOTAL:			

ITEM P-401 ASPHALT MIX PAVEMENT

DESCRIPTION

401-1.1 ASPHALT MIX PAVEMENT. Hot Mix Asphalt (HMA) shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared base or stabilized course in accordance with these Specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the Plans. Each course shall be constructed to the depth, typical section, and elevation required by the Plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 AGGREGATE. Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand, and mineral filler, as required. The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite. Coarse aggregate is the material retained on the No. 4 sieve. Fine aggregate is the material passing the No. 4 sieve.

Use a minimum of three stockpiles of crushed aggregate of different gradations. Place blend material, if any, in a fourth pile.

a. Coarse Aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the bituminous material and be free from organic matter and other deleterious substances. Coarse aggregate material shall conform to Table 401-1 Coarse Aggregate Material Requirements.

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	AASHTO T 96
Soundness of Aggregates by Use of Sodium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate	AASHTO T 104
Clay lumps and friable particles	1.0% maximum	AASHTO T 112
Micro-Deval	18% maximum	AASHTO T 327
Percentage of Fractured Particles	For pavements designed for aircraft gross weights of 60,000 pounds or more: Minimum 90% by weight of particles with at least two fractured faces, except Type V shall have a minimum of 98% by weight with at least two fractured faces	ATM 305
	For pavements designed for aircraft gross weights less than 60,000 pounds (27200 kg): Minimum 50% by weight of particles with at least two fractured faces and 65% with at least one fractured face ¹	
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 ²	ATM 306

TABLE 401-1. COARSE AGGREGATE MATERIAL REQUIREMENTS

^{1.} 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.

^{2.} A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

b. Fine Aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, slag, or gravel and shall be free from coatings of clay, silt, or other objectionable matter, and conform to Table 401-2 Fine Aggregate Material Requirements.

Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. The amount of sand to be added will be adjusted to produce mixtures conforming to requirements of these Specifications.

TABLE 401-2	. FINE AGGREG	ATE MATERIAL	REQUIREMENTS

Material Test	Requirement	Standard	
Liquid limit	25 maximum	ATM 204	
Plasticity Index	4 maximum	ATM 205	
Soundness of Aggregates by Use of Sodium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate	AASHTO T 104	
Clay Lumps and Friable Particles	1.0% maximum	AASHTO T 112	
Sand Equivalent	45 minimum	ATM 307	
Natural Sand	15% maximum by weight of total aggregate	ASTM D1073	
Uncompacted Void Content ¹	45% minimum	AASHTO T 304, Method A	

^{1.} Applies to Type V mix designs.

c. Sampling. The Engineer will sample according to ATM 301 for coarse and fine aggregate and according to ASTM D242 for mineral filler.

401-2.2 MINERAL FILLER. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of AASHTO M 17 and Table 401-3.

TABLE 401-3. MINERAL FILLER REQUIREMENTS

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ATM 205

401-2.3 ASPHALT BINDER. Provide the asphalt binder performance grade as indicated on the Plans. Asphalt binder shall conform to AASHTO M 320 or M 332 for the specified Performance Grade, except as indicated in Table 401-4 Exceptions to Performance-Graded Asphalt Binder Specification.

TABLE 401-4. EXCEPTIONS TO PERFORMANCE-GRADED ASPHALT BINDER SPECIFICATION

						PAV,	
						Dynamic	Direct
		Viscosity	MSCR,	AASHTO	T 350	Shear	Tension
Performance	AASHTO	AASHTO				AASHTO	AASHTO
Grade	Spec.	T 316	J _{NR3.2} kPa ⁻¹	J_{NR} Diff	% Rec _{3.2}	T 315	T 314
PG 52-28	M320	None				None	Delete
PG 52-40	M320	None				None	Delete
PG 52-40 <u>E</u> ₩	M332	None	0.50 max.	Delete	75 min.	None	Delete
PG 58-34E	M332	None	0.25 max.	Delete	85 min.	None	Delete
PG 64-40E	M332	1.0 PaS	0.10 max.	Delete	95 min.	5000 max	Delete
		max.				@ 4°C	

The Contractor shall furnish vendor's certificate of compliance and certified test reports for each lot of asphalt binder shipped to the project. The vendor's certified test report for the asphalt binder can be used for acceptance or tested independently by the Engineer.

The following documents shall be furnished at delivery:

- a. Manufacturer's certificate of compliance
- **b.** Certified test reports for the lot.
- c. Lot number, storage tanks, and shipping containers (if applicable) used.
- d. Date and time of load out for delivery.
- e. Type, grade, temperature, and quality of asphalt binder loaded.
- **f.** Type and percent of anti-stripping agent added.

All excess asphalt binder shall remain the property of the Contractor. Removal of excess asphalt binder from the project area shall be incidental to the contract and no separate payment will be made.

401-2.4 ANTI-STRIPPING AGENT. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond Specifications. Anti-strip shall be approved by the Engineer.

401-2.5 PRELIMINARY MATERIAL ACCEPTANCE. Prior to delivery of materials to the job site, the Contractor shall submit certified test reports to the Engineer for the following materials:

- **a.** Coarse Aggregate.
 - (1) Percent of wear
 - (2) Soundness
 - (3) Degradation
 - (4) Percent of fracture
 - (5) Percent of flat and elongated particles
 - (6) Clay lumps and friable particles
- **b.** Fine Aggregate.
 - (1) Liquid limit.
 - (2) Plasticity index
 - (3) Sand equivalent
 - (4) Un-compacted void content for HMA Type V
 - (5) Clay lumps and friable particles
 - (6) Soundness
 - (7) Percent Natural Sand

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- **c.** Mineral Filler.
 - (1) Gradation
 - (2) Plasticity Index
 - (3) Organic content
- **d.** Asphalt Binder. The certification(s) shall show the appropriate test(s) for each material, the test results, and a statement that the material meets the specification requirement. Include temperature/viscosity charts and note recommended mixing and compaction temperatures.

401-2.6 JOINT ADHESIVE. The joint adhesive shall conform to Table 401-5 Joint Adhesive Material Requirements.

PROPERTY	SPECIFICATION	TEST METHOD
Brookfield Viscosity, 400°F	4,000 – 11,000 cP	ASTM D2669
Core Penetration, 77°F	60 – 100	
Flow, 140°F	0.2-inch, max.	
Resilience, 77°F	30%, min.	ASTM D5329
Tensile Adhesion, 77°F	500%, min.	
Asphalt Compatibility	Pass	
Ductility, 77°F	1-foot, min.	
Ductility, 39.2°F	1-foot, min.	ASTM D113
Softening Point	170°F	AASHTO T 53

TABLE 401-5. JOINT ADHESIVE MATERIAL REQUIREMENTS

401-2.7 JOINT SEALANT. The joint shall be sealed with GSB 88 (manufactured by Asphalt Systems Inc.), Optipave (manufactured by SealMaster), or meet the following:

- **a.** Emulsion concentrate, in the undiluted state, shall have the following properties:
 - (1) Saybolt furol viscosity at 77°F, ASTM D244, seconds 20-100

 - (3) Sieve test, ASTM D244, %0.2 max
 - (4) 5 day Settlement test, ASTM D244, %......5.0 max
 - (5) Particle charge (refer to 401-2.7d), ASTM D244.....Positive
- **b.** Ready to Apply:
 - (1) Emulsion concentrate diluted in the proportion of one part emulsion to one part hot water by volume, shall have the following properties:
 - (a) Saybolt furol viscosity at 77°F, ASTM D244, seconds......10-50
 - (b) Residue by distillation or evaporation, ASTM D244, %28.5 min
 - (c) Pumping stability test, (refer to 401-2.7e)Pass
 - (2) Emulsion concentrate diluted in the proportion of two parts emulsion to one part hot water by volume, shall have the following properties:

	(a) Saybolt furol viscosity at 77°F, ASTM D244, seconds	10-50
	(b) Residue by distillation or evaporation, ASTM D244, %	37.5 min
	(c) Pumping stability test, (refer to 401-2.7e)	Pass
Tes	sts on residue from distillation or evaporation shall have the following prope	erties:
(1)	Viscosity at 275°F, ASTM D4402, cubic feet per second (cts)	.1,750 max
(2)	Solubility in 1,1,1 Trichloroethylene, ASTM D2042, %	97.5 min
(3)	Penetration ASTM D5, dmm	50 max
(4)	Asphaltenes, ASTM D2007,%	15 min
(5)	Saturates, ASTM D2007, %	15 max
(6)	Polar Compounds, ASTM D2007, %	25 min
(7)	Aromatics, ASTM D2007, %	15 min

- **d.** pH may be used in lieu of the particle charge test, which is sometimes inconclusive in slow setting, bituminous emulsions.
- **e.** Pumping stability test is tested by pumping one pint of sealer material diluted one part concentrate to one part water, at 77°F, through a 1/4-inch gear pump operating 1,750 revolutions per minute (rpm) for 10 minutes with no significant separation or coagulation.

The bituminous base residue shall contain not less than 20% gilsonite, and shall not contain any tall oil pitch. Curing time, under recommended application conditions, shall not exceed four hours. The Contractor shall furnish and submit to the Engineer, manufacturer's certification that the material is the type, grade, and quality specified for each load of bituminous material delivered. The certification shall show the shipment number, refinery, consignee, destination, contract number, and date of shipment. The Contractor shall submit to the Engineer, two 1-quart samples of ready-to-apply bituminous material for each batch applied and two 1-quart samples of concentrate for each load delivered. The Contractor shall submit any additional samples requested by the Engineer.

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.

COMPOSITION

401-3.1 COMPOSITION OF MIXTURE(S). The HMA shall be composed of a mixture of well-graded aggregates, filler, if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix design (JMD).

401-3.2 JOB MIX DESIGN (JMD) LABORATORY. The laboratory used to develop the JMD shall possess a current certificate of accreditation, listing ASTM D3666 from a national accrediting authority, and all test methods required for developing the JMD; and be listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Department prior to start of construction.

401-3.3 JOB MIX DESIGN (JMD). No HMA for payment shall be placed until an acceptable JMD has been approved by the Engineer. The Class A and B HMA shall be designed using procedures contained in ATM 417, and shall meet the requirements of Tables 401-6 and 401-8.

c.

The HMA, Type V, Class S will be designed using procedures contained in AASHTO R 35 and shall meet the requirements of Table 401-7 and Table 401-8. Upon completion of the JMD, determine the Marshall stability and Marshall air voids at the design asphalt binder content using a 75-Blow Marshall from procedures contained in ATM 417. The Department will furnish all JMDs for HMA, Type V.

The JMD and subsequent production targets should be based on a stability greater than shown in Table 401-6 and 401-7, and the flow and air voids should be targeted close to the mid-range of the criteria in order meet the acceptance requirements.

Anti-stripping agent shall be added to the asphalt binder in the amount determined by ATM 414. A minimum of 0.30% anti-stripping agent by weight of asphalt binder is required.

The JMD shall be furnished by the contractor and submitted to the engineer for approval a minimum of 30 days prior to the start of paving operations.

At the discretion of the Engineer, the JMD may be designed by the Department. The Department designed JMDs will be based on the Contractor's submitted target gradation. The Contractor shall submit material samples to the Engineer, upon request, for JMD. The Department will bear the cost of the initial JMD evaluation for each Type and Class of HMA specified. If subsequent evaluations are required, the Engineer will assess a fee of \$5,000.00 under Hot Mix Asphalt Price Adjustment, for each additional evaluation.

- **a. DEPARTMENT FURNISHED JMD.** Submit the following, or as directed, in writing to the Engineer at least 30 calendar days prior to the start of paving operations and shall include as a minimum:
 - (1) Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMD according to subsection 401-2.3. Certificate of asphalt Performance Grade must include added modifier, if used, and also indicate compliance of asphalt binder with AASHTO M 320 or AASHTO M 332. Furnish five (5) separate 1-gallon samples of the asphalt binder proposed for use in the HMA, and Safety Data Sheet.
 - (2) Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMD according to subsection 401-2.4.
 - (3) Certified material test reports for the course and fine aggregate and mineral filler according to subsection 401-2.1.
 - (4) Percent natural sand.
 - (5) Percent fractured faces.
 - (6) Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
 - (7) Laboratory mixing and compaction temperatures.
 - (8) Supplier-recommended field mixing and compaction temperatures.
 - (9) Plot of the combined gradation on a 0.45 power gradation curve. Provide curve and testing results for each aggregate type proposed for use.
 - (10) Type and amount of anti-strip agent when used. Furnish a minimum of 1/2-pint of the proposed anti-strip additive, if anti-strip is not incorporated into asphalt binder by the manufacturer.
 - (11)Temperature-viscosity relationship of the asphalt binder.
 - (12) Uncompacted void content for HMA Type V.

- (13)Percentage and properties (asphalt content, asphalt binder properties, and aggregate properties) of RAP in accordance with subsection 401-3.4. Furnish 200-pound, minimum, sample of proposed RAP.
- b.a.CONTRACTOR FURNISHED JMD. When the Contractor is directed to prepare the JMD for approval, the Contractor must submit the JMD sealed by the responsible Professional Engineer of the laboratory.

In addition to the items listed in subsection 401-3.3a, submit the following, or as directed, in writing to the Engineer at least 15 calendar days prior to the start of paving operations:

- (1) Date the JMD was developed. Mix designs that are not dated or which are from a prior construction season will not be accepted.
- (2) Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMD. Furnish representative samples totaling 500 pounds of aggregate material in proportional amounts to the proposed JMD.
- (3) A letter stating the location, size, and type of mixing plant. The letter shall include gradations for individual stockpiles, and the blend ratio of each aggregate stockpile.
- (4) Specific Gravity and absorption of each coarse and fine aggregate.
- (5) Percent of asphalt.
- (6) Number of blows or gyrations.
- (7) Asphalt Pavement Analyzer (APA), or Hamburg test results; or stability and flow test results, as appropriate for the mix design method.
- (8) Sand Equivalent value for fine aggregate.
- (9) Theoretical Maximum Specific Gravity at the optimum asphalt binder content.

