

**PROJECT
ADVERTISING
SPECIAL PROVISION**

Project Number:	S-TR03(2)
Project Name:	UTN: Steinaker Service Canal Trail - Phase One
Concept:	Trail - New Facility
County:	Uintah
Bid Opening Date:	14 May 2026

THIS IS A P+T (PRICE + TIME) PROJECT.

THE DEPARTMENT WILL NOT HOLD RETENTION ON THIS PROJECT. PER UTAH STATE CODE § 13-8-5 (1) PRIME CONTRACTORS CANNOT HOLD RETENTION. REFER TO UTAH CODE § 13-8-5 (1) FOR MORE INFORMATION.



PROJECT # S-TR03(2)
PIN # 21890

2026 - Standards

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I. Statement of Applicable Standards

The Utah Department of Transportation 2026 Standard Specifications and Standards Drawings for Road and Bridge Construction books found at: <http://udot.utah.gov/go/2026standards>

Refer to “Special Provisions” for other project specific specifications.

II. Notice to Contractors

THE DEPARTMENT WILL NOT HOLD RETENTION ON THIS PROJECT. Per Utah State Code § 13-8-5 Prime Contractors cannot hold retention. Refer to Utah Code § 13-8-5 for more information.

NOTICE TO CONTRACTORS

Project Information

State Project Number : S-TR03(2)

Project Location: SR-121; MP 38.26 - 38.72 & Steinaker Service Canal Trail (separated from roadway)

Project Description: Trail - New Facility

Electronic Bid Proposals to be Received By: 2:00 p.m. 05/14/2026

Public Bid Opening Scheduled: 2:00 p.m. 05/14/2026

Federal Regulations: Davis-Bacon Wage Rate is Non-Applicable.

The project is to be completed: to be determined by competitive bidding.

Other Requirements:

Contractors who want to do a press release or use UDOT's name in any way, need permission from UDOT's Communications Office.

ANTI-BOYCOTT ISRAEL ACT: Unless Utah Code Â§ 63G-27-201(2) applies, Contractor/Consultant certifies it is not currently engaged in boycotting the State of Israel and agrees not to engage in a boycott of the State of Israel for the duration of the contract.

Contractors must acknowledge they understand the Utah Legislature encourages employment of Utah workers and the proliferation of Utah business in carrying out the promises they make under this contract, which the Legislature made possible by funds it appropriated in 2021 Utah Laws Ch. 387 (H.B. 433).

All project bidding information, including Specifications and Plans, can be viewed, downloaded, and printed from UDOT's Project Development Construction Bid Opening Information website, <https://app.udot.utah.gov/apex/pdbs/f?p=232:1>. The UDOT's Bidding Business System link is also available on this website, for the UDOT Bid System - Masterworks. Bidders must use the UDOT Bidding Business System when bidding on a UDOT project.

Project information can also be reviewed at the main office in Salt Lake City, its Region offices, and its District offices in Price, Richfield, and Cedar City.

Project Plans cannot be downloaded or printed from the website unless your company is registered with UDOT. Go to UDOT's Contractor Zone website, <https://contractorzone.udot.utah.gov/>, to register. Registered companies may also obtain a share drive of the advertising project files only in the instance where on-line electronic files may not be obtainable due to on-line technical difficulties. These files contain all the project advertising documents and would be available from the main office, 4501 South 2700 West, Salt Lake City.

As required, a contractor's license must be obtained from the Utah Department of Commerce to work on UDOT projects as defined from the Division of Professional Licensing.

Qualified Health Insurance

A prime contractor is subject to qualified health insurance requirements if the prime contract is in the amount of \$2,000,000 or greater. A subcontractor is subject to qualified health insurance requirements if the subcontract is in the amount of \$1,000,000 or greater. The Contractor will demonstrate compliance with qualified health insurance requirements at the time of the execution of each initial prime contract.

The Contractor will demonstrate to the Department that the Contractor has and will maintain an offer of qualified health insurance coverage for the contractor's employees and the employee's dependents during the duration of the contract.

If a subcontractor of the Contractor is subject to qualified health insurance requirements, the Contractor will place a requirement in the subcontract that the subcontractor will obtain and maintain an offer of qualified health insurance coverage for the subcontractor's employees and the employee's dependents during the duration of the subcontract; and certify to the Department that the subcontractor has and will maintain an offer of qualified health insurance coverage for the subcontractor's employees and the employee's dependents during the duration of the prime contract.

Bid Bond

Each bidder must submit an electronic bid bond from an approved surety company using UDOT's Bidding Business System or in lieu thereof, cash, certified check, or cashier's check for not less than 5% of the total amount of the bid, made payable to the Utah Department of Transportation, showing evidence of good faith and a guarantee that if awarded the contract, the bidder will execute the contract and furnish the contract bonds as required.

The right to reject any or all bids is reserved.

The UDOT provides accommodation under the Americans with Disabilities Act, contact the Construction Division at (801) 965-4635. Please allow three working days.

Additional information may be secured at the office of the Utah Department of Transportation, (801) 965-4635.

After the evaluations and final determination of proposals are complete, the State will award the contract as soon as practicable to the lowest responsive and responsible bidder, subject to Section 63G-6a-709(2).

All bidders are to note the State of Utah Procurement Code requires the awarded contractor, for the duration of any contract awarded through this bidding process, to make available company contact information to the Department of Workforce Services in accordance with Utah Code 35A-2-203.

Contractor will provide information regarding job vacancies to the State of Utah Department of Workforce Services, which may be posted on the Department of Workforce Services website. Posted information will include the name and contact information for job vacancies. This information will be provided to the State of Utah Department of Workforce Services for the duration of this Contract. These requirements do not preclude a Contractor from advertising job openings in other forums throughout the State of Utah.

Dated this 04/18/2026

UTAH DEPARTMENT OF TRANSPORTATION

Carlos M. Bracerias, P.E., Director

III. Bidding Schedule

Bid Items List Report

PIN : 21890

Location : SR-121; MP 38.26 - 38.72 &
Steinaker Service Canal Trail
(separated from roadway)

Project Number : S-TR03(2)

Funding Type : State

Project Name : UTN: Steinaker Service Canal Trail -
Phase One

Region : Region 3

Concept : Trail - New Facility

County : Uintah

DBE Goal : %

* The records highlighted in yellow indicate Principal items of work

Base Bid Items					
Container	Description				
	Line No.	Item Number	Item Name	Quantity	Unit
10 - ROADWAY	Base				
	1	015017010	Mobilization	1.00	Lump
	2	01511700*	Construct USU Access	9,655.00	sq ft
	3	015547005	Traffic Control	1.00	Lump
	4	015717030	Silt Fence	645.00	ft
	5	015717075	Drop-Inlet Barrier - Fiber Roll	10.00	ft
	6	015717115	Pipe-Inlet Barrier - Fiber Roll	7.00	Each
	7	015717130	Stabilized Construction Entrance	1.00	Each
	8	015727020	Dust Control and Watering	500.00	1000 gal
	9	017217010	Survey	1.00	Lump
	10	018927042	Reconstruct Valve Box - Raise	1.00	Each
	11	018927052	Reconstruct Manhole - Raise	1.00	Each
	12	020567005	Borrow (Plan Quantity)	2,961.00	cu yd
	13	020567015	Granular Borrow (Plan Quantity)	22.00	cu yd
	14	022217050	Remove Tree	6.00	Each
	15	022217080	Remove Fence	5,177.00	ft
	16	02221708P	Remove Gate	4.00	Each
	17	022217095	Remove Pipe	47.00	ft
	18	022217100	Remove Pipe End Section	7.00	Each
	19	022217120	Remove Concrete Curb	425.00	ft
	20	022217165	Remove Asphalt Pavement	70.00	sq yd
	21	022317020	Clearing and Grubbing (Plan Quantity)	3.75	Acre
	22	023167020	Roadway Excavation (Plan Quantity)	1,217.00	cu yd
	23	026107384	Drainage Pipe - 15 inch, Smooth, Leak-Resistant	116.00	ft
	24	026107386	Drainage Pipe - 18 inch, Smooth, Leak-Resistant	19.00	ft
	25	026107390	Drainage Pipe - 30 inch, Smooth, Leak-Resistant	18.00	ft
	26	026137030	Circular End Section 18 inch	1.00	Each
	27	02613703P	Circular End Section 15 inch	6.00	Each

Bid Items List Report

Base Bid Items					
Container	Description				
	Line No.	Item Number	Item Name	Quantity	Unit
10 - ROADWAY	28	026137050	Circular End Section 30 inch	1.00	Each
	29	02633707P	Concrete Drainage Structure Manhole Sump - 6 Foot Diameter X 9 ft Deep	1.00	Each
	30	02633720P	Concrete Drainage Structure 3 ft Wide X 3 ft to 5 ft Deep - CB 5	1.00	Each
	31	027217020	Untreated Base Course (Plan Quantity)	3,002.00	cu yd
	32	027417050	HMA - 1/2 inch	20.00	Ton
	33	027437050	HMA - Bike/Ped Path 3/8 inch	2,495.00	Ton
	34	027487020	Emulsified Asphalt (Tack)	4.00	Ton
	35	027717059	Perpendicular/Parallel Pedestrian Access Ramp	6.00	Each
	36	02772700*	Tactile Directional Indicator	49.00	ft
	37	027767010	Concrete Sidewalk	3,810.00	sq ft
	38	027767025	Concrete Curb and Gutter Type B1	226.00	ft
	39	027767030	Concrete Flatwork, 4 inch thick	453.00	sq ft
	40	02776704P	Thickened Edge Sidewalk	322.00	sq ft
	41	027767050	Concrete Flatwork, 7 inch thick	1,017.00	sq ft
	42	02776705P	Decorative Concrete, 4 Inch Thick, Light Brown	2,837.00	sq ft
	43	02817700*	(2 Rail) Split Rail Fence	363.50	ft
	44	028217008	6 ft Chain Link Fence, Type I	1,434.00	ft
	45	02821700P	8 ft Chain Link Fence, Type I with Privacy Slats	426.60	ft
	46	028217072	Chain Link Gate, H= 4 ft X W= 10 ft	6.00	Each
	47	028217096	Chain Link Gate, H= 4 ft X W= 16 ft	2.00	Each
	48	028217100	Chain Link Gate, H= 6 ft X W= 16 ft	1.00	Each
	49	028227030	Right-of-Way Fence, Type D (Metal Post)	6,809.90	ft
	50	028227075	Right-of-Way Gate 8 ft	2.00	Each
	51	02826702*	Decorative Fence	55.00	ft
	52	029127030	Contractor Furnished Topsoil	2,724.00	sq yd
20 - STRUCTURES	Base				
	53	020567025	Granular Backfill Borrow (Plan Quantity)	30.00	cu yd
	54	02824702P	Ornamental Fence	226.30	ft
	55	02862710D	Modular Block Gravity Wall Est. Lump Qty: ___188___sq ft	1.00	Lump

Bid Items List Report

Base Bid Items					
Container	Description				
	Line No.	Item Number	Item Name	Quantity	Unit
20 - STRUCTURES	56	02862720D	Modular Block Gravity Wall Est. Lump Qty: ___876___sq ft	1.00	Lump
	57	02862730D	Modular Block Gravity Wall Est. Lump Qty: ___545___sq ft	1.00	Lump
	58	032117010	Reinforcing Steel - Coated (Plan Quantity)	3,145.00	Lb
	59	03310701D	Structural Concrete Est. Lump Qty: 30 cu yd	1.00	Lump
	60	051257010	Prefabricated Steel Truss Bridge	1.00	Lump
	61	058317010	Compression Joint Seal (Type A)	26.00	ft
	62	099817010	Concrete Coating (Plan Quantity)	406.00	sq ft
30 - LANDSCAPING	Base				
	63	02813700*	Restore Sprinkler System	1.00	Lump
	64	029117010	HECP Type 1 (Plan Quantity)	9,776.00	sq yd
	65	029127000	Strip and Stockpile Salvaged Topsoil (Plan Quantity)	900.00	sq yd
	66	029127010	Spread Salvaged Topsoil (Plan Quantity)	900.00	sq yd
	67	029227010	Drill Seed (Plan Quantity)	2,696.00	sq yd
	68	029227030	Broadcast Seed (Plan Quantity)	7,080.00	sq yd
	69	029227070	Turf Sod	28.00	sq yd
	70	02933701*	Landscaping Rock	2,162.00	sq ft
	71	02933702*	Remove, Stockpile, and Replace Landscaping Rock	10,000.00	sq ft
	72	02933703*	Remove and Replace Landscaping Curb	30.00	ft
40 - SIGNING	Base				
	73	027657050	Pavement Marking Paint	31.19	gal
	74	027657075	Pavement Marking Paint (Stop Line, Crosswalk-12 inch)	198.62	ft
	75	028917026	Sign Type A-1, 12 Inch X 24 Inch	3.00	Each
	76	02891702P	Sign Type A-1 18 inch x18 inch	5.00	Each
	77	028917030	Sign Type A-1, 21 inch X 15 inch	4.00	Each
	78	028917060	Sign Type A-1, 30 inch X 30 inch	5.00	Each
	79	028917065	Sign Type A-1, 36 inch X 36 inch	4.00	Each
	80	02891706P	Sign Type A-1, 14 inch X 6 inch	4.00	Each
	81	028917285	Relocate Sign Less Than 20 Square Feet	14.00	Each