All Contractor furnished JMDs must be sealed by a professional Engineer registered in the State of Alaska. The Professional Engineer must certify that the JMD was performed according to the specified procedures, and meets these Specifications.

The Engineer has authority to review and reject submitted JMDs that do not meet these Specifications. The Contractor shall submit samples to the Engineer, upon request, for JMD verification testing.

The JMD for each mixture shall be in effect until modified in writing by the Engineer. Should a change in sources of materials be made, a new JMD must be approved by the Engineer before the new material is used.

Test Property	Class A: Pavements Designed for Aircraft Gross Weights of 60,000 Ibs or More or Tire Pressures of 100 psi or More	Class B: Pavements Designed for Aircraft Gross Weight Less Than 60,000 lbs or Tire Pressure Less Than 100 psi
Number of blows	75	50
Stability, pounds	2150	1350
Flow, 0.01 inch ¹	10-16	10-18

TABLE 401-6. MARSHALL MIX DESIGN REQUIREMENTS

Test Property	Class A: Pavements Designed for Aircraft Gross Weights of 60,000 Ibs or More or Tire Pressures of 100 psi or More	Class B: Pavements Designed for Aircraft Gross Weight Less Than 60,000 lbs or Tire Pressure Less Than 100 psi
Air voids %	2.8 - 4.2	2.8 - 4.2
(design target 3.5%)		
Voids in mineral aggregate, %, min.	See Table 401-8	See Table 401-8
Asphalt Binder	5.0	5.0
Content, %, min.		
Antistrip	70	70
Requirement,%		
coverage, min ²		
Asphalt Pavement Analyzer (APA) ³	Less than 10mm @ 4,000 passes	N/A

¹ The flow requirement is not applicable for Polymer Modified Asphalts.

^{2.} ATM 414.

^{3.} ATM 419 at 250 psi hose pressure at 64°C test temperature

TABLE 401-7. GYRATORY HOT MIX ASPHALT TYPE V MIX DESIGN REQUIREMENTS

Mix Design Class S			
Pavements for gross aircraft weights of 60,000 lbs or more.			
Test Property	Design Criteria ¾" Nominal Maximum Aggregate Size		
Initial Number of Gyrations (Nini)	7		
Design Number of Gyrations (Ndes)	75		
Maximum Number of Gyrations (N _{max})	115		
Air voids @ N _{des} (Design Target 3.5), %	2.8-4.2		
Voids in Mineral Aggregate @ Ndes, %	Table 401-8		
Voids filled with Asphalt @ N _{des} , %	65-78		
Dust to effective asphalt ratio	0.6 -1.2		
Uncompacted Void Content	45 min.		
% G _{mm} @ N _{ini}	≤ 90.50		
% G _{mm} @ N _{max}	≤ 98.00		
Asphalt Binder Content, %, min.	5.0		
Antistrip Requirement, %, min. ¹	70		
Marshall Stability 75 blow (average of 3	Report		
specimens)			
Marshall Air Voids – 75 blow (average of 3	Report		
specimens)			
Rut Index, Max., mm, ATM 419 ²	Less than 10 mm @ 4,000 passes		

^{1.} ATM 414

^{2.} ATM 419 at 250 psi hose pressure at 64°C test temperature

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 401-8 Aggregate-Asphalt Pavements when tested according to ATM 304. The maximum size aggregate used shall not be more than one-fourth of the thickness of the course being constructed.

The gradations in Table 401-8 represent the limits that shall determine the suitability of aggregate for use from the sources of supply. The aggregate, as selected (and used in the JMD), shall have a gradation within

the limits designated in Table 401-8 and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa, but shall be well graded from coarse to fine when tested according to ATM 304.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

Sieve Size	Sieve Size Percentage by Weight Passing Sieves			
Sieve Size	Type I	Type II	Type III ¹	Type V
1 inch	100			
3/4 inch	90-100	100		100
1/2 inch	68-88	90-100	100	65-90
3/8 inch	60-82	72-88	90-100	55-80
No. 4	45-67	53-73	58-78	40-60
No. 8	32-54	38-60	40-60	≤ 45
No. 16	22-44	26-48	28-48	≤ 35
No. 30	15-35	18-38	18-38	≤ 25
No. 50	9-25	11-27	11-27	≤ 20
No. 100	6-18	6-18	6-18	≤ 12
No. 200	3-6	3-6	3-6	4-7
Minimum Voids in Mineral Aggregate (VMA)	13	14	15	14
Asphalt percent by total weight of mixture:				
Stone or gravel	4.5-7.0	5.0-7.5	5.5-8.0	5.0 - 7.5
Recommended Minimum Construction Lift Thickness	3 inches	2 inches	1-1/2 inches	2 inches

 TABLE 401-8.
 AGGREGATE – ASPHALT PAVEMENTS

^{1.} Type III gradation is intended for leveling courses.

401-3.4 RECYCLED HOT MIX ASPHALT PAVEMENT. Recycled HMA shall consist of reclaimed asphalt pavement (RAP), coarse aggregate, fine aggregate, mineral filler, asphalt binder, and recycling agent, if necessary. The RAP shall be of a consistent gradation and asphalt content and properties. When RAP is fed into the plant, the maximum RAP size shall not exceed one inch. The recycled HMA shall be designed using procedures contained in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition, in conjunction with ATM 417. The percentage of asphalt in the RAP shall be established for the mixt design according to ASTM D2172 using the appropriate dust correction procedure. The JMD shall meet the requirements subsection 401-3.3. Recycled HMA shall only be used for shoulder surface course mixes and for any intermediate courses. The amount of RAP shall be limited to 20 percent. In addition to the requirements of subsection 401-3.3, the JMD shall indicate the percent of RAP, the percent and grade of new asphalt binder, the percent and grade of hot mix recycling agent (if used), and the properties (including viscosity and penetration) of the asphalt blend. The resulting composite mixture of RAP and virgin components shall meet all requirements specified for mixes without RAP. No RAP shall be used in Type V, Class S HMA.

RAP containing Coal Tar shall not be used. Coal Tar surface treatments must be removed prior to recycling underlying asphalt material. Recycled asphalt shingles (RAS) shall not be used.

All new aggregates used in the recycled mix shall meet the requirements of subsection 401-2.1. New asphalt binder shall meet the requirements of subsection 401-2.3. Recycling agents shall meet the requirements of ASTM D4552. The Contractor shall submit documentation to the Engineer, indicating that the mixing equipment proposed for use is adequate to mix the percent of RAP shown in the JMD.

401-3.5 CONTROL STRIP. Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the Engineer. The Contractor shall prepare and place a quantity of asphalt according to the JMD. The underlying grade or pavement structure upon which the control strip is to be constructed shall be the same as the remainder of the course represented by the control strip.

The Contractor will not be allowed to place the control strip until the Contractor Quality Control Program (CQCP), showing conformance with the requirements of subsection 401-5.1, has been accepted, in writing, by the Engineer.

The control strip will consist of at least 250 tons. The control strip shall be placed in two lanes of the same width and depth to be used in production with a longitudinal cold joint. The cold joint must be cut back in accordance with subsection 401-4.14 using the same procedure that will be used during production. The cold joint for the control strip will be an exposed construction joint at least four (4) hours old or when the mat has cooled to less than 160°F. The equipment used in construction of the control strip shall be the same type, configuration, and weight, to be used on the project.

The control strip shall be evaluated for acceptance as a single lot in accordance with the acceptance criteria in subsection 401-6.1 for aggregate gradation and asphalt binder content. The control strip shall be divided into three separate equal sub-lots. If the Composite Pay Factor is less than 1.000, the control strip is unacceptable.

Three 6-inch diameter core samples shall be cut from the finished hot mix asphalt by the Contractor, at the locations marked by the Engineer. The core samples will be tested by the Department for density according to subsection 401-5.1. The Target Value for mat density is 94.0% of the theoretical maximum specific gravity (MSG) of the JMD. The three samples will be evaluated according to subsection 401-8.1.a. If the Density Pay Factor is less than 1.000, the control strip is unacceptable.

Three longitudinal joint cores centered on the longitudinal joint shall be cut by the Contractor, at the locations marked by the Engineer. The core samples will be tested by the Department according to subsection 401-5.1. The Target Value for joint density is 92.0% of the JMD MSG. If the average density of the three joint cores is below 91.0%, the control strip is unacceptable.

After completion of control strip compaction, the Department will accept or reject the control strip within 48 hours.

If the control strip is unacceptable, necessary adjustments to the JMD, plant operation, placing procedures, and/or rolling procedures shall be made and another control strip shall be placed. Unacceptable control strips shall be removed at the Contractor's expense. For small projects, less than 3,000 tons, a control strip is not required.

401-3.6 PRE-PAVING CONFERENCE. Meet with the Engineer for a pre-paving meeting in the presence of project superintendent and paving foreman at least five working days before beginning paving operations. Submit a paving plan and pavement inspection plan per 401-3.7, 24 hours before the pre-paving conference.

Include the following elements in the paving plan and address these elements at the meeting:

- **a.** Safety Plan procedures to be implemented prior to and during paving.
- **b.** Sequence of operations and Laydown Plan per subsection 401-4.11<u>12</u>.

- **c.** List of equipment that will be used for production, transport, pick-up (if applicable), laydown, and compaction.
- d. Summary of plant modifications (if applicable) for production of HMA.
- e. Procedures to produce consistent HMA.
- f. Procedures to minimize material and thermal segregation.
- g. Procedures to minimize premature cooling.
- h. Procedures to achieve HMA density.
- i. Procedures for joint construction including corrective action for joints that do not meet surface tolerance requirements.
- **j.** Quality control sampling and testing methods, frequencies and sample locations for gradation, asphalt binder content, and density.
- **k.** Any other information or procedures necessary to provide completed HMA construction that meets the contract requirements.

Include the following elements in the pavement inspection plan and address these elements at the meeting:

- I. Process for daily inspections
- **m.** Means and methods to remove and dispose of project materials

401-3.7 PROJECT MAINTENANCE. Inspect daily according to pavement inspection plan. Remove, and dispose of project materials incorrectly deposited on existing and new pavement surfaces(s) inside and outside the project area including haul routes.

The Contractor is responsible for damage caused by not removing these materials and any damage to the roadway from the removal method(s).

Repair damage to the existing paved surfaces that results from fugitive materials or their removal.

CONSTRUCTION METHODS

401-4.1 WEATHER LIMITATIONS. The HMA shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 401-9. The temperature requirements may be waived by the Engineer, if requested; however, all other requirements including compaction shall be met.

Table 401-9. Surface Temperature Limitations of Underlying Cours	Table 401-9. Surfac	e Temperature	Limitations of	f Underlying	Course
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Mat Thickness	Base Temperature (°F Minimum)
3 inches or greater	40
Greater than 2 inches but less than 3 inches	45

401-4.2 ASPHALT MIXING PLANT. Meet American Association of State Highway and Transportation Officials (AASHTO) M 156. Use an HMA plant capable of producing at least 250 tons of HMA per hour noted on posted DEC air quality permit, designed to dry aggregates, maintain consistent and accurate

temperature control, and accurately proportion asphalt binder and aggregates. HMA plant capacity to support echelon paving shall be a minimum of 400 tons per hour produced by a maximum of 2 plants. Both plants shall produce the same mix design. Calibrate the HMA plant and furnish copies of the calibration data to the Engineer at least 24 hours before HMA production.

Provide a scalping screen at the asphalt plant to prevent oversize material or debris from being incorporated into the HMA.

Provide a tap on the asphalt binder supply line just before it enters the plant (after the 3-way valve) for sampling asphalt binder. Provide aggregate and asphalt binder sampling locations meeting OSHA safety requirements.

Plants may not be placed on Airport property unless a specific location is noted on the Plans. Requirements for all plants include:

- **a. Inspection of Plant.** The Engineer, or Engineer's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.
- **b.** Storage Bins and Surge Bins. Use of surge bins or storage bins for temporary storage of HMA will be permitted as follows:
 - (1) The HMA may be stored in surge bins for not longer than 3 hours.
 - (2) The HMA may be stored in insulated storage bins for not longer than 8 hours.

The bins shall be such that mix drawn from them meets the same requirements as mix loaded directly into trucks.

If the Engineer determines that there is an excessive amount of heat loss, segregation or oxidation of the mixture due to temporary storage, no temporary storage will be allowed.

401-4.3 AGGREGATE STOCKPILE MANAGEMENT. Aggregate stockpiles shall be constructed in a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the asphalt batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used. A continuous supply of materials shall be provided to the work to ensure continuous placement.

401-4.4 HAULING EQUIPMENT. Trucks used for hauling HMA shall have tight, clean, and smooth metal beds. To prevent the mixture from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the RPR. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.4.1 MATERIAL TRANSFER VEHICLE (MTV). MTVs used to transfer the material from the hauling equipment to the paver shall be self-propelled, with a swing conveyor that can deliver material to the paver without making contact with the paver. The MTV shall be able to move back and forth between the hauling equipment and the paver providing material transfer to the paver, while allowing the paver to operate at a constant speed. The MTV will have remixing and storage capability of at least 15 tons to prevent physical and thermal segregation.

401-4.5 ASPHALT PAVERS. HMA pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of bituminous plant mix material that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment

without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in subsection 401-4.12. Place auger extensions within 20 inches of the screed extensions or per written manufacturer's recommendations.

401-4.6 ROLLERS. The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions or other damage to the pavement surface. Rollers shall be in good condition, clean, and capable of operating at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

401-4.7 DENSITY DEVICE. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the Engineer upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.8 PREPARATION OF ASPHALT BINDER. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.9 PREPARATION OF MINERAL AGGREGATE. The aggregate for the HMA shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.10 PREPARATION OF HMA. The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMD.