Bid Items List Report

Base Bid Items						
Container	Description					
	Line No.	Item Number	Item Name		Quantity	Unit
40 - SIGNING	82	028917300	Small Sign Tubular Steel Post Base (B1)		14.00	Each
	83	028917320	Slipbase Sign Base (B3)		23.00	Each
	84	028917365	Sign Post P3		23.00	Each
180 - TIME AND/OR LANE RENTAL	Base					
	85	00221700*	Contract Time		Time Range: 60 - 130	Cal d
	86	00221701*	Contract Time		Time Range: 1 - 3	Cal d

IV. Materials Minimum Sampling and Testing Requirements

Follow the requirements of the Materials Minimum Sampling and Testing Requirements:
<http://www.udot.utah.gov/go/mstr>

V. Equal Opportunity (State Projects)

Selection of Subcontractors, Service Providers, Procurement of Materials and Leasing of Equipment:

Do not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

Notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, have equal opportunity to compete for and perform subcontracts that the contractor enters into pursuant to this contract. Use best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Obtain lists of DBE construction firms from SHA personnel.

Use best efforts to ensure subcontractor compliance with their EEO obligations.

Selection of Labor:

During the performance of this contract, do not discriminate against labor from any other State, possession, or territory of the United States.

Employment Practices:

During the performance of this contract, the Contractor agrees as follows:

Do not discriminate against any employee or applicant for employment because of race, religion, sex, color, national origin, age, or disability. Take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, national origin, age, or disability. Such action includes, but is not limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Department of Transportation setting forth the provisions of this nondiscrimination clause.

In all solicitations or advertisements for employees state that all qualified applicants receive consideration for employment without regard to race, religion, sex, color, national origin, age, or disability.

Send to each labor union or representative of workers that the Contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided by the State Department of Transportation advising the said labor union or worker' representative of the commitments under this section and post copies of the notice in conspicuous places available to employees and applicants for employment.

In the event of noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further State contracts.

Include the provisions of this Section in every subcontract or purchase order so that such provision will be binding upon each Subcontractor or vendor. Take such action with respect to any subcontract or purchase order as the State Department of Transportation may direct as a means of enforcing such provisions including sanctions for noncompliance.

VI. Title VI

The Department, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Title VI Appendix A and E

Title VI of the Civil Rights Act of 1964 – Non – Discrimination Notice; Attachment A

NON-DISCRIMINATION NOTICE

In accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C 2000d to 2000d-4 and the Title 49, Code of Federal Regulations. The text below, in its entirety, is in all contracts entered into by UDOT. All of the text except the final section, entitled "Incorporation of Provisions," should be included in any contract entered into by any UDOT contractor.

During the performance of this contract, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally assisted programs of the U.S. Department of Transportation, **FHWA**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non- discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the **FHWA** to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the **FHWA**, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non- discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the **FHWA** may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. canceling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the **FHWA** may direct as a means of enforcing such provisions including sanctions for non-compliance. Provided that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. **§ 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);**
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC§ 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

VII. Measurement and Payment

Measurement and Payment

Project # S-TR03(2)

Line No.	Item Number	Item Name	Unit of Measure
1	015017010	Mobilization	Lump
Amount Paid: The lesser of 25% of Mobilization or 2.5% of contract. When Paid: With first estimate. Amount Paid: The lesser of 25% of Mobilization or 2.5% of contract. When Paid: With any estimate following completion of 5% of contract. Amount Paid: The lesser of 25% of Mobilization or 2.5% of contract. When Paid: With any estimate following completion of 10% of contract. Amount Paid: The lesser of 25% of Mobilization or 2.5% of contract. When Paid: With any estimate following completion of 20% of contract. Amount Paid: Amount bid in excess of 10% of contract price. When Paid: Project acceptance-final.			
2	01511700*	Construct USU Access	sq ft
3	015547005	Traffic Control	Lump
Amount Paid- 25% of the bid item amount. When Paid- with first estimate. Amount Paid- remaining portion of bid item paid as a percentage of the contract completed. When Paid- with each subsequent estimate.			
4	015717030	Silt Fence	ft
5	015717075	Drop-Inlet Barrier - Fiber Roll	ft
Measured along centerline of fiber roll (18 inch diameter required).			
6	015717115	Pipe-Inlet Barrier - Fiber Roll	Each
Measured along centerline of fiber roll (18 inch diameter required).			
7	015717130	Stabilized Construction Entrance	Each
8	015727020	Dust Control and Watering	1000 gal
9	017217010	Survey	Lump
Pay 25% of the bid item amount, when the project is 5% complete. Pay 15% of bid item amount, when the project is 10% complete. Pay 35% of bid item amount, when the project is 50% complete. Pay 15% of bid item amount, when the project is 75% complete. Pay 10% of the bid item amount, when the as-constructed drawings are verified complete.			
10	018927042	Reconstruct Valve Box - Raise	Each
11	018927052	Reconstruct Manhole - Raise	Each
12	020567005	Borrow (Plan Quantity)	cu yd
13	020567015	Granular Borrow (Plan Quantity)	cu yd
14	022217050	Remove Tree	Each
15	022217080	Remove Fence	ft
16	02221708P	Remove Gate	Each
17	022217095	Remove Pipe	ft
Measurement: along centerline of pipe to the outside edge of the box.			
18	022217100	Remove Pipe End Section	Each
19	022217120	Remove Concrete Curb	ft
Measurement: along the top center of the curb			
20	022217165	Remove Asphalt Pavement	sq yd
21	022317020	Clearing and Grubbing (Plan Quantity)	Acre
Calculated to the nearest 0.10 acre			
22	023167020	Roadway Excavation (Plan Quantity)	cu yd

Measurement and Payment

Project # S-TR03(2)

Line No.	Item Number	Item Name	Unit of Measure
23	026107384	Drainage Pipe - 15 inch, Smooth, Leak-Resistant	ft
		Measurement: along top center of pipe.	
24	026107386	Drainage Pipe - 18 inch, Smooth, Leak-Resistant	ft
		Measurement: along top center of pipe.	
25	026107390	Drainage Pipe - 30 inch, Smooth, Leak-Resistant	ft
		Measurement: along top center of pipe.	
26	026137030	Circular End Section 18 inch	Each
27	02613703P	Circular End Section 15 inch	Each
28	026137050	Circular End Section 30 inch	Each
29	02633707P	Concrete Drainage Structure Manhole Sump - 6 Foot Diameter X 9 ft Deep	Each
		Payment: The Department will pay a percentage of the unit bid price in addition to the price for each structure, proportional to volume changes (example: a 4 ft deep box increased by 1.5 ft, the percentage of increase in payment is $1.5 \div 4 \times 100$) for any required field changes larger than 1 foot of specified plan dimensions.	
30	02633720P	Concrete Drainage Structure 3 ft Wide X 3 ft to 5 ft Deep - CB 5	Each
		Payment: The Department will pay a percentage of the unit bid price in addition to the price for each structure, proportional to volume changes (example: a 4 ft deep box increased by 1.5 ft, the percentage of increase in payment is $1.5 \div 4 \times 100$) for any required field changes larger than 1 foot of specified plan dimensions.	
31	027217020	Untreated Base Course (Plan Quantity)	cu yd
32	027417050	HMA - 1/2 inch	Ton
33	027437050	HMA - Bike/Ped Path 3/8 inch	Ton
34	027487020	Emulsified Asphalt (Tack)	Ton
35	027717059	Perpendicular/Parallel Pedestrian Access Ramp	Each
		Payment: The curb cut will remain part of the curb and gutter installation.	
36	02772700*	Tactile Directional Indicator	ft
37	027767010	Concrete Sidewalk	sq ft
		Measurement: exclude through driveways.	
38	027767025	Concrete Curb and Gutter Type B1	ft
		Measurement: Along flowline.	
39	027767030	Concrete Flatwork, 4 inch thick	sq ft
40	02776704P	Thickened Edge Sidewalk	sq ft
41	027767050	Concrete Flatwork, 7 inch thick	sq ft
42	02776705P	Decorative Concrete, 4 Inch Thick, Light Brown	sq ft
43	02817700*	(2 Rail) Split Rail Fence	ft
44	028217008	6 ft Chain Link Fence, Type I	ft
		Measurement: Parallel to the ground along the fence.	
45	02821700P	8 ft Chain Link Fence, Type I with Privacy Slats	ft
		Measurement: Parallel to the ground along the fence.	

Measurement and Payment

Project # S-TR03(2)

Line No.	Item Number	Item Name	Unit of Measure
46	028217072	Chain Link Gate, H= 4 ft X W= 10 ft	Each
47	028217096	Chain Link Gate, H= 4 ft X W= 16 ft	Each
48	028217100	Chain Link Gate, H= 6 ft X W= 16 ft	Each
49	028227030	Right-of-Way Fence, Type D (Metal Post)	ft
Measurement: Parallel to the ground along the fence.			
50	028227075	Right-of-Way Gate 8 ft	Each
51	02826702*	Decorative Fence	ft
52	029127030	Contractor Furnished Topsoil	sq yd
53	020567025	Granular Backfill Borrow (Plan Quantity)	cu yd
54	02824702P	Ornamental Fence	ft
Measurement: Parallel to the ground along the fence.			
55	02862710D	Modular Block Gravity Wall Est. Lump Qty: ___188___sq ft	Lump
Estimated quantity represents the finished exposed face of wall from top of wall to finished grade at front face of wall.			
56	02862720D	Modular Block Gravity Wall Est. Lump Qty: ___876___sq ft	Lump
Estimated quantity represents the finished exposed face of wall from top of wall to finished grade at front face of wall.			
57	02862730D	Modular Block Gravity Wall Est. Lump Qty: ___545___sq ft	Lump
Estimated quantity represents the finished exposed face of wall from top of wall to finished grade at front face of wall.			
58	032117010	Reinforcing Steel - Coated (Plan Quantity)	Lb
Do not include the mass of the coating or the specified test bars as computed weight.			
59	03310701D	Structural Concrete Est. Lump Qty: 30 cu yd	Lump
60	051257010	Prefabricated Steel Truss Bridge	Lump
61	058317010	Compression Joint Seal (Type A)	ft
Measurement: Along the centerline of the joint from parapet face to parapet face.			
62	099817010	Concrete Coating (Plan Quantity)	sq ft
63	02813700*	Restore Sprinkler System	Lump
64	029117010	HECP Type 1 (Plan Quantity)	sq yd
65	029127000	Strip and Stockpile Salvaged Topsoil (Plan Quantity)	sq yd
66	029127010	Spread Salvaged Topsoil (Plan Quantity)	sq yd
67	029227010	Drill Seed (Plan Quantity)	sq yd
68	029227030	Broadcast Seed (Plan Quantity)	sq yd
69	029227070	Turf Sod	sq yd
70	02933701*	Landscaping Rock	sq ft
71	02933702*	Remove, Stockpile, and Replace Landscaping Rock	sq ft
72	02933703*	Remove and Replace Landscaping Curb	ft
73	027657050	Pavement Marking Paint	gal
74	027657075	Pavement Marking Paint (Stop Line, Crosswalk-12 inch)	ft

Measurement and Payment

Project # S-TR03(2)

Line No.	Item Number	Item Name	Unit of Measure
Measurement: By the foot of 12 inch wide line painted.			
75	028917026	Sign Type A-1, 12 Inch X 24 Inch	Each
76	02891702P	Sign Type A-1 18 inch x18 inch	Each
77	028917030	Sign Type A-1, 21 inch X 15 inch	Each
78	028917060	Sign Type A-1, 30 inch X 30 inch	Each
79	028917065	Sign Type A-1, 36 inch X 36 inch	Each
80	02891706P	Sign Type A-1, 14 inch X 6 inch	Each
81	028917285	Relocate Sign Less Than 20 Square Feet	Each
82	028917300	Small Sign Tubular Steel Post Base (B1)	Each
83	028917320	Slipbase Sign Base (B3)	Each
84	028917365	Sign Post P3	Each

VIII. Special Provisions

	<u>Section No.</u>	<u>Title – Type (current date)</u>
1.	00221S	Bidding Contract Time – Innovative Contracting (P+T) Special Provision (Calendar Day Projects) (2026, Version 1)
2.	00555M	Prosecution and Progress – Construction Special Provision (January 14, 2026)
3.	00820M	Legal Relations And Responsibility To The Public – Project Special Provision (March 18, 2026)
4.	01284S	Prompt Payment – Department Special Provision (2026, Version 1)
5.	01355S	Environmental Compliance - Department Special Provision (2026, Version 1)
6.	01455S	Material Quality Assurance– Department Special Provision (2026, Version 1)
7.	01511S	Construct USU Access – Project Special Provision (January 9, 2026)
8.	01554S	Traffic Control – Department Special Provision (2026, Version 2)
9.	02741S	Asphalt Mix – Materials Special Provision (2026, Version 1)
10.	02742S	Project Specific Surfacing Requirements – Department Special Provision (2026, Version 1)
11.	02743S	Asphalt Mix for Bike and Pedestrian Paths – Materials Special Provision (2026, Version 1)
12.	02772S	Tactile Directional Indicator – Project Special Provision (February 25, 2026)
13.	02813S	Pressurized Irrigation Systems - Project Special Provision (August 29, 2025)
14.	02817S	(2 Rail) Split Rail Fence - Project Special Provision (August 12, 2025)
15.	02821M	8 Foot Chain Link Fencing – Project Special Provision (February 6, 2026)
16.	02824M	Fence on Structure – Department Special Provision (January 21, 2026)
17.	02826S	Decorative Fence – Project Special Provision (August 12, 2025)
18.	02933S	Restore Landscaping - Project Special Provision (September 1, 2025)
19.	03055S	Portland Cement Concrete – Materials Special Provision (2026, Version 1)
20.	05125M	Prefabricated Steel Truss Bridge – Project Special Provision (March 27, 2026)

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 00221S

BIDDING CONTRACT TIME

Add Section 00221:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedures for bidding contract time for the Price + Time bidding process.
 - 1. Includes incentive/disincentive for early/late completion of project milestones.