The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants.

The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in AASHTO T 195, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles.

For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer.

The moisture content of all HMA upon discharge shall not exceed 0.5% of the total weight of mix, as determined by ATM 407.

401-4.11 APPLICATION OF PRIME AND TACK COAT. Immediately before placing the HMA, the underlying course shall be cleaned of all dust and debris.

If required, a prime coat in accordance with Item P-602 Emulsified Asphalt Prime Coat shall be applied to aggregate base prior to placing HMA.

A tack coat shall be applied in accordance with Item P-603 Emulsified Asphalt Tack Coat to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of HMA.

<u>If longitudinal joint adhesive appears in the bid schedule it shall be applied in accordance with Item P-401</u> Joint Adhesive to all vertical joint surfaces when placing the final lift of HMA.

401-4.12 LAYDOWN PLAN, TRANSPORTING, PLACING, AND FINISHING. Prior to the placement of the HMA, the Contractor shall prepare a laydown plan with the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the Engineer.

The Contractor shall use an MTV conforming to the requirements of subsection 401-4.4.1 to deliver mix to the paver.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. <u>When echelon paving is performed</u>, <u>Ss</u>upply echelon paving operations with hot mix asphalt at a minimum rate of 400 tons per hour. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

Contractor shall survey each lift of HMA surface course and certify to the Engineer that every lot of each lift meets the grade tolerances of subsection 401-6.2f before the next lift can be placed.

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 to the first and each subsequent lift of HMA, and apply longitudinal joint adhesive to the final lift of HMA before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the HMA shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the Engineer. The HMA shall be placed in consecutive adjacent lanes having a minimum width of 20 feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the HMA uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The Engineer may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated HMA. Such rejection may be based on only visual inspection or temperature measurements. 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 Department's 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.

Areas of segregation in the surface course, as determined by the Engineer, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness for the approved mix design. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

Echelon paving shall-may be used for the final lift of HMA pavement on the runway. If utilized, Ppave the final lift of HMA with two pavers operating in echelon in adjacent lanes with a breakdown roller behind each paver-operating with intelligent compaction equipment. Echelon paving shall place a minimum 38-foot wide mat on each side of centerline, resulting in no cold joints within 38 feet of centerline. The pavers shall be spaced no more than 50 feet apart. The distance between the pavers shall be reduced as required to ensure the HMA placed by the lead paver is greater than 230°F when the second paver places material against it. Two paving crews are required. Cold joints located between echelon passes, that remain above 175°F after initial placement, shall be preheated using infrared heaters as described in subsection 401-4.14. Cold joints located between echelon passes that are exposed for more than four (4) hours or the surface temperature has cooled to less than 175°F shall be cut in accordance with subsection 401-4.14.

401-4.13 COMPACTION OF HMA. After placing, the HMA shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with power tampers approved by the Engineer.

Any mixture that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding pavement. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.14 JOINTS. The formation of all joints shall be made to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. Any longitudinal joint should also have the use of a bulkhead for any traffic that may also cause a rolled edge. In both methods, all contact surfaces shall have a tack coat or joint adhesive applied, dependent on top/bottom asphalt lift, before placing any fresh mix against the joint.

Longitudinal joints shall be formed in such a manner that the joint meets density requirements of subsection 401-6.2c. Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F; or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a cutting wheel or pavement saw a minimum of 3 inches and a maximum of 6 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. Asphalt tack coat in accordance

with P-603 shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. The cost of this work shall be considered incidental to the cost of the asphalt.

For all joints below the top lift, uniformly coat joint surfaces with tack coat material meeting P-603.

When joint adhesive is required, follow joint adhesive manufacturer's recommendations for temperatures and application method. Otherwise, use tack coat material meeting Item P-603. Remove joint adhesive applied to the top of pavement surface. When forming a longitudinal joint in the final lift, <u>including joints with existing pavement</u>, apply a 1/8 inch thick band joint adhesive to the full height of the joint surface prior to placing any fresh hot mix asphalt against the joint. Joint edge preparation, and joint adhesive application temperature, thickness, and method shall be per the manufacturer's recommendations. Joint adhesive <u>and tack coat are is</u>-not required <u>on the surface of the hot joint created</u> between mats placed while echelon paving or using joint heaters.

Joint sealant shall be applied in a 12-inch wide strip centered over joints in the final lift layer of HMA while the asphalt is still clean, free of moisture, and before striping. Joint sealant shall be applied over joints in the final lift formed by two panels of HMA-composed of different type or class of mix; or of new against existing HMA pavement. Do not seal joints formed by echelon paving. Joint surface preparation, and joint sealant application temperature, thickness, and method shall be per the manufacturer's recommendations.

Joints between existing and new HMA shall be saw cut. Cut a neat, straight line along the existing HMA to expose the full depth of the layer where new HMA is to be placed against existing asphalt. Use a power saw or other method approved by the Engineer.

Cut back of all cold joints is required as specified above.

The Contractor may provide additional joint density quality control by use of joint heaters at the Contractor's expense. The heaters shall be operated so they do not produce excessive heat when the units pass over new or previously paved material. When used, heaters will be required to be in operation at all times.

Electrically powered infrared heating equipment should consist of one or more low-level radiant energy heaters to uniformly heat and soften the pavement joints. The heaters should be configured to uniformly heat an area up to 18 inches in width and 3 inches in depth. Infrared equipment shall be thermostatically controlled to provide a uniform, consistent temperature increase throughout the layer being heated up to a maximum temperature range of 200°F to 300°F.

Propane powered infrared heating equipment shall be attached to the paving machine and the output of infrared energy shall be in the one to six-micron range. Converters shall be arranged end to end directly over the joint to be heated in sufficient numbers to continuously produce, when in operation, a minimum of 240,000 BTU per hour. The joint heater shall be positioned not more than one inch above the pavement to be heated and in front of the paver screed and shall be fully adjustable.

Joints formed by paving in echelon while the mat temperature is over 230 °F within three inches of the joint are considered hot lapped and do not require tack coat or joint adhesive. Hot lapped top lift joints will receive the full Longitudinal Joint Density Price Adjustment incentive without testing for joint density.

401-4.15 SAW-CUT GROOVING. If shown on the Plans, saw-cut grooves shall be provided as specified in Item P-621 Saw Cut Grooves. Do not perform saw-cut grooving until smoothness testing has been performed, as described in subsection 401-5.3.

401-4.16 DIAMOND GRINDING. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32-inch

higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate.

Equipment or grinding procedures that cause ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted. The Contractor shall demonstrate to the Engineer that the grinding equipment will produce satisfactory results prior to making corrections to surfaces. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment per Item P-608 Emulsified Asphalt Seal Coat to all areas that have been subject to grinding.

401-4.17 NIGHTTIME PAVING REQUIREMENTS. Paving during nighttime construction shall require the following:

- **a.** All paving machines, rollers, distribution trucks and other vehicles required by the Contractor for his operations shall be equipped with artificial illumination sufficient to safely complete the work.
- **b.** Minimum illumination level shall be twenty horizontal foot-candles and maintained in the following areas:
 - (1) An area of 30 feet wide by 30 feet long immediately behind the paving machines during the operations of the machines.
 - (2) An area 15 feet wide by 30 feet long immediately in front and back of all rolling equipment, during operation of the equipment.
 - (3) An area 15 feet wide by 15 feet long at any point where an area is being tack coated prior to the placement of pavement.
- **c.** As partial fulfillment of the above requirements, the Contractor shall furnish and use, complete artificial lighting units with a minimum capacity of 3,000 watt electric beam lights, affixed to all equipment in such a way to direct illumination on the area under construction.
- **d.** A lighting plan must be submitted by the Contractor and approved by the Engineer prior to the start of any nighttime work.

Lighting for nighttime construction is required for work occurring between end civil twilight and begin civil twilight as posted the United States Naval Observatory on all days except the "No Lighting Required" period shown in Table 401-10.

Latitude	No Lightin	g Required	Nearby
(degrees)	Start	End	Cities
South of 61	Lighting Re	equired All Year	Everything South of Hope
61	June 11	July 1	Anchorage, Valdez, Girdwood
62	June 2	July 13	Wasilla, Palmer, Glennallen, Talkeetna
63	May 27	July 17	Cantwell, Paxson, McGrath
64	May 22	July 21	Tok, Delta, Nome
65	May 18	July 25	Fairbanks
66	May 14	July 29	Circle City
67	May 10	August 2	Coldfoot, Kotzebue

TABLE 401-10. NIGHTTIME ILLUMINATION EXCLUSIONS

68	May 7	August 6	Galbraith Lake	
69	May 3	August 9	Happy Valley	
70	April 30	August 12	Deadhorse	
71	April 27	August 15	Utqiagvik (Barrow)	
72	April 24	August 19		

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 GENERAL. The Contractor shall develop a CQC Program (CQCP) according to the GCP Section 100. No partial payment will be made for materials that are subject to specific QC requirements without an approved CQCP.

401-5.2 CONTRACTOR QUALITY CONTROL (QC) FACILITIES. The Contractor shall provide or contract for testing facilities in accordance with GCP Section 100. The Engineer shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The Engineer will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

401-5.3 QUALITY CONTROL (QC) TESTING. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these Specifications, and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

- **a. Asphalt Content.** A minimum of two tests shall be performed per day in accordance with ATM 405 or ATM 406, by total weight of mix for determination of asphalt content. When using ATM 406, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.
- **b. Gradation.** Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of extracted aggregate in accordance with ATM 304 and ATM 408.
- **c.** Moisture Content of Aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per day in accordance with ATM 202.
- **d.** Moisture Content of Asphalt. The moisture content shall be determined once per day in accordance with ATM 407.
- e. **Temperatures.** Temperatures shall be checked, at least four times per day, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.
- f. In-place Density Monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ATM 411.
- **g.** Smoothness for Contractor Quality Control. The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than 1/4-inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues.

The Contractor may use a 12-foot straightedge, a rolling inclinometer meeting the requirements of ASTM E2133, or rolling external reference device that can simulate a 12-foot straightedge approved by the Engineer. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement.

Testing shall be continuous across all joints. The 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 the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using the FAA profile program, ProFAA, or FHWA ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the Plans.

- (1) Transverse Measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the Engineer. The joint between lanes shall be tested separately to facilitate smoothness between lanes.
- (2) Longitudinal Measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 feet or greater. When placement abuts previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4-inch shall be corrected with diamond grinding per subsection 401-4.16 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding.

All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in subsection 401-6.2d. Areas that have been ground shall be sealed with a surface treatment in accordance with Item P-608. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet Specifications. As a minimum, grade shall be evaluated prior to and after the placement of the first lift and after placement of the surface lift.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and Plans. The final surface of the pavement will not vary from the grade line elevations and cross-sections shown on the Plans by more than 1/2-inch vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the Engineer within 24 hours.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2-inch less than the thickness specified on the Plans. Grinding shall be in accordance with subsection 401-4.16.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus 1/2-inch and replacing with new material. Skin patching is not allowed.

401-5.4 SAMPLING. When directed by the Engineer, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-5.5 CONTROL CHARTS. The Contractor shall maintain linear control charts for both individual measurements and range (i.e. difference between highest and lowest measurements) for aggregate gradation, asphalt binder content, and density.

Control charts shall be posted in a location satisfactory to the Engineer and kept current. 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 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 problem and the Contractor is not taking satisfactory corrective action, the Engineer may suspend production or acceptance of the material.

a. Individual Measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt binder content, and density. The control charts shall use the JMD target values as indicators of central tendency for the test parameters with associated Action and Suspension Limits in Table 401-11.

Sieve	Action Limit	Suspension Limit
3/4-inch	±6%	±9%
1/2-inch	±6%	±9%
3/8-inch	±6%	±9%
No. 4	±6%	±9%
No. 16	±5%	±7.5%
No. 50	±3%	±4.5%
No. 200	±2%	±3%
Asphalt Binder Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

 Table 401-11. CONTROL CHART LIMITS FOR INDIVIDUAL MEASUREMENTS

b. Range. Control charts for range shall be established to control process variability for the test parameters and Suspension Limits listed in Table 401-12. The range shall be computed for each lot as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Sieve	Suspension Limit
1/2-inch	11%
3/8-inch	11%
No. 4	11%
No. 16	9%
No. 50	6%
No. 200	3.5%
Asphalt Content	0.8%

 Table 401-12. CONTROL CHART LIMITS BASED ON RANGE (n = 2)

- **c. Corrective Action.** The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:
 - (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.

401-5.6 QUALITY CONTROL (QC) REPORTS. The Contractor shall maintain records and shall submit reports of QC activities daily, in accordance with the CQCP described in GCP Section 100.

MATERIAL ACCEPTANCE

401-6.1 ACCEPTANCE SAMPLING AND TESTING. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the Engineer at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor. Selection of sampling and testing methods used for Acceptance are at the discretion of the Engineer.

- a. Lot size.
 - (1) Hot Mix Asphalt Lots. The bid quantity of each type of HMA produced and placed will be divided into lots and the lots evaluated individually for acceptance. The Department has the exclusive right and responsibility for determining the acceptability of all materials incorporated into the project. The results of the acceptance testing performed by the Engineer will be made available to the Contractor.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant

(2) 5,000 Ton Lot Size. A lot will normally be 5,000 tons. The lot will be divided into sub-lots of 500 tons, each randomly sampled and tested for asphalt binder content, density and gradation according to this subsection. The lot is evaluated for price adjustment according to subsection 401-6.2. Seasonal startup or a new JMD requires starting a new lot.