- B. Description of time component pricing, and time related incentive or disincentive.

1.2 RELATED SECTIONS

- A. Section 00555: Prosecution and Progress

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

1.6 TIME COMPONENT

- A. Determine the bid price for the time component as follows.
 - 1. Measure contract time in calendar days.
 - 2. Determine the number of consecutive calendar days required between each start milestone and finish milestone in Table 1.
 - a. Consider all requirements of the contract when determining the number of calendar days,
 - b. Include the days of the start milestone and finish milestone in the number of calendar days.
- B. The Department does not guarantee that any milestone can be completed in the minimum days shown in Table 1.
- C. Bidders are responsible to complete the milestones within the time bid and according to project requirements.
- D. The Department will consider the bid non-responsive if the bidder:
 - 1. Does not submit a bid for the time component.
 - 2. Submits a time component bid for any awardable portion of the contract which is outside the minimum or maximum range.
- E. Negative amounts are not permitted for time related bid items.
- F. Time is bid in calendar days. Consider seasonal project specific weather conditions during bid preparation.

Table 1

Determination of Calendar Days						
A	B	C	D	E	F	G
TIME SEGMENT	START MILESTONE	FINISH MILESTONE	TIME-RELATED COST-RATE	TIME-RELATED COST-RATE METHOD	MIN	MAX
			Dollars per calendar day	User Cost or Liquidated Damages	Calendar Days	Calendar Days
1 (see notes)	On first day of work after the date of Notice to Proceed	All work completed excluding 2nd application of pavement markings	\$1570	Liquidated Damages	60	130
2 (see note 2)	14 Day Minimum or up to 35 Day Maximum after first application of Pavement Markings	Substantial Completion	\$1570	Liquidated Damages	1	3

NOTE 1: See special provision 00555M for start time and time suspension allowance.

NOTE 2: Add 2nd application of paint after 14 days. To be completed in Construction year 2026, including second application of paint. Notify the Engineer at least seven calendar days before beginning work.

1.7 INCENTIVES/DISINCENTIVES RELATED TO “TIME”

- A. Contract time related charges are determined by multiplying the number of calendar days accrued for each time segment by its corresponding time related cost rate and summing the products.
- B. Document accrued time charges per time segment for the duration of the project.

- C. Payments or deductions to the Contractor will be based on the difference between the time related bid amounts and the actual time charges assessed for the completed project.
1. Payment for the incentive will be made in the project accounting system after substantial completion.
 2. Deduction for any milestone disincentive will be made on the first progress payment after the total number of calendar days bid for a milestone has passed without completion as defined in Table 1.
- D. Incentive
1. The Contractor is eligible for incentive when a milestone is achieved before the number of calendar days bid as determined by the Department.
 2. Payment is made at the rate shown in column D for the difference between the number of calendar days bid and the actual number of calendar days used to achieve the milestone when Column E is defined as "User Cost."
 3. Payment is made at the rate shown in the schedule of liquidated damages in Section 00555 based on the original contract amount when Column E is defined as "Liquidated Damages."
 4. The maximum dollar amount eligible for incentive payment for all combined milestones is \$ 7850 . (Maximum incentive is calculated using Table 1 in Section 00555 Article 1.15 based on the contract amount, multiplied by 5 number of days.)
- E. Disincentive
1. When the time related cost in Column E is defined as "User Cost."
 - a. The Contractor is assessed a disincentive when a milestone is not achieved within the number of calendar days bid as determined by the Department.
 - b. Disincentive is assessed at the rate shown in column D for the difference between the number of calendar days bid and the actual number of calendar days used to achieve the milestone.
 - c. There is no maximum dollar amount for disincentive charges.
 - d. Liquidated damages are charged in addition to disincentive for the difference between the maximum calendar days and the actual number of days to achieve the milestone if milestone completion is not achieved prior to the maximum calendar days shown in Table 1. Refer to Section 00555.

2. When the time related cost in Column E is defined as “Liquidated Damages.”
 - a. The Contractor is assessed disincentive at the rate shown in the schedule of liquidated damages in Section 00555 based on the original contract amount.
 - b. Disincentive is assessed for the difference between the number of calendar days bid and the actual number of calendar days used to achieve the milestone.
 - c. Disincentive applies until milestone completion or the maximum calendar days defined in Column G, whichever occurs first.
- F. Liquidated Damages
 1. Liquidated damages are assessed according to Section 00555 for the difference between the number of maximum calendar days from Column G and the actual number of calendar days used to achieve the milestone.
- G. Timeline of Incentive, Disincentive, and Liquidated Damages
 1. Refer to Figure 1

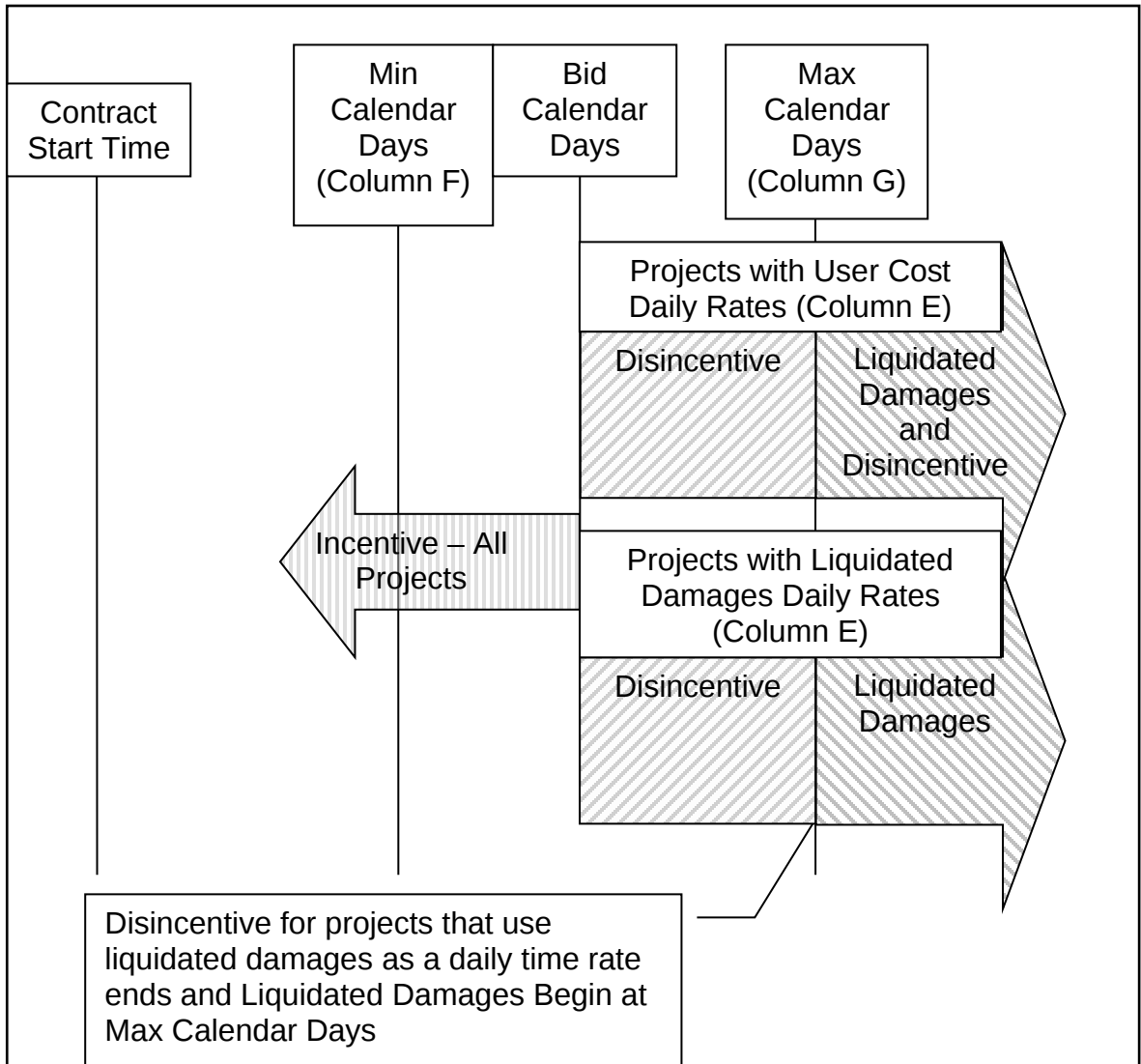


Figure 1 – Timeline of Incentive, Disincentive, and Liquidated Damages

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

January 14, 2026

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 00555M

PROSECUTION AND PROGRESS

Delete Article 1.9, paragraph C, subparagraph 1 and replace with the following:

- C. Category II Holiday Work
1. Do not perform any work without written approval except for repairing or servicing equipment, protecting work, maintaining or curing concrete, and maintaining traffic on Category II holidays as defined in Section 00570 and as listed below. Any changes to this requirement shall be at the discretion of the Engineer.
 - **Memorial Day** – Saturday, May 23, 2026 to Monday, May 25, 2026
 - **Independence Day** – Friday, July 3, 2026 to Sunday, July 5, 2026
 - **Pioneer Day (Utah)** – Friday, July 24, 2026 to Sunday, July 26, 2026
 - **Labor Day** – Saturday, September 5, 2026 to Monday, September 7, 2026
 - **Thanksgiving** – Thursday, November 26, 2026 to Sunday, November 29, 2026
 - **Christmas** – Thursday, December 24, 2026 to Friday, December 25, 2026

Delete Article 1.9, paragraph D and replace with the following:

- D. Maintenance of Traffic
1. Lane closures are not permitted except as specifically allowed herein. During bridge placement operations, temporary single-lane closures may be permitted, provided a minimum of one travel lane remains open to traffic at all times. Lane closures for bridge placement shall be limited to off-peak traffic hours, defined as 9:30 AM to 2:00 PM, and are subject to approval by the Engineer and UDOT Traffic Operations.

Lane closures shall not be permitted during peak traffic hours. Traffic through the work zone during bridge placement operations shall be controlled by intermittent flagging in accordance with the approved Traffic Control Plan (TCP). All lane closures shall comply with the MUTCD and UDOT Standard Drawings and shall be limited to the minimum duration necessary to safely complete the operation. Lane closures shall be removed immediately upon completion of the bridge placement activities.

2. Shoulder closures are permitted at any time.
3. Minimum lane width is 12 ft. traffic lane with 2 ft. shoulders.
4. Intermittent flagging shall be permitted during bridge placement and other approved construction activities to control alternating one-way traffic through the work zone and to let trucks in and out of the construction zone.
5. Contact the traffic control room 801-887-3700, each time lane configuration changes. This information is needed for the non-intrusive traffic detection system.

Add the following to Article 1.9

E. Construction Restrictions

1. No work during the following events. Contractor to verify dates prior to beginning construction. If work does not impact the event, with coordination, work may be able to continue:
 - a. Dino Half Marathon May 9, 2026 (this is west of the project boundary and commences at the Uintah High School)
2. Access and Driveways
 - a. Maintain access to side streets at all times.
 - b. Maintain access to businesses at all times. Provide 14 days' notice prior to work beginning with estimated duration when impacting accesses.
 - c. When more than one driveway exists, keep at least one driveway open at all times. For businesses with only one access, maintain half of the driveway or a minimum of 12-feet, whichever is greater, open at all times. Coordinate with PIM for impacts to accesses.
 - d. Construction restrictions on parcels
 - e. No access will be closed for more than 10 consecutive days.
3. Fence Construction
 - a. When existing fencing is removed or disturbed, continuous fencing of the property shall be maintained at all times. The existing fence shall remain in place until the new fence is installed, or temporary fencing shall be installed prior to removal of the existing fence and maintained until the permanent fence is fully installed.

4. Contact UDOT Motor Carrier Division at 801-965-4892 or mccustomerservice@utah.gov 48 hours prior to beginning work.
5. Adjacent Projects: Coordinate traffic control and construction schedule with adjacent projects. Request contact information from Engineer for the following project:

Project Number: F-0121(32)
 SR-121 (500 N) 1500 W Intersection Improvements
 Public Involvement:
 Gabby Blackburn, Sunrise Engineering
 435-790-7548
gblackburn@sunrise-eng.com

UDOT RE:
 Jeff Toone
 801-897-1869
jefftoone@utah.gov

6. Contact Police, Fire and Emergency Services in the area at least 7 calendar days prior to beginning work. Inform them in writing of work location, lane closures and schedule as work progresses. Give the Engineer a copy of the work plan. Provide 24 hour contact Information.
7. Document the type, location, and offset of the existing pavement marking paint with survey prior to covering or removing them with any construction activities. Establish new pavement marking paint with survey to ensure that the new pavement marking paint matches the type and location of existing paint. Place any changes to the pavement marking paint or messages according to the plan set.
8. Allow a minimum 14 days, or as directed by the Engineer, before applying second application of pavement marking paint.