If the project has more than one lot and if less than eight sub-lots have been sampled at the time a lot is terminated, the material in the shortened lot will be included as part of the prior lot and the price adjustment computed for the prior lot will include the samples from the shortened lot. Density test results from material in the shortened lot will be based on the MSG of the shortened lot. If there is no prior lot, and there are at least three sub-lots, the material in the shortened lot will be based on the actual

number of test results in the shortened lot. If there are less than three sub-lots, the HMA will be accepted for payment based on the Engineer's approval of the JMD, and placement and compaction of the HMA to the specified depth, finished surface requirements and tolerances. The Engineer reserves the right to perform any testing required in order to determine acceptance.

If eight or nine sub-lots have been placed at the time a lot is terminated, they will be considered as a lot and the price adjustment will be based on the actual number of test results in the shortened lot.

- (3) 1,500 to 4,999 Ton Lot Size. If the total contract bid quantity is between 1,500 tons and 4,999 tons, the total project quantity will be considered one lot. The lot will be divided into sub-lots of 500 tons and randomly sampled for asphalt binder content, density and gradation according to this subsection. The lot will be evaluated for price adjustment according to subsection 401-6.2 except as noted.
- (4) Under 1,500 Ton Lot Size. If the total contract bid quantity is less than 1,500 tons, asphalt concrete pavement will be accepted for payment based on the Engineer's approval of a Job Mix design and the placement and compaction of the HMA to the specified depth and finished surface requirements and tolerances, and material testing. The Engineer reserves the right to perform any testing required in order to determine acceptance.

Any area of finished surfacing that is segregated, fails to meet surface tolerance requirements, cools to below 175°F prior to completing compaction, or is any other way defective shall be removed and replaced with new asphalt concrete pavement. Removal and replacement of defective pavement shall be at no additional cost to the Department.

- (5) Joint Density Lot Size. Longitudinal joints include joints internal to a lot and joints created when paving adjacent to previously placed lots. Joints constructed by echelon paving will not be evaluated for density, unless required by the Engineer.
- (6) Asphalt Binder Grade Lot Size. The lot size for asphalt binder is 200 tons of the same grade asphalt binder. If a project has more than one lot and the remaining asphalt binder quantity of the same grade is less than 150 tons, it is added to the previous lot and that total quantity will be evaluated as one lot. If the remaining asphalt binder quantity is 150 tons or greater, it is sampled, tested and evaluated as a separate lot.

If the bid quantity of asphalt binder is between 85 and 200 tons, the contract quantity is considered as one lot and sampled, tested, and evaluated according to this subsection. Quantities of asphalt binder less than 85 tons will be accepted based on manufacturer's certified test reports and certification of compliance.

b. Sampling.

(1) Asphalt Binder Content. Samples taken for the determination of asphalt binder content will be taken from behind the screed prior to initial compaction, or from the windrow, according to ATM 402 and ATM 403.

If sampling is from behind the screed prior to initial compaction, then provide a WAQTC certified technician and equipment to take plate samples. Sample in locations determined by the Engineer. Sample in the presence of the Engineer and immediately transfer possession of the sample to the Engineer.

Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable.

- (2) Gradation. Samples taken for the determination of aggregate gradation will be from the same location as specified for the determination of asphalt binder content. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable.
- (3) Mat Density. The location(s) for taking core samples is determined using a set of random numbers (independent of asphalt binder and aggregate sampling set of random numbers) and the Engineer's judgment. The Contractor shall cut full depth core samples with a diameter of 6 inches from each sub-lot, within 24 hours of final rolling for density acceptance testing. The samples shall be neatly cut by a core drill at the randomly selected location designated by the Engineer according to the procedures contained in ATM 413.

All voids left by sampling shall be backfilled with new asphalt concrete material and compacted within 24 hours of sampling. All core holes on final lift will be sealed with GSB-88, after being backfilled and compacted, or have Craftco Joint adhesive applied prior to backfill and compaction.

Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint.

- (4) Joint Density. Longitudinal joint density cores shall be taken directly on the joint, at locations adjacent to cores taken from the mat completing the joint. Cores shall be taken by the Contractor in the presence of the Engineer. The Engineer will take immediate possession of the samples.
- (5) Asphalt Binder Grade. Sample asphalt binder at the plant from the supply line in the presence of the Engineer according to ATM 401. The Engineer will take immediate possession of the samples. Take three samples from each lot, one for acceptance testing, one for Contractor requested retesting, and one held in reserve for referee testing if requested.
- c. Testing.
 - (1) Asphalt Binder Content. Asphalt binder content will be determined by ATM 405 or ATM 406, by total weight of mix.
 - (2) Gradation. Cold feed or dry batched aggregate gradations will be tested according to ATM 304 and evaluated for acceptance according to subsection 401-6.2. Asphalt concrete mix and core sample gradations will be determined according to ATM 408 from extracted aggregate, or aggregate remaining after the ignition oven ATM 406 has burned off the asphalt binder.
 - (3) **Density.** Mat density will be based on theoretical maximum specific gravity (MSG) as determined by ATM 409. For the first lot of HMA, the MSG will be determined by the JMD. For additional lots, the MSG will be determined from the randomly selected sample from the first sub-lot.

For the top lift longitudinal joint density, use the MSG of the panel completing the joint. No adjustment will be made to the MSG or any other material property, due to application of joint adhesive, in evaluating joint density.

Core samples will be tested according to ATM 410, and evaluated for acceptance according to subsection 401-6.2.

(4) Asphalt Binder Grade. Asphalt binder will be tested for conformance to the requirements specified in subsection 401-2.3 and evaluated for acceptance according to subsection 401-6.2.

401-6.2 ACCEPTANCE CRITERIA.
- **a. General.** Acceptance will be based on the following characteristics of the HMA and completed pavement as well as the implementation of the Contractor's Quality Control Plan (CQCP) and test results:
 - (1) Aggregate Gradation
 - (2) Asphalt Binder Content
 - (3) Mat Density
 - (4) Joint Density
 - (5) Thickness
 - (6) Smoothness
 - (7) Grade
 - (8) Asphalt Binder Quality

The Engineer may at any time reject and require the Contractor to dispose of any batch of HMA which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or improper mix temperature. Such rejection may be based on only visual inspection or temperature measurements. 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 a certified laboratory, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

- b. Mat Density, Aggregate Gradation, and Asphalt Binder Content. Evaluation for acceptance of each lot of plant-produced material for mat density, aggregate gradation, and asphalt binder content will be based on percentage of material within specification limits (PWL). Acceptance and payment for the lot will be according to subsection 401-8.1.
 - (1) Percentage of Material within Specification Limits (PWL). Acceptance of test results for HMA asphalt binder content, gradation and mat density are used in HMA price adjustment. These test results for a lot are analyzed collectively and statistically by the Quality Level Analysis (QLA) method as specified in GCP Section 110 to determine the total estimated percentage of the lot that is within specification limits.

HMA pay factors are computed as follows:

- (a) All statistical Quality Level Analysis (QLA) is computed using the Engineer's Price Adjustment programs.
- (b) The USL and LSL are equal to the Target Value (TV) plus and minus the allowable tolerances. The specification tolerance limits (L) and (U) are contained in Table 401-13. The values for percent passing the No. 200 sieve, asphalt binder content and density test results are reported to the nearest 0.1%. All other sieves used in QLA are reported to the nearest whole number. The TV is the specification value shown on the approved JMD.

Measured Characteristics	L	U
3/4 in.	99	100
1/2 in.	TV -6	TV +6

TABLE 401-13. LOWER SPECIFICATION TOLERANCE LIMIT (L)AND UPPER SPECIFICATION TOLERANCE LIMIT (U)

3/8 in.	TV -6	TV +6
No. 4	TV -6	TV +6
No. 8	TV -6	TV +6
No. 16	TV -5	TV +5
No. 30	TV -4	TV +4
No. 50	TV -4	TV +4
No. 100	TV -3	TV +3
No. 200 *	TV -2.0 *	TV +2.0
Asphalt %	TV -0.4	TV +0.4
Mat Density	93.0%	100.0%

TV (Target Value) = Job Mix Design value for gradation and asphalt binder content

* L for the No. 200 sieve is restricted by the broadband limits Table 401-8.

c. Longitudinal Joint Density. The minimum density for top lift longitudinal joint density is 92.0% of the MSG of the panel completing the joint. MSG will be determined according to ATM 409. Top lift longitudinal joints will be evaluated for acceptance according to 401-8.1b.

For a joint core that is less than 92.0% of the MSG perform corrective action on the sublot containing the joint core. Perform Corrective Action by heating the longitudinal joint to compaction temperatures with an infrared heater and compact to at least 92.0% of the MSG. Do not exceed mixing temperatures as indicated on the mix design. Material may be added to the joint to meet surface tolerances, but do not skin patch. Perform corrective action prior to grooving or striping. After corrective action is performed and joint is acceptable, seal the joints in the sub-lot per 401-4.14.

d. Thickness. Thickness of each lift will be evaluated by the Engineer to the requirements shown on the Plans. Measurements of thickness will be made by the Engineer using the cores extracted from the mat for each sub-lot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4-inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sub-lot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the Engineer to circumscribe the deficient area.

e. Smoothness.

- (1) Non-runway HMA. The finished surfaces of the HMA shall not vary more than 1/4 inch for the surface layer when tested with a 12-foot straightedge. Straightedge testing will be performed in accordance with subsection 401-6.2e(2)(a).
- (2) Runway HMA. The final surface shall be free from roller marks and will be subject to the following smoothness testing.
 - (a) Straight Edge Testing. After the final rolling, the surface of each lot shall be tested in both transverse and longitudinal directions for smoothness. The finished surface course of the pavement shall not vary more than 1/4-inch when evaluated with a 12-foot straightedge. Measurements will include joints.
 - 1. **Transverse Measurements.** Transverse measurements will be taken for each lot placed. Transverse measurements will be taken perpendicular to the pavement centerline every 50 feet or more often as determined by the Engineer.

- **2.** Longitudinal Measurements. Longitudinal measurements will be taken for each lot placed. Longitudinal tests will be parallel to the centerline of paving; at the center.
- (b) Profilograph Smoothness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Engineer will perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hours of profilograph roughness tests.

The pavement shall have an average profile ind

ex less than 15 inches per mile per 1/10-mile. 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 blanking band. The bump template must span one inch with an offset of 0.4 inches. The profilograph must be calibrated prior to use and operated by a factory or Department approved, trained operator.

Profilograms shall be recorded on a longitudinal scale of one inch equals 25 feet and a vertical scale of one inch equals one inch. Profilograph shall be performed one foot right and left of project centerline and 15 feet right and left of project centerline.

(c) Corrective Action. Areas of unacceptable smoothness on final surface course shall be corrected with diamond grinding per subsection 401-4.16 or by removing and replacing full depth of surface course.

Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10-mile or less.

f. Grade. Grade shall be evaluated after the first day of placement and then as a minimum, prior to the placement of the surface lift and after the placement of the surface lift to allow adjustments to paving operations if measurements do not meet specification requirements. The Contractor shall provide the survey data/results to the Engineer by the following day after the measurements have been taken. Measurements shall be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and 50-foot longitudinal spacing on cross sections verifying that the surface is in conformance with project Plans and cross sections. Data shall include the difference between the measured surface and plan grades.

The finished surface of the pavement shall not vary from the gradeline elevations and cross sections shown on the Plans by more than 0.05-foot. The finished grade of each lot will be determined by running levels at intervals of 50 feet or less longitudinally and transversely to determine the elevation of the completed pavement. The lot size will be 2,000 square yards. When more than 15% of all the measurements within a lot are outside the specified tolerance, the Contractor shall remove the deficient area and replace with new material. Removal depth shall be a minimum of 2 inches. Skin patching for correcting low areas will not be permitted. High points may be ground off.

g. Asphalt Binder Quality. Acceptance and payment for the lot shall be determined according to subsection 401-8.1c. If three consecutive samples are out of specification, stop HMA production immediately and submit a corrective action plan to the Engineer for approval.

401-6.3 RETESTS.

a. General. When test results have failed to meet specification tolerance limits, retest of acceptance test results for asphalt binder content, gradation, and density may be requested provided the quality

control requirements of subsection 401-6.3 are met. Deliver this request in writing to the Engineer within seven days of receipt of the final test of the lot.

The Engineer will mark the sample location for the density retest within a 2-foot radius of the original core. The original test results are discarded and the retest result is used in the price adjustment calculation regardless of whether the retest result gives a higher or lower pay factor.

Only one retest per sample is allowed. Except for the first lot, when gradation and asphalt binder content are determined from the same sample, retesting for gradation or asphalt binder from the first sub-lot of a lot will include retesting for the MSG; when separate samples are used, retesting for asphalt binder content will include retesting for MSG.

When gradation and asphalt binder content are determined from the same sample, a request for a retest of either gradation or asphalt binder content results in a retest of both. Both gradation and asphalt binder content retest results are used in the price adjustment calculation. Retesting will be performed by a department laboratory.

- (1) A redefined PWL will be calculated for the lot.
- (2) The cost for resampling shall be borne by the Contractor.
- (3) Asphalt Binder Grade Retest. Retest of acceptance test results may be requested provided the quality control requirements of subsection 401-6.3 are met.

The assigned test value (ATV) will be determined using ASTM D3244. Testing will be by AASHTO accredited independent laboratories. Each test will be completed by a different laboratory.

Submit a written request, for a retest, no more than seven days from receiving notice of the failed acceptance test. In the request, identify the retest laboratory. The Engineer will send the second sample (retest sample) to the laboratory. Provide the retest results to the Engineer. Contractor pays for the retest costs.

If the average of the combined test results ([acceptance + retest]/2) passes the specification requirement, the average value becomes the ATV. If this ATV fails the specification requirement, the Engineer or Contractor may request the third sample (referee sample) be tested.

The Engineer will send the third sample (referee sample) to an agreed upon laboratory. The average of the combined test results ([acceptance + retest + referee]/3) equals the ATV. If the ATV fails to meet Specifications, the Contractor pays for the referee test.

b. Payment for Resampled Lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot according to GCP Section 110.

401-6.4 RESAMPLING PAVEMENT FOR MAT DENSITY. (Subsection Not Used)

401-6.5 LEVELING COURSE. The leveling course is the first variable thickness lift placed to correct surface irregularities prior to placement of subsequent courses. The leveling course shall meet the aggregate gradation in Table 401-8, subsection 401-3.3. The leveling course shall meet the requirements of subsection 401-3.3 and 401-6.2, but shall not be subject to the mat density or joint density requirements. The leveling course shall be compacted with the same effort used to achieve density of the control strip. The leveling course shall not exceed the lift thickness associated with each gradation in Table 401-8, subsection 401-3.3.

METHOD OF MEASUREMENT

Kenai Municipal Airport Rehabilitate Runway 02L/20R AIP 3-02-0142-XXX-2025 **401-7.1 MEASUREMENT.** HMA will be measured by the number of tons used in the accepted work, based on recorded truck scale weights. No deduction will be made for the weight of asphalt binder in the mixture.

Asphalt binder will be measured by the number of tons of asphalt binder used in the accepted pavement determined as follows:

The method of measurement to be used will be based on one of the following procedures listed in subsections a, b, and c.

- **a.** Supplier's invoices minus waste, diversion and excess left over. This method may be used on projects where deliveries are made in sealed tankers and the plant is producing material for one project only. Method b. will be used to compute left over. Waste and diversion will be computed in a manner to be determined by the Engineer.
- **b.** Volume measure (tank stickings) of actual daily uses. It is the Contractor's responsibility to notify the Engineer whenever material is to be added to the calibrated volume measure or whenever material from the volume measure is to be used for work other than that specified in this contract.
- **c.** Percent of asphalt binder content for each sub-lot as determined by ATM 405 or ATM 406 multiplied by the weight represented by that sub-lot.

Method c. will be used for determining asphalt binder quantity unless otherwise directed in writing by the Engineer. Whichever method is used must be used for the duration of the project. Another method may be used and computed as a check, but only one method will be used for payment computation.

Longitudinal Joint Density Price Adjustment will be measured by the linear foot of top lift longitudinal joint under subsection 401-8.1(b).

Joint Adhesive will be measured by the linear foot of longitudinal and transverse joint.

401-7.2 ASPHALT MATERIAL PRICE ADJUSTMENT. Asphalt Material Price Adjustment. This subsection provides a price adjustment for asphalt material by: (1) additional compensation to the Contractor or (2) a deduction from the contract amount.

- **a.** This provision shall apply:
 - (1) To asphalt binder material meeting the criteria of section P-401-2.3, and is included in items listed in the bid schedule of section P-602, P-603, P-609, and P-626.
 - (2) When there is more than 500 tons of asphalt material in the bid schedule of section described in 401-7.2.a(1).
 - (3) To cost changes in asphalt material that occur between the date of bid and the date on the certified bill of lading from the asphalt material refiner/producer.
 - (4) When there is more than a seven and one half percent (7.5%) increase or decrease in the Alaska Asphalt Material Price Index (AAMPI) from the date of bid opening to the date on the certified bill of lading from the asphalt refiner/producer.
- **b.** Provide the certified bill of lading from the asphalt material refiner/producer.
- **c.** The AAMPI is calculated bimonthly on the first and third Friday of each month, and will remain in effect from the day of calculation until the next bimonthly calculation. The AAMPI is posted on the Department's Statewide Materials website at and calculated according to the formula posted there. http://www.dot.state.ak.us/stwddes/desmaterials/aprice_index.shtml

- d. Price adjustment will be cumulative and calculated with each progress payment. Use the AAMPI in effect in the date of the certified bill of lading from the asphalt material refiner/producer, to calculate the price adjustment for asphalt material. The Department will increase or decrease payment under this contract by the amount determined with the following asphalt material price adjustment formula:
 - (1) For an increase exceeding 7.5 percent, additional compensation = $[(IPP IB) (0.075 \times IB)] \times (0.075 \times IB)$ C
 - (2) For a decrease exceeding 7.5 percent, deduction from contract = $[(IB IPP) (0.075 \times IB)] \times IB$ Q

Where:

Q = Quantity of asphalt material incorporated into the project during the pay period, in tons as measured by the Engineer

IB = Index at Bid: The bimonthly AAMPI in effect on the date of bid, in dollars per ton

IPP = Index at Pay Period: the bimonthly AAMPI in effect on the date shown on the certified bill of lading from the asphalt refiner/producer, in dollars per ton

e. Method of measurement for determining Q (quantity) is the weight of asphalt material that meets criteria of this subsection and is incorporated into the project. The quantity does not include aggregate, mineral filler, blotter material, thinning agents added after material qualification, or water for emulsified asphalt. The quantity for emulsified asphalts will be based on the asphalt residue material only and will be calculated using the percent residue from testing, or if not tested, from the manufacturers certificate of compliance.

BASIS OF PAYMENT

401-8.1 PAYMENT. Payment for an accepted lot of HMA will be made at the contract unit price per ton for HMA and asphalt binder adjusted according to subsection 401-8.1a. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item. The quantity of hot mix asphalt paid for will not exceed 105 percent of the weight determined on the basis of the average core density, the specified neatline thickness, and the completed area of hot mix asphalt.

a. HMA Price Adjustment. The HMA price adjustment will be the sum of the HMA price adjustments for each lot. Acceptance test results for HMA asphalt binder content, gradation, and mat density are used in the HMA price adjustment. These tests results for a lot are analyzed collectively and statistically by the Quality Level Analysis (QLA) method as specified in GCP subsection 110-01 to determine the total estimated percentage of the lot that is within specification limits.

The price adjustment will be based on the Composite Pay Factor (CPF) for asphalt binder content and aggregate gradation or the Density Pay Factor (DPF) whichever is the lowest value. Table 401-14 is used to determine the weight factor (f) for each sieve size and asphalt binder content. The HMA Composite Pay Factor (CPF) is computed for asphalt binder content and all sieves using the following formula:

[f3/4in (PF3/4in)+ f1/2in(PF1/2in)+......fac (PFac)] CPF=

_	-			
		~f		
		> T		

TABLE 401-14. WEIGHT FACTORS

	Type I	Type II and V	Type III
	Factor "f"	Factor "f"	Factor "f"
1 in	4	-	-

Kenai Municipal Airport Rehabilitate Runway 02L/20R AIP 3-02-0142-XXX-2025

3/4 in.	4	4	-
1/2 in.	4	5	4
3/8 in.	4	5	5
No. 4	4	4	5
No. 8	4	4	5
No. 16	4	4	5
No. 30	4	5	6
No. 50	4	5	6
No. 100	4	4	4
No. 200	20	20	20
Asphalt %	40	40	40

The Density Pay Factor (DPF) is computed using HMA mat core compaction acceptance test results.

The CPF and DPF are rounded to the nearest 0.001. The price adjustment for each individual lot is calculated as follows:

HMA Price Adjustment = $[(CPF \text{ or } DPF)^*-1] \times (tons in lot) \times (PAB)$

PAB = Price Adjustment Base per ton (for mix including asphalt binder)

*Composite Pay Factor (CPF) or Density Pay Factor (DPF) whichever is lower value.

Price Adjustment Base shall be the lessor of:

(1) Dollars per ton as follows:

PAB = [$\frac{110}{10}$] per ton Hot Mix Asphalt [Type II], [Class <u>A</u>];

or,

(2) The value in dollars per ton calculated as follows: [Contractor's Bid/ton for Hot Mix Asphalt [Type], [Class]] +

[Contractor's Bid/ton for Asphalt Binder, PG [___] x (% JMD Optimum Oil Content / 100)]

A lot containing material with less than a 1.000 pay factor is accepted at an adjusted price, provided that pay factor is at least 0.800 and there are no isolated defects identified by the Engineer. A lot containing material that fails to obtain the minimum pay factor <u>under GCP Section 110</u> is considered unacceptable and rejected <u>under GCP Section 110</u>.

Hot Mix Asphalt Price Adjustment also includes fees assessed for additional JMDs as identified in 401-3.2.

- **b.** Longitudinal Joint Density Price Adjustment. The longitudinal joint density price adjustment will be based on top lift cold joint densities greater than 93.0%. Add \$1.50 per lineal foot for one-half the distance to each prior and subsequent passing joint density greater than 93.0%.
- **c.** Asphalt Binder Price Adjustment. A lot quantity of asphalt binder, with a quality pay factor less than 1.000 is accepted or rejected according to Table 401-15, Asphalt Binder Quality Pay Factors.

Table 401-15. ASPHALT BINDER QUALITY PAY FACTORS

Pay Factor	1.01	1.00	0.95	0.90	0.75	Reject
RTFO (Rolling Thin Film Oven)						

Pay Facto	Pay Factor		1.01	1.00	0.95	0.90	0.75	Reject
DSR ⁽¹⁾	All Grades	G*/Sinδ, kPa ⁻¹	<u>></u> 2.69	2.68-2.20	2.19-1.96	1.95-1.43	1.42- 1.10	< 1.10
		J NR 3.2	<u><</u> 0.39	0.40-0.50	0.51-0.59	0.60-0.69	0.70- 1.00	> 1.00
	PG 52-40 <u>⊏</u> ♥	% Rec _{3.2}	<u>></u> 86 <u>.0</u>	85 <u>.9</u> - 75 <u>.0</u>	74 <u>.9</u> - 68 <u>.0</u>	67 <u>.9</u> - 60 <u>.0</u>	59 <u>.9</u> - 55 <u>.0</u>	< 55 <u>.0</u>
		J NR 3.2	<u><</u> 0.19	0.20- 0.25	0.26-0.29	0.30-0.39	0.40- 0.50	> 0.50
WISCK-	FG 30-34E	% Rec _{3.2}	≥90 <u>.0</u>	89 <u>.9</u> -85 <u>.0</u>	84 <u>.9</u> -80 <u>.0</u>	79 <u>.9</u> -75 <u>.0</u>	74 <u>.9</u> - 70 <u>.0</u>	< 70 <u>.0</u>
	PG 64-40E	J NR 3.2	<u><</u> 0.05	0.05-0.10	0.11-0.15	0.16-0.20	0.21- 0.25	> 0.25
		% Rec _{3.2}	≥97 <u>.0</u>	96 <u>.9</u> - 95 <u>.0</u>	94 <u>.9</u> - 91 <u>.0</u>	90 <u>.9</u> - 85 <u>.0</u>	84 <u>.9</u> - 80 <u>.0</u>	< 80 <u>.0</u>
PAV (F	Pressure Aging	Vessel)						
DSR ⁽³⁾	PG 64-40E And all other Grades	G*Sinδ, kPa	<u><</u> 4711	4712 - 5000	5001- 5289	5290- 5578	5579- 5867	> 5867
	PG 52-40 <u>E</u> ¥, PG 58-34E	G*Sinδ, kPa	<u><</u> 5700	5701- 6000	6001- 6300	6301- 6600	6601- 7000	> 7000
CC (4 5)	All Grades ⁽⁴⁾	BBR, "S" MPa	<u><</u> 247	248-300	301-338	339-388	389- 449	<u>></u> 450
00(30)	All Grades ⁽⁵⁾	BBR, "M"	<u>></u> 0.320	0.319- 0.300	0.299- 0.294	0.2 <mark>93-</mark> 0.278	0.277- 0.261	<0.261

Creep Stiffness (CS) Dynamic Shear Rheometer (DSR) Multiple Stress Creep Recovery (MSCR) Asphalt Binder Price Adjustment = (Lowest Pay Factor – 1.00) x (Binder Quantity) x PAB x 5

Select the lowest pay factor from:

RTFO (test at Performance Grade Temperature)

- (1) DSR, All Grades, G*/Sino, kPa-1
- (2) MSCR: PG, Select the highest pay factor, either JNR 3.2 or % Rec3.2

PAV

- (3) Intermediate DSR, PG, G*Sinδ, kPa
- (4) CS, All Grades, BBR, S MPa
- (5) CS, All Grades, BBR, M

If Pay Item P401.130.0000 HMA Combined Price Adjustment is in the Bid Schedule, the Price Adjustment Pay Items (P401.080.0000 Hot Mix Asphalt Price Adjustment, Method 1, P401.110.0000 Longitudinal Joint Density Price Adjustment, and P401.120.0000 Asphalt Binder Quality Price Adjustment) will be paid under P401.130.0000 HMA Combined Price Adjustment.

Joint sealant applied to the joints on the top lift of asphalt will be subsidiary to Item P401.010.0030.