F. Disincentives

1. Do not delay traffic longer than 15 minutes during any phase of construction.
 - a. A delay is defined as the total length of time any vehicle is stopped within the project limits by the Contractor.
 - b. Disincentives for delays longer than 15 minutes are as follows:

Delay Disincentive				
16	to	30	minutes	\$2,000.00
31	to	40	minutes	Add'l \$2,000.00
41	to	50	minutes	Add'l \$2,000.00
51	to	60	minutes	Add'l \$2,000.00
Every 10 minutes after 60				Add'l \$4,000.00

- c. The Engineer will document delays and review them with the Contractor as they occur.

G. Environmental

1. No staging or storing areas have been environmentally cleared for the project.
2. Contractor is responsible for all staging and storage areas as per section 01355.

Project Mitigation Commitments		
Type	Description	Reference
Air Quality	Dust Control and Watering	Section 01572
Cultural	Offsite Clearance, Discovery	Section 01355, Part 3.8
Invasive Weed	Control spread of invasive weeds	Section 02924

- a. Notify Engineer immediately of any significant paleontological discoveries.
- b. Submit copy of documents to Engineer.

H. Utilities

1. Upon Notice of Award, notify area utility companies of work schedule.
2. Contact Blue Stakes prior to the installation of signs.
3. Adjust final location of signs as needed to avoid utilities.
4. Before digging, call Blue Stakes for the location of underground utilities 1-800-662-4111 or 811.
5. Protect in place all existing utilities unless marked relocate or abandon on the plans.
6. All existing utility locations are for reference only. Contractor to verify horizontal and vertical locations in the field.
7. Contractor will be responsible to stake existing and or future UDOT right of way for any utility relocations.
8. Contractor will provide traffic control for any company completing relocations for UDOT project.
9. Field verify utility depths. Perform this work as soon as possible after mobilization and discuss the results with Engineer.
10. Utility relocation work contained within the project is subject to inspection by an authorized agent of the Third-Party Utility company.
11. Notify Engineer of any additional Third-Party Utility work required for unidentified utilities that are uncovered during construction. Coordinate

- this additional work with the Engineer and Third-Party Utility companies before proceeding with construction.
12. Provide traffic control for the Third-Party Utility companies' work not completed prior to the beginning of roadway construction. Coordinate with the Third-Party Utility companies on their traffic control needs in advance of beginning work.
 13. Provide project construction staking for Third-Party Utility companies' work not completed prior to the beginning of roadway construction to help accelerate their work and to avoid conflicts. Provide one set of stakes per Third-Party Utility Company.
 14. Coordinate with each Third-Party Utility company for timing and survey extents. The Contractor's Third-Party Utility coordinator will need to document Third-Party Utility company requests and correspondence in writing via email for concurrence of each discussion and submit information to Engineer upon request.
 15. Hold a third-party utility coordination meeting 14 days after NTP. Coordinate any utility relocation work not completed prior to the beginning of roadway construction and include in the baseline construction schedule the anticipated utility relocation schedule for any utility company whose facilities may still need relocation. The following utility relocation work and coordination are anticipated as part of this project:
 - a. Rocky Mountain Power Street lamp and Power pole
 - b. Strata Networks pedestals and boxes relocated or raised/lowered
 - c. Electrical items relocated for UBTech
 16. See Plan Sheet UT-00A for Third-Party Utility contact information.

Delete Article 1.12, paragraph A and replace with the following:

- A. Contract time begins on first day of work after the date of notice to proceed. Notify the Engineer 14 days before work begins.
 1. All work shall be completed in 2026 Calendar year.
 2. Due to extended bridge fabrication and delivery timelines, two options are possible:
 - a. A Notice to Proceed will be issued and the Contractor will proceed with all Work other than bridge placement prior to delivery of the bridge, in accordance with the Contract Documents and approved schedules. An optional contract time suspension will be allowed if necessary to facilitate standard lead time associated with the bridge manufacturer's fabrication, delivery, and placement schedule.
 - b. (or) A Notice to Proceed (NTP) for the sole purpose of ordering the manufactured bridge structure will be issued to allow procurement to commence. Issuance of this NTP for bridge

procurement shall not, by itself, cause contract time to begin. An optional contract time suspension may be approved, if necessary, to facilitate the standard lead time associated with the bridge manufacturer's fabrication, delivery, and placement schedule. During an approved suspension period, no contract time, liquidated damages, or time-based penalties shall accrue. Contract time shall recommence only upon written authorization from the Engineer to proceed with construction or bridge placement activities.

3. Contract time shall resume after each time suspension upon issuance of a written directive from the Engineer authorizing commencement of construction or bridge placement activities. No contract time, liquidated damages, or time-based penalties shall accrue during an approved suspension period.

March 19, 2026

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN # 21890**

SECTION 00820M

LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Add the following to Article 1.17 (B) “Insurance Program #1”:

9. In addition, please obtain Unmanned Aircraft Liability Insurance of \$1,000,000 per occurrence and \$4,000,000 aggregate.

END OF SECTION

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 01284S

PROMPT PAYMENT

Delete Section 01284 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Prompt Payment
- B. Payment Delay and Withholding
- C. Failure to Make Prompt Payment
- D. Retention Not Withheld

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

1.6 PROMPT PAYMENT

- A. Pay subcontractors no later than 30 calendar days after receiving payment from the Department.
- B. Enter the dates and amounts into the Department's business system within 30 calendar days of receiving payment, on Federal-Aid projects, from the Department for each payment that is sent to each subcontractor.
 - 1. The Contractor's entry date deadline is measured from the date the pay estimate is paid by the Department's comptroller.

2. The Department considers the entry of payments into the Department's business system as an affidavit certifying prompt payment by the Contractor.
- C. Maintain prompt payment records for leases, task orders, purchase orders, suppliers and any other agreements for services or materials for audit purposes for at least three years.

1.7 PAYMENT DELAY AND WITHHOLDING

- A. Delay or withhold payment from any subcontractor only for cause and document the reason in the comments area of the Department's business system.
 1. Acceptable cause for payment delay includes:
 - a. Subcontractor has not provided all federally required documents, including certified payroll, or EEO documents.
 2. Acceptable cause for payment withholding includes:
 - a. Disincentives assessed that were the fault of the subcontractor
 - b. Claims that were caused by the subcontractor's work
 3. Obtain Department approval for any other cause.
 4. The Department may hold the dollar amount of delayed or withheld payment to a subcontractor from future estimates on items of work performed by the Contractor if payment is held without cause.
- B. Notify the subcontractor in writing immediately after cause is identified and list the deficiencies.
- C. Issue payment to subcontractor within ten calendar days of receiving documentation demonstrating correction of deficiencies that led to the delay or withholding.