Payment will be made under:

Item P401.010.0030	Hot Mix Asphalt Type II, Class A - per ton
Item P401.020.5240	Asphalt Binder, PG 52-40 <u>E</u> - per ton
Item P401.070.0000	Joint Adhesive - per linear foot

Item P401.130.0000

HMA Combined Price Adjustment - per contingent sum

REFERENCES

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

Alaska Test Methods (ATM) Manual

ATM 202	Moisture Content of Aggregate and Soils
ATM 204	Liquid Limit of Soils
ATM 205	Plastic Limit and Plasticity Index of Soils
ATM 301	Sampling Aggregates
ATM 304	Sieve Analysis of Aggregate and Soils
ATM 305	Determining the Percentage of Fracture in Coarse Aggregate.
ATM 306	Flat and Elongated
ATM 307	Sand Equivalent
ATM 401	Sampling Bituminous Materials
ATM 402	Sampling Bituminous Mixes
ATM 403	Sampling Hot Mix Asphalt
ATM 405	Asphalt Binder Content of Asphalt Concrete Mixtures by the Nuclear Method
ATM 406	Asphalt Binder Content of Bituminous Mixes by Ignition Method
ATM 407	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method
ATM 408	Mechanical Analysis of Extracted Aggregate
ATM 409	Maximum Specific Gravity of Bituminous Mixes
ATM 410	Bulk Specific Gravity and Percent Compaction of Bituminous Mixes
ATM 411	In-Place Density of Asphalt Mixtures by Nuclear Method
ATM 413	Sampling Hot Mix Asphalt (HMA) after Compaction (Obtaining Cores)
ATM 414	Anti-Strip Requirements of Hot Mix Asphalt
ATM 417	Hot Mix Asphalt Design by the Marshall Method
ATM 419	Rutting Susceptibility using an Asphalt Pavement Analyzer
NA 1. (

ASTM International (ASTM)

ASTM D113 Ductility of Asphalt Materials

- ASTM D242 Mineral Filler for Bituminous Paving Mixtures
- ASTM D244 Practices for Emulsified Asphalts
- ASTM D1073 Fine Aggregate for Asphalt Paving Mixtures
- ASTM D2007 Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method
- ASTM D2042 Solubility of Asphalt Materials in Trichloroethylene
- ASTM D2172 Quantitative Extraction of Bitumen from Asphalt Paving Mixtures
- ASTM D2669 Apparent Viscosity of Petroleum Waxes Compounded with Additives (Hot Melts)
- ASTM D3244 Utilization of Test Data to Determine Conformance with Specifications
- ASTM D3666 Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
- ASTM D4402 Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer
- ASTM D4552 Classifying Hot-Mix Recycling Agents
- ASTM D5329 Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphalt Pavements and Portland Concrete Pavements
- ASTM E1274 Measuring Pavement Roughness Using a Profilograph
- ASTM E950 Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference
- ASTM E2133 Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M 17 Mineral Filler for Bituminous Paving Mixtures AASHTO M 156 Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures AASHTO M 320 Performance-Graded Asphalt Binder AASHTO M 332 Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test AASHTO R 35 Superpave Volumetric Design for Asphalt Mixtures AASHTO T 96 Resistance to Degradation of Small-size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine AASHTO T 104 Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate AASHTO T 195 Determining Degree of Particle Coating of Bituminous-Aggregate Mixtures AASHTO T 304 Uncompacted Void Content of Fine Aggregate

AASHTO T 314	Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT)
AASHTO T 315	Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)
AASHTO T 316	Viscosity Determination of Asphalt Binder Using Rotational Viscometer
AASHTO T 327	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
AASHTO T 350	Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

Asphalt Institute (AI)

Asphalt Institute MS-2 Mix Design Manual, 7th Edition

Revised per Addendum 01

CITY OF KENAI KENAI MUNICIPAL AIRPORT

REHABILITATE RUNWAY 02L/20R AIP 3-02-0142-XXX-2025

EXHIBIT I

ENVIRONMENTAL CATEX, DATED MARCH 2025 USACE WETLAND PERMIT MEMORANDUM, DATED JUNE 2025

Revised per Addendum 01

CITY OF KENAI KENAI MUNICIPAL AIRPORT

REHABILITATE RUNWAY 02L/20R AIP 3-02-0142-XXX-2025

The March 2025 Environmental CatEx and the June 2025 USACE Wetland Permit Memorandum for the Kenai Municipal Airport – Rehabilitate Runway 02L/20R can be obtained upon request to the Owner or at the following link:

https://files.hdlalaska.com/index.php/s/alZ5hx8FAwIbqOH



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	Date:	6/23/2025			
	То:	File			
	From:	Marie Schmidt, Environmental Planner			
Subject:		Kenai Municipal Airport Runway Rehabilitation			
		No Preconstruction Notification Under Nationwide Permit 3 – Maintenance			
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Geotechnical Engineering

Civil Engineering

Transportation Engineering

Aviation Engineering

W/WW Engineering

Environmental Services

Surveying & Mapping

Construction Administration

> Material Testing

requirements to the U.S. Army Corps of Engineers (USACE) for the Kenai Municipal Airport Runway Rehabilitation project.

The purpose of this memorandum is to document the impacts to Waters of the U.S. and notification

Project Description

The City of Kenai is proposing an airport improvement project to rehabilitate pavement surfaces, upgrade airfield lighting, and improve drainage infrastructure at the Kenai Municipal Airport. The proposed work includes the following activities:

- Replace airfield lighting and associated components.
- Replace lighted airport signs and bases within the project limits.
- Improve drainage, including ditch grading to re-establish positive drainage between Runway 02L/20R and Taxiway A and reconstructing the existing storm drain at the northwest end of Runway 02L/20R.

• Clear and grub vegetation.

Impacts to Waters of the US

A wetland delineation for the project was conducted in September, 2022 (attached). Wetlands in the project area include drainage ditches between Runway 02L/20R and Taxiway A and east of Taxiway A. The ditches drain a large wetland complex to the north of the airport and have a relatively permanent surface water connection to waters of the U.S. downstream of the airport. Therefore, these ditch wetlands are under the jurisdiction of the USACE.

Grading to re-establish positive drainage within the wetland ditches located between Runway 02L/20R and Taxiway A will result in wetland impacts. Impacts include incidental fill from grading, excavation to remove accumulated sediment, and minor reshaping of the existing ditch cross-sections.

Estimated wetland impacts are as follows:

Up to 1.1 acres of wetland impacted by ditch grading

3335 Arctic Boulevard, Suite 100, Anchorage, Alaska 99503 1617 S Industrial Way, Suite 3, Palmer, Alaska 99645 110 Trading Bay, Unit 120, Kenai, AK 99611 907.564.2120 907.746.5230 907.564.2120 Kenai Municipal Airport Runway Rehabilitation 6/23/2025

• Up to 96,000 cubic yards of excavation within wetlands

Drawings of the proposed work are enclosed, illustrating the impacts described above. Figure 1 provides a location and vicinity map, Figure 2 a plan view, and Figure 3 a profile view of the proposed ditch improvements.

Nationwide Permit Authorization

Nationwide Permit (NWP) 3 (attached) authorizes the discharge of fill material into waters of the U.S for maintenance projects if the following criteria are met:

- A. The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification.
 - The ditch is currently serviceable and is presumed to have been previously authorized under a USACE permit as part of the airfield's original drainage system.
 - The proposed work maintains the same use and function as the existing ditch. Sediment accumulation over time has impeded drainage, and the project would re-establish flow by restoring the ditch to its original configuration. Removal of sediment and minor reshaping of the ditch would not increase capacity or alter drainage function.
 - B. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized.
 - Ditch regrading would be limited to minor deviations to the shape and depth of the ditch as necessary to restore its intended drainage function.

The requirement to submit a PCN to USACE applies if the project meets the following criteria:

- 1. PCN is required for maintenance activities authorized under this NWP that involve the removal of accumulated sediments and debris outside the immediate vicinity of an existing structure.
 - This project would not require the removal of sediment outside the immediate vicinity of ditch that is being maintained.

For the reasons highlighted in bold above, the project is authorized under NWP 3 – *Maintenance* and no PCN is required prior to construction. Nationwide Permit General Conditions 6, 9, 12, 13, 14, 19, and 21 and Alaska Regional Conditions D, E, and F apply to this project (attached) and should be incorporated into the project plans and specifications.



Kenai Municipal Airport Runway Rehabilitation 6/23/2025

Attach: Figure

Figure 1: Location & Vicinity Map
Figure 2: Plan View
Figure 3: Profile View of Ditch Improvements
Wetland Determination and Mapping Report for Kenai Municipal Airport Runway
02L/20R Rehabilitation Kenai, Alaska
NWP 3 – Maintenance
Nationwide Permit General Conditions
Alaska Regional Conditions





City of Kenai Kenai Airport Rehabilitation

Figure 1 Location & Vicinity Map



Drainage Improvements / Grading

Wetlands

0.15 0.3 Miles 0.07 0 1

City of Kenai Kenai Airport Rehabilitation

Figure 2 Plan View



City of Kenai Kenai Airport Rehabilitation Figure 3 Ditch Improvement Profile View



Wetland Determination and Mapping Report

for

Kenai Municipal Airport Runway 02L/20R Rehabilitation Kenai, Alaska

Prepared for:

City of Kenai 210 Fidalgo Ave. Kenai, AK 99611

Prepared by:

HDL Engineering Consultants, LLC 3335 Arctic Blvd., Ste. 100 Anchorage, AK 99503 Phone: 907.564.2120 Fax: 907.564.2122

January 2022

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APPENDICES

Appendix A: Preliminary Wetland Mapping Appendix B: Final Wetland Mapping Appendix C: Wetland Determination Data Forms and Site Photos

ABBREVIATIONS

FAC	Facultative neutral plants
FACU	Facultative upland plants
FACW	Facultative wetland plants
HDL	HDL Engineering Consultants, LLC
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate wetland plants
U	Upland plants
U.S	United States
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

1.0 INTRODUCTION

The City of Kenai has contracted HDL Engineering Consultants, LLC (HDL) to perform a wetland delineation in support of the Runway 02L/20R Rehabilitation project at the Kenai Municipal Airport. Work performed for this wetland delineation includes field wetland determinations, classification and mapping of wetland and waterbody habitats, and a preliminary jurisdictional evaluation. This report describes the methods and results of the wetland delineation activities and has been prepared in general conformance with the guidelines for jurisdictional determination reports contained in U.S. Army Corps of Engineers (USACE) Special Public Notice 2020-00399 (USACE 2020a).

1.1 **Project Location and Study Area**

The project is located at the Kenai Municipal Airport in Kenai, Alaska. The wetland delineation study area consists of the general area within the boundaries of the airport where improvements related to the runway rehabilitation project are anticipated to occur (Figure 1). The approximate center of the study area is at latitude 60.57500°N, longitude 149.24500°W and is within U.S. Geological Survey (USGS) Quadrangle *Kenai C-4 SE*.



Figure 1: Project Location and Wetland Delineation Study Area

The study area lies within the Cook Inlet Lowlands Major Land Resource Area (Natural Resources Conservation Service [NRCS] 2006). The USACE-defined ecoregion for the project area is Cook Inlet (USACE 2007a). The surrounding landscape is characterized by level to rolling topography, is generally free from permafrost, and is a mosaic of paved and gravel roads, residential,

commercial, and industrial developments, and fragmented wetlands. The study area is 293.12 acres in size and is located approximately one-half mile north of the Kenai River at its outlet to Cook Inlet. The USACE-defined growing season is May 8 to October 5.

2.0 PRELIMINARY WETLAND MAPPING

HDL conducted initial research and inventory of wetlands by compiling existing environmental data and wetlands mapping. This information was used to prepare maps of potential wetland and waterbody locations using ArcGIS. Study area boundaries and potential wetland locations within the study area are shown on preliminary wetland mapping in Appendix A. Sources of environmental data and other geographic information included the following:

- Cook Inlet Wetlands (Gracz 2013).
- National Wetlands Inventory (NWI) mapping (U.S. Fish and Wildlife Service 1977).
- Satellite/aerial imagery dated May 2021 available via the Esri World Imagery layer (Esri 2022)
- USGS 1:63,360 Series (Topographic) Maps: Quadrangles Kenai C-4 SE.
- Soil Survey of the Western Kenai Peninsula Area, Alaska; provided by the *Web Soil Survey* (NRCS 2022).
- Anadromous Waters Catalog (Alaska Department of Fish and Game 2022).

3.0 FIELD SURVEY

3.1 Field Survey Methods

Wetland determinations were performed by HDL staff with formal USACE wetland delineation training during a field study on September 29, 2022. Wetland determinations followed the three-parameter methodology described in the USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0 (USACE 2007a). Vegetation, hydrology, and soil characteristics observed at each sampling point were recorded on the current version of the USACE Alaska Region Wetland Determination Data Sheet and then transferred to the USACE's Excel Automated Data Sheet Version 2.0 for office analysis. Taxonomic nomenclature (common and scientific plant names) and wetland indicator status for all plant species followed the 2020 National Wetland Plant List (USACE 2020b).

3.2 Ground Disturbance

Kenai Municipal Airport was constructed within a mosaic of upland spruce/birch forest and relict lakebed palustrine wetlands. Fill placement for construction of airport facilities such as the runway, taxiways, and aprons has converted large areas of palustrine wetlands into compacted embankments. Alteration of near-surface groundwater and surface water patterns have likely occurred as a result of construction of perimeter roads and ditching. Excluding areas of direct development and construction, the airfield experiences periodic mowing. Wetland determinations were performed in areas where soils were judged to be relatively undisturbed.

3.3 Climatic Conditions

To determine whether recent climatic conditions could have affected hydrology observations in the field, historical precipitation amounts for the previous ten-year period (2012-2021) and the current year (2022) were compared following the methods outlined in the NRCS *Engineering Field Handbook* (NRCS 1997). The precipitation analysis included the months of July, August, and September. Precipitation data was taken from the Kenai Airport weather station. Using the NRCS formula, climatic conditions were determined to be normal at the time of the field survey (Figure 2, Table 1).



Figure 2: Current versus 10-year Monthly Precipitation Averages

Table 1:	Precipitation	Worksheet
	FICUPILATION	WUINSHEEL

	Precipitation Thresholds (inches)			Current	Condition	Condition	Month	Condition
Month	Below	Normal	Above	Precipitation	••••••	Value	Weight	x Weight
July	< 1.42	1.42 - 2.60	> 2.60	2.04	Normal	2	1	2
August	< 1.29	1.29 - 3.65	> 3.65	4.21	Wet	3	2	6
September	< 1.95	1.95 - 5.04	> 5.04	2.52	Normal	2	3	6
If sum is						_ (
	6-9: then period has been drier than normal 10-14: then period has been normal			n normal	Condition Value:	Dry=1 Normal=2 Wet=3	Sum	14
	15-18:	5-18: then period has been wetter than normal						

Precipitation calculations per NRCS Engineering Field Handbook, Figure 19-7, Rainfall documentation worksheet (NRCS 1997).

3.4 Wetland Indicators

Vegetation

Indicators of hydrophytic vegetation are the dominance or prevalence of plant species rated as obligate wetland plants (OBL), facultative wetland plants (FACW), and/or facultative plants (FAC). Plant species rated as facultative upland (FACU) or upland (U) are typically not present or are present in low cover values in wetlands.

Wetland Determination and Mapping Report

Hydrophytic vegetation was present only within the drainage ditches along the east side of the runway that discharges to surface waters to the south of the airport. Vegetation—when present— within ditches generally was dominated by bluejoint (*Calamagrostis canadensis* [FAC]). At all other sampling points, dominant vegetation commonly included Kentucky bluegrass (*Poa pratensis* [FACU]), common dandelion (*Taraxacum officinale* [FACU]), and Siberian yarrow (*Achillea sibirica* [UPL]).

<u>Soil</u>

Indicators of hydric soil are physical or chemical conditions that occur when a soil experiences saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (U.S. Department of Agriculture 1994). No soil indicators were observed at any of the sampling points where soil pits were advanced. Soils throughout the study area consisted of a moderately thick (6-12 inches generally) layer of unsaturated organic soil, a brown loamy mineral layer, and an underlying sand layer beginning 16 inches or more below the soil surface. A clay restrictive layer was encountered at two sites, but it was not associated with episaturated conditions.

<u>Hydrology</u>

Indicators of wetland hydrology are intended to reflect an area's medium- to long-term hydrological history (USACE 2007a). Primary hydrology indicators were limited to the ditch along the east side of the runway, where bank full conditions were observed.

Wetland determination data, photos, and observations recorded in the field for each sampling point are included in data forms located in Appendix C.

4.0 MAPPING AND HABITAT CLASSIFICATION

Wetland determinations and other field data and observations were used to update and modify wetlands boundaries compiled during preliminary mapping. Wetland boundaries were mapped in the field using Global Positioning System units where terrain allowed. Extrapolation of wetland boundaries to the remainder of the wetland or wetland complex within the study area was completed by interpreting color signature, visible water patterns, and topographic relief from satellite imagery and elevation contours. Wetland map polygons were drawn digitally and their acreages were calculated using ArcGIS.

Map polygons were then classified into habitat types based on data collected during the field survey and observations related to landscape position, local geomorphology, plant community composition and structure, bottom substrate, and general hydrology characteristics. Habitats were classified according to the NWI/Cowardin Classification System (Cowardin et al. 1979).

4.1 Wetland and Waterbody Habitat Classification

Emergent Wetland

The ditch wetlands along the east side of the runway assigned the NWI/Cowardin code PEM1C. Dominant vegetation included bluejoint (*Calamagrostis canadensis* [FAC]), willows (*Salix* sp.) and sedges (*Carex* sp.).

4.2 Mapping Summary

A summary of mapping results is shown in Table 2. Compared to preliminary mapping and existing wetland information, wetland areas were less extensive compared to those mapped by Cook Inlet Wetlands and NWI. Wetland boundaries have been modified using site observations of the wetland boundary as indicated by changes in dominant plant communities and surface level hydrology indicators at the wetland/upland boundary, as well as the use of detailed elevation data as described in preliminary mapping. Final wetland mapping in Figure 2 contains the locations of sampling points and mapped wetlands.

Cowardin/NWI Cla	assification	Associated Field	Acres					
Subsystem or Class	Code	Sampling Points						
Wetlands - Palustrine								
Emergent	PEM1C	7	2.18	ac				
<u>Upland</u>								
Upland U		1,2,3,4,5,6	290.94	ac				
	Summary							
		Total jurisdictional waters:	2.18	ac				
		Total study area acreage:	293.12	ac				
	Perce	ent of study area that is wetlands:	0.7	%				
	Perc	ent of study area that is uplands:	99.3	%				

Table 2: Summary of Jurisdictional Waters, Uplands, and Habitat Types

5.0 PRELIMINARY JURISDICTION DETERMINATION

Wetlands mapped in the study area during the field survey were preliminarily evaluated for jurisdiction under Section 404 of the Clean Water Act following the 'pre-2015' definition of waters of the U.S. currently under implementation by USACE. The evaluation followed guidance from *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* (USACE & U.S. Environmental Protection Agency 2007) and the *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007b).

Wetland ditches mapped along the east side of the runway are conveyed through storm drain pipes until they discharge into an unnamed stream at the south end of the runway. This stream discharges into the Kenai River—a traditional navigable water. Therefore, the wetland ditches are subject to USACE jurisdiction under Section 404 of the Clean Water Act.

Wetland Determination and Mapping Report

6.0 CONCLUSION AND SUMMARY

This report was prepared following the guidelines for jurisdictional determination reports contained in USACE Alaska District's SPN 2020-00399. Wetland determinations were performed in accordance with the USACE *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0.*

HDL Professional Wetland Scientist, Owen Means (PWS #3392) conducted a field study on September 29, 2022. Hydrological conditions were within the range of normal for the time of year. Wetlands data and observations were collected at 7 sampling points. Field wetland determinations indicated that 2.18 acres of ditches along the east side of the runway contain wetlands subject to USACE jurisdiction.

The findings and conclusions in this report are considered preliminary until verified or modified by USACE in a formal Jurisdictional Determination.

7.0 **REFERENCES**

- Alaska Department of Fish and Game. 2022. [Atlas to] *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (Anadromous Waters Catalog). State of Alaska, Department of Fish and Game. June 15, 2022. http://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=maps.maps.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC.
- Esri. 2022. World Imagery layer for ArcGIS. Esri. https://services.arcgisonline.com/ArcGIS/rest/services/World_Imagery/MapServer
- NRCS.1997. Engineering Field Handbook. U.S. Department of Agriculture, Natural Resources Conservation Service.
- NRCS. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture, Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 296.
- NRCS. 2022. Soil survey of the Western Kenai Peninsula Area, Alaska. U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Soil Survey Data Version 21, August 31, 2022. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.
- USACE. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station. Vicksburg, MS. Tech. Rep. Y-87-1.
- USACE. 2007a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0. Wetlands Regulatory Assistance Program, U.S. Army Corps of Engineers, Engineer Research and Development Center, Vicksburg, MS.

- USACE. 2007b. Jurisdictional Determination Form Instructional Guidebook. U.S. Army Corps of Engineers.
- USACE. 2020a. Corps of Engineers Regulatory Program Consultant-Supplied Jurisdictional Determination Reports. Special Public Notice (SPN) 2020-00399.
- USACE. 2020b. *National Wetland Plant List, version 3.5.* U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. http://wetland-plants.usace.army.mil/.
- USACE & U.S. Environmental Protection Agency. 2007. *Clean Water Act Jurisdiction following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States*. U.S. Environmental Protection Agency and U.S. Department of the Interior.
- U.S. Department of Agriculture. 1994. Changes in hydric soils of the United States. U.S. Department of Agriculture, Soil Conservation Service. Federal Register 59(133): 35680-35681, July 13, 1994.
- U.S. Fish and Wildlife Service. 1977. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Wetland mapping based on imagery collected in 1977. ">http://www.fws.gov/wetlands/.

3. Maintenance

(a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.). The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization.

(c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

<u>Notification</u>: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Authorities: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (Sections 10 and 404))

<u>Note</u>: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of <u>33 CFR 330.1</u> through 330.6 apply to every NWP authorization. Note especially <u>33</u> CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. *Navigation.* (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life Movements.* No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. *Spawning Areas.* Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. *Migratory Bird Breeding Areas.* Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. *Shellfish Beds.* No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. *Suitable Material.* No activity may use unsuitable material (*e.g.*, trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. *Water Supply Intakes.* No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. *Adverse Effects From Impoundments.* If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. *Management of Water Flows.* To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (*e.g.*, stream restoration or relocation activities).

10. *Fills Within 100-Year Floodplains.* The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. *Equipment.* Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. *Soil Erosion and Sediment Controls.* Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. *Removal of Temporary Structures and Fills*. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to preconstruction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance.* Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. *Single and Complete Project.* The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. *Wild and Scenic Rivers.* (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a preconstruction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <u>http://www.rivers.gov/</u>.

17. *Tribal Rights.* No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. *Endangered Species.* (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See <u>50 CFR 402.02</u> for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as <u>50 CFR 402.17</u>, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (*e.g.*, an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The

word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <u>http://www.fws.gov/</u> or <u>http://www.fws.gov/ipac</u> and <u>http://www.nmfs.noaa.gov/pr/species/esa/</u> respectively.

19. *Migratory Birds and Bald and Golden Eagles.* The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. *Historic Properties.* (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see <u>33 CFR 330.4(g)(1)</u>). If preconstruction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance
with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the preconstruction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see <u>36 CFR 800.3(a)</u>). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: No historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (<u>54 U.S.C. 306113</u>) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. *Discovery of Previously Unknown Remains and Artifacts.* Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. *Designated Critical Resource Waters.* Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. *Mitigation.* The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (*i.e.*, on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require preconstruction notification, the district engineer may determine on a case-by case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100 acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100 acre or less that require preconstruction notification, the district engineer may determine on a case-by case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult to-replace resources (see <u>33 CFR</u> <u>332.3(e)(3)</u>).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the

stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (*e.g.*, riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of <u>33 CFR part 332</u>.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see <u>33 CFR 332.3(b)(2)</u> and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see <u>33 CFR 330.1(e)(3)</u>). (See also <u>33 CFR 332.3(f)</u>.)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of <u>33 CFR 332.4(c)(2)</u> through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see <u>33 CFR 332.3(k)(3)</u>). If permittee responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see <u>33 CFR 332.4(c)(1)(ii)</u>).

(6) Compensatory mitigation requirements (*e.g.*, resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see <u>33 CFR 332.4(c)(1)(ii)</u>).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permitteeresponsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at <u>33 CFR</u> <u>332.3(b)</u>. For activities resulting in the loss of marine or estuarine resources, permittee responsible mitigation may be environmentally preferable if there are no mitigation banks or inlieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. *Safety of Impoundment Structures.* To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. *Water Quality.* (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived

(see <u>33 CFR 330.4</u>(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires preconstruction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. *Coastal Zone Management.* In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see <u>33 CFR 330.4(d)</u>). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. *Regional and Case-By-Case Conditions.* The activity must comply with any regional conditions that may have been added by the Division Engineer (see <u>33 CFR 330.4(e)</u>) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. *Use of Multiple Nationwide Permits.* The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3 acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2 acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. *Transfer of Nationwide Permit Verifications.* If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

30. *Compliance Certification.* Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by <u>33 CFR 332.3(1)(3)</u> to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to <u>33 U.S.C. 408</u> because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. *Pre-Construction Notification.* (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see <u>33 CFR 330.4(f)</u>) and/or section 106 of the National Historic Preservation Act (see <u>33 CFR 330.4(g)</u>) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the

permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. (ii) For linear projects where one or more single and complete crossings require preconstruction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs. (iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project

site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require preconstruction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat

conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

ALASKA DISTRICT REGIONAL CONDITIONS for the 2021 NATIONWIDE PERMITS (NWP)

The Alaska District Regulatory Office has issued the following Regional Conditions to ensure that activities authorized by NWPs in the Alaska District cause no more than minimal adverse environmental effects, individually and cumulatively. Before the Alaska District will verify an activity under one or more NWPs, the proposed activity must comply with the NWP terms and all applicable General and Regional Conditions.

<u>APPLICABILITY</u>: The following apply throughout the state of Alaska.

RESTRICTIONS:

Regional Condition A – Revoked Permits: The following NWPs are revoked within Alaska:

- 2. Structures in Artificial Canals
- 24. Indian Tribe or State Administered Section 404 Programs
- 30. Moist Soil Management for Wildlife
- 34. Cranberry Production Activities

Regional Condition B – Additional Pre-Construction Notification (PCN) Requirements

1. NWP 13, Bank Stabilization: In addition to the PCN requirements specified by NWP 13, a PCN is required for proposed bank stabilization projects in fresh water when the proposed methods and techniques are not included in the Streambank Revegetation and Protection: A Guide for Alaska Revised 2005 (Walter, Hughes and Moore, April 2005) (Guide) or its future revisions. The Guide is available at: http://www.adfg.alaska.gov/index.cfm?adfg=streambankprotection.main.

2. A PCN is required for projects that qualify for NWPs 12, 57 (C), and 58 (D) within the Municipality of Anchorage.

3. NWP 48: A PCN is required for impacts to greater than 1/2 acre of special aquatic sites (wetlands, mudflats, vegetated shallows, coral reefs, etc.).

4. NWP 12, 57 (C), 58 (D). In addition to other triggers for the PCN, a PCN is required for projects located within permafrost soils identified using the appropriate soil survey or other appropriate data.

REGIONAL CONDITION C - Activities Involving Trenching

Trenches may not be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect). Ditch plugs or other methods shall be used to prevent this situation.

Except for material placed as minor trench over-fill or surcharge necessary to offset subsidence or compaction, all excess materials shall be removed to a non waters of the U.S. location. The backfilled trench shall achieve the pre-construction elevation, within a year of disturbance unless climatic conditions warrant additional time. The additional time must be approved by the Corps.

Excavated material temporarily sidecast into wetlands shall be underlain with geotextile, ice pads, or similar material, to allow for removal of the temporary material to the maximum extent practicable.

REGIONAL CONDITION D - Site Revegetation for Projects with Ground Disturbing Activities Re-vegetation of all disturbed areas within the project site shall begin as soon as site conditions allow and in the same growing season as the disturbance, unless climatic conditions warrant additional time. Topsoil (the outermost layer of soil, usually the top 2 – 8 inches) removed from the construction area shall be separated and used for site rehabilitation. When backfilling, topsoil shall be placed as the top layer to provide a seed bed for regrowth. If topsoil is not available from the project site, local native soil material obtained from an approved site may be used. Species usedfor seeding and planting shall be certified seed sources free of invasive species and follow this order of preference: 1) species native to the site; 2) species native to the region; 3) species native to the state.