1.8 FAILURE TO MAKE PROMPT PAYMENT

- A. The Contractor is considered non-compliant if no payment is made to the subcontractor within 30 calendar days and there are no comments in Department's business system explaining why the subcontractor's payment is being delayed or withheld.
 1. The Engineer will notify the Contractor upon determination of failure to make prompt payment.
 2. Make prompt payment and document the payment in the Department's business system within ten calendar days of receiving notification.

- B. The Department may employ other mechanisms consistent with this Section and applicable state and local law, beginning ten calendar days after notification by the Department, until payment is paid in full.
 - 1. Other mechanisms may include:
 - a. A disincentive of \$100 per day for the first two weeks, then increasing to \$250 per day until payment is made for each subcontract that is not promptly paid.
 - b. Holding payments on items of work performed by the Contractor until subcontractors are paid for the work they have performed.
- C. The Department considers repeated failure to make prompt payment a violation for which the Contractor may be subject to one or more of the following measures:
 - 1. Forfeit the privilege of bidding on Department projects.
 - 2. Forfeit the privilege of having a subcontract to perform work or supply materials on Department projects.
- D. The Department may consider additional measures up to and including debarment for repeated failure to make prompt payment.
 - 1. Failure to pay subcontractors promptly may affect Contractor's rating, which will also affect the Contractor's prequalification amount.

1.9 RETENTION NOT WITHHELD

- A. The Department will not hold retention on this project. Pursuant to Utah State Code § 13-8-5 (1) the Contractor and subcontractors cannot hold retention.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 01355S

ENVIRONMENTAL COMPLIANCE

Delete Section 01355 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Compliance with federal and state environmental regulations.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES

- A. Code of Federal Regulations (CFR)
- B. U.S. Environmental Protection Agency (EPA) Regulations
- C. Utah Administrative Code (UAC)
- D. Utah Department of Environmental Quality (DEQ) Regulations
- E. Utah Construction General Permit (CGP)
- F. UDOT Municipal Separate Storm Sewer System (MS4) Permit

1.4 DEFINITIONS

- A. Fugitive Dust – Particulate, composed of soil and/or industrial particulates such as ash, coal, minerals, etc., which becomes airborne because of wind or mechanical disturbance of surfaces. Natural sources of dust and fugitive emissions are not fugitive dust within the meaning of this definition.
- B. Non-Compliance Activity – A willful or negligent action, activity or procedure taken by the Contractor which violates permits, regulations, and rules.

1. Tier 1 Non-Compliance Activity – First Non-Compliance Activity where the Engineer has notified the Contractor.
2. Tier 2 Non-Compliance Activity – A repeated Tier 1 Non-Compliance Activity where the Engineer has notified the Contractor.
3. Significant Non-Compliance Violation – A substantial violation of permits, regulations, and rules that may include any Tier 1, Tier 2, or other Non-Compliance Activity, as determined by the Department.
 - a. The Department will consider and review any history of non-compliance by the Contractor from other Department projects.

1.5 SUBMITTALS

- A. Stormwater Pollution Prevention Plan (SWPPP) on projects with one or more acres of land-disturbing activity, for review.
- B. Municipal Separate Storm Sewer System (MS4) Compliance Plan on projects with less than one acre of land-disturbing activity, for review.
- C. Signed copy of the Notice of Intent (NOI) and Authorization to Discharge Letter, for information.
- D. Signed copy of the Notice of Termination (NOT), for information.
- E. UDOT Environmental Control Supervisor (ECS) Certificate of Training, for information.
- F. Fugitive Dust Control Plan (FDCP) when required, for information.
- G. Documentation of environmental clearances, for review.
- H. SWPPP with final documentation such as modifications and completed inspection forms before contract completion for information.
- I. Environmental Non-Compliance Activity Documentation, for review.
 1. Provide documentation that each non-compliance activity has been corrected including:
 - a. Date and time, and description of correction
 - b. Root cause analysis of why the non-compliance activity occurred
 - c. Plan to address how the non-compliance activity will not be repeated
- J. Documentation of waste disposal tracking when required, for information.

1.6 DISINCENTIVES

- A. Disincentives may be assessed up to \$10,000 as shown in Tables 1 and 2 for each non-compliance activity per calendar day or portion thereof when the project is not in compliance with permits, regulations, and rules.
1. Each disincentive assessed to a non-compliance activity may escalate each calendar day if not corrected as shown in Table 2.
 2. Termination of disincentives are tied to the date and time of correction indicated in the Environmental Non-Compliance Activity Documentation.

Table 1

Disincentives for Non-Compliance Activities		
Type of Non-Compliance Activity	Daily Amount	
	Minimum	Maximum
Tier 1 Non-Compliance Activity	\$1,000	\$4,000
Tier 2 Non-Compliance Activity	\$4,000	\$7,000
Significant Non-Compliance Violation	\$7,000	\$10,000

Table 2

Disincentives Escalating Daily Costs	
Number of Days of Non-Compliance	Escalation Amount
After three (3) days	Additional \$2,000 per day
After seven (7) days	Additional \$3,000 per day

- B. Fines issued by regulatory agencies against the Department may be added to the disincentives assessed.

1.7 HAZARDOUS WASTE

- A. Suspend work immediately in an area if abnormal conditions are encountered or exposed during construction that indicates the presence of a hazardous waste.
1. Notify the Engineer immediately.

- B. Do the following if waste is discovered or an on-site spill is suspected of being considered hazardous according to the reportable quantity (RQ) limits identified in Title 40 CFR 302.4:
 - 1. Take appropriate actions to minimize the threat to human health and the environment.
 - 2. Contact the Engineer immediately.
 - 3. Follow appropriate testing measures to determine if waste is hazardous.
 - 4. Do the following if waste is determined to be hazardous:
 - a. Contact DEQ, 24-hour Answering Service at (801) 536-4123, and the National Response Center at (800) 424-8802 immediately.
 - b. Follow requirements in UAC R315.
- C. Coordinate with the Engineer to initiate development of a remediation plan according to DEQ and the EPA regulations and requirements.
- D. Complete the work required by the remediation plan before resuming operations in the affected area.

1.8 SPILL OF PETROLEUM-BASED PRODUCT AND USED OIL

- A. Notify the Engineer immediately if a spill occurs.
- B. Do the following for spills that exceed 25 gallons