REGIONAL CONDITION E - Delineation of Project Footprint

Prior to commencement of construction activities within waters of the U.S., the permittee shall clearly identify the permitted limits of disturbance at the project site with highly visible markers (e.g. construction fencing, flagging, silt barriers, etc.). The permittee shall properly maintain such identification until construction is complete and the soils have been stabilized. The permittee is prohibited from conducting any unauthorized Corps-regulated activity outside of the permitted limits of disturbance (as shown on the permit drawings).

REGIONAL CONDITION F - Maintenance of Hydrology Patterns

Natural drainage patterns shall be maintained using appropriate methods. Excessive ponding or drying adjacent to fill areas shall indicate non-compliance with this condition.

REGIONAL CONDITIONS G, H, I AND J APPLY TO SPECIFIC NWPs

REGIONAL CONDITION G - NWP 40 Agricultural Activities

The following activities are not authorized by NWP 40: a. Installation, placement, or construction of drain tiles, ditches, or levees; and b. Mechanized land clearing or land leveling in wetlands within 300 feet of an anadromous water (anadromous water is defined by the state of AK see https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.interactive).

REGIONAL CONDITION H - NWP 44 Mining Activities

Placer mining activities are excluded from coverage by NWP 44 (Mining Activities). Placer mining may be authorized by Regional General Permit POA-2014-00055-M1. In Alaska, NWP 44 may only authorize the following activities:

1. Hard rock mining within waters jurisdictional under only Section 404 of the Clean Water Act, not including trenching, drilling, or access road construction.

2. Temporary stockpiling of sand and gravel in waters of the U.S., limited to seasonally dewatered unvegetated sand/gravel bars. Stockpiles shall be completely removed and the area restored to preproject contours within one year, in advance of seasonal ordinary high water events, or prior to equipment being removed from site, whichever occurs first.

REGIONAL CONDITION I – NWP 48, 55 (A), and 56 (B):

When an Aquatic Farm Lease is required from the Alaska Department of Natural Resources (ADNR) for a new or modified aquatic farm, the applicant must obtain and submit a copy of the ADNR preliminary decision with a Preconstruction Notification to the USACE.

REGIONAL CONDITION J -- NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52:

The proposed NWP activity must not cause:

1) the loss of anadromous streambed, and/or

2) the discharge of dredged or fill material into waterbodies, including wetlands, adjacent to and/ or upstream of an anadromous waterbody;

unless the district engineer issues a waiver by making a written determination concluding that these discharges will result in no more than minimal individual and cumulative adverse environmental effects. -2-



GENERAL TYPICAL SECTION NOTES:

- 1. FASBC SEQUENCING SHALL CONSIST OF THE FOLLOWING:
 - A. REMOVE EXISTING PAVEMENT PER ITEM P-161, EXISTING PAVEMENT DEPTH VARIES FROM 4-11 INCHES. SEE GEOTECH DATA REPORT FOR THICKNESS AT EACH BOREHOLE LOCATION.

(SEE ELECTRICAL, TYP.)

- B. STOCKPILE RAP ON SITE.
- C. MAKE GRADE ADJUSTMENTS AS NEEDED BY FILLING WITH CABC OR CUTTING TO ACHIEVE BOTTOM OF FASBC LAYER. GRADING AND SHAPING WILL BE PAID FOR AS AREA GRADING UNDER ITEM P152.440.0000 "AREA GRADING".
- D. PLACE FASBC PER ITEM P-318.
- E. APPLY TACK COAT BETWEEN FASBC AND HMA.
- F. PAVE OVER FASBC ONCE FASBC HAS BEEN ACCEPTED BY THE ENGINEER.
- 3. APPLY TACK COAT BETWEEN HMA AND FASBC, BETWEEN 2-INCH LIFTS OF HMA, AND ALONG SHOULDERS BETWEEN HMA AND RAP.
- 4. TOPSOIL AND SEED ALL CONSTRUCTED SLOPES EXCEPT SLOPES SPECIFIED TO RECEIVE HMA OR RAP SURFACING. PROVIDE SEEDING IN AREAS DISTURBED BY CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.

REMOVE EXISTING ASPHALT AND PROCESS RAP, DEPTH VARIES BOTTOM OF RUNWAY EXCAVATION AS BOTTOM OF BLAST PAD EXCAVATION REQUIRED TO REMOVE EXISTING ASPHALT AS REQUIRED TO REMOVE EXISTING AND INSTALL RUNWAY TYPICAL SECTION TO ASPHALT AND INSTALL BLAST PAD ACHIEVE HMA FINISH GRADE TYPICAL SECTION TO ACHIEVE HMA FINISH GRADE RUNWAY AND BLAST PAD - DEMO SECTION C1.01 SCALE: NTS "RW" STA 103+27 TO "RW" STA 185+57 500' RSA 200 25' SHOULDER 10' TYP. PROFILE GRADE POINT FINISH *1.5%–3%) GRADE _1.4% 1.4% 20202 AREA GRADING -PER ITEM P-152 C1.01 $C1.0^{3}$ RUNWAY - SECTION 2 C1.01 SCALE: NTS RUNWAY SHOULDER GRADES BY STATION RANGE: "RW" STA 105+00 TO "RW" STA 106+95, 2.0% SHOULDER "RW" STA 106+95 TO "RW" STA 122+55, 3.0% SHOULDER "RW" STA 122+55 TO "RW" STA 128+55, 2.0% SHOULDER "RW" STA 128+55 TO "RW" STA 144+90, 1.5% SHOULDER "RW" STA 144+90 TO "RW" STA 157+65, 2.0% SHOULDER "RW" STA 157+65 TO "RW" STA 178+00, 1.5% SHOULDER "RW" STA 178+00 TO "RW" STA 181+25, 2.0% SHOULDER "RW" STA 181+25 TO "RW" STA 183+55, 3.0% SHOULDER NOTE: TRANSITION RUNWAY SHOULDER GRADES OVER 50' SPAN CENTERED ON STATION IDENTIFIED ABOVE. 5. RAP RECYCLED FROM PROJECT SHALL BE REUSED WITHIN PROJECT. EXCESS RAP SHALL REMAIN ON

500' RSA

200

- AIRPORT PROPERTY AND BE STOCKPILED IN MATERIAL STOCKPILE AREA SHOWN ON SHEET G2.01 OR AS DIRECTED BY ENGINEER. IF INSUFFICIENT RAP IS AVAILABLE, USE CABC WHERE RAP IS SHOWN. CABC USED FOR FASBC SHALL BE SUBSIDIARY TO ITEM P318.020.0000 FOAMED ASPHALT STABILIZED BASE COURSE.
- 6. IF ORGANIC MATERIAL IS ENCOUNTERED DURING EXCAVATION, REMOVE ALL ORGANIC MATERIAL TO A FIRM AND UNYIELDING BASE, AS DIRECTED BY THE ENGINEER.
- 7. WORK AREAS SHALL BE WELL DRAINED AT ALL TIMES BY GRADING OR PUMPING. SURFACE RUNOFF THAT HAS COLLECTED IN EXCAVATIONS OR ON GRADE SHALL BE REMOVED IMMEDIATELY BY PUMPING OR OTHER ACCEPTABLE MANNER. MATERIAL THAT IS SATURATED AS A RESULT OF INACTION SHALL BE REPLACED WITH ACCEPTABLE LIKE MATERIAL AT NO ADDITIONAL COST TO THE CONTRACT.
- 8. GROOVE RUNWAY PAVEMENT BETWEEN STA 105+00.00 AND STA 183+55.40. GROOVES SHALL EXTEND FROM RUNWAY CENTERLINE TO 8 FEET BEYOND THE EDGE OF THE RUNWAY.

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- 1. SEE TAXIWAY PLAN AND PROFILE SHEETS FOR TAXIWAY CENTERLINE ELEVATIONS.
- 2. NEW AND EXISTING ELECTRICAL UTILITIES NOT SHOWN ON GRADING PLANS FOR CLARITY. SEE ELECTRICAL.

LAYOUT C3.01

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LAYOUT C4.02

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TYPICAL TRENCH SECTION - REMOVE AND REPLACE C4.06 SCALE: NTS

				PIPE	SUMMARY			
ID	TYPE	DIA (IN)	LENGTH (FT)	START STATION	INV ELEV (FT)	END STATION	INV ELEV (FT)	REMARKS
P1	CIPP	18	200	322+08	90.3±	320+08	89.2± {	SEE NOTE 4
Ρ2	CPEP	18	164	320+08	88.4±	318+44	88.0± (SEE NOTE 3
Ρ3	CPEP	18	165	318+44	88.0±	316+80	87.6±	SEE NOTE 3
Ρ4	CPEP	21	164	316+80	87.7±	315+16	87.1±	SEE NOTE 3
P5	CIPP	21	101	314+15	87.2±	315+16	87.2±	SEE NOTE 4
P6	CIPP	21	173	312+42	86.7±	314+15	87.1± (SEE NOTE 4
Ρ7	CIPP	36	414	505+14	86.6±	501+00	87.3± {	SEE NOTE 4
P7A	CIPP	24	80	601+30	88.4±	600+50	90.4± (SEE NOTE 4
P7B	CIPP	24	160	601+30	88.4±	602+90	89.6±	SEE NOTE 4
P8	CIPP	42	171	310+71	86.4±	312+42	86.7±	SEE NOTE 4
P9	CIPP	42	192	308+79	85.9±	310+71	86.3± {	SEE NOTE 4
P10	CIPP	42	196	306+83	85.5±	308+79	85.9±	SEE NOTE 4
P11	CIPP	42	194	304+89	85.2±	306+83	85.3±	SEE NOTE 4
P12	CIPP	18	194	302+95	87.8±	304+89	87.0±	SEE NOTE 4
P13	CIPP	18	195	301+00	88.5±	302+95	87.9±	SEE NOTE 4
P14	CIPP	42	403	406+69	84.9±	402+66	84.6±	SEE NOTE 4
P15	CIPP	42	166	402+66	84.3±	401+00	83.4±	SEE NOTE 4

PIPE SUMMARY NOTES

- PIPE LENGTHS ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, TO THE 1. NEAREST FOOT.
- 2. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE ALIGNMENTS, MANHOLE LOCATIONS, PIPE SIZES, AND INVERT LOCATIONS PRIOR TO ORDERING MATERIALS AND PERFORMING THE WORK.
- REPLACE EXISTING PIPE IN-KIND WITH CPEP PIPE, SEE DETAILS 1 & 2 THIS SHEET. 3.
- REHABILITATE EXISTING PIPE WITH CURED-IN-PLACE-PIPE LINING, SEE DETAIL 4 THIS SHEET. 4.

PIPE SUMMARY TABLE 3 C4.06

TRENCH NOTES:

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- TRENCH WALLS SHALL BE SLOPED OR SHORED 1. AS REQUIRED FOR SAFETY.
- ALL BEDDING AND BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY. 2.
- NO ORGANIC MATERIAL WILL BE ALLOWED IN 3. TRENCH BACKFILL.
- ANY EXCESS TRENCH EXCAVATION SHALL BE REMOVED BY CONTRACTOR AND STOCKPILED IN LOCATION SHOWN ON AIRPORT PROPERTY AT 4. NO ADDITIONAL COST.
- GROUNDWATER MAY BE ENCOUNTERED AT OR DIRECTLY BELOW EXISTING GROUND ELEVATION, DEPENDING ON TIME OF YEAR. DEWATERING IS ANTICIPATED. CONTRACTOR SHALL PREPARE A DEWATERING PLAN AND PERFORM DEWATERING AS NECESSARY TO INSTALL NEW STORM DRAIN PIPE IN LOCATIONS SHOWN IN ACCORDANCE WITH THE PROJECT MANUAL.







TYPICAL PIPE SECTION - CIPP LINER C4.06 SCALE: NTS

AY0UT C4.05

1. MORTAR PIPE ENTRANCE AS REQUIRED TO ELIMINATE ROUGH OR ABRUPT EDGES. PROVIDE A SMOOTH TRANSITION BETWEEN MANHOLE AND PIPE. FOR CIPP, TRIM PIPE EVEN WITH EXISTING PIPE EDGE.

DEWATERING IS ANTICIPATED. DEWATERING SHALL BE INCIDENTAL TO INSTALLATION OF STORM DRAIN PIPE AND CIPP LINER.

CONTRACTOR SHALL FINISH GRADE IN ACCORDANCE WITH TYPICAL SECTIONS SHOWN ON THIS SHEET AND MAINTAIN EXISTING DRAINAGE.

CONTRACTOR SHALL BE PREPARED TO REMOVE AND RE-INSTALL MANHOLE REDUCING CONE TO COMPLETE CIPP LINER WORK ON STORM DRAIN PIPE SECTIONS 42 INCHES IN DIAMETER AND GREATER. CONTRACTOR SHALL FIELD VERIFY EXISTING MANHOLES TO DETERMINE CONDITION, SIZE, AND SHAPE OF REDUCING CONE PRIOR TO REMOVAL. FURNISH AND INSTALL NEW REDUCING CONE, TO MATCH EXISTING, AT NO ADDITIONAL COST TO THE OWNER IF EXISTING CONE IS UNABLE TO BE REINSTALLED OR IS DAMAGED BY THE CONTRACTOR DURING REMOVAL AND REINSTALLATION.

> STORM DRAIN PIPE DIAMETERS AND INVERT ELEVATIONS WERE OBTAINED FROM AS-BUILTS AND BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY ELEVATIONS AND MATCH EXISTING STORM DRAIN AND STORM DRAIN MANHOLE CONNECTIONS.





LAYOUT XS 1







LAYOUT XS 13

LAYOUT XS 14


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LAYOUT XS 17



























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LAYOUT TW F 1





LAYOUT TW F 2

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LAYOUT TW E 1





LAYOUT TW E 2





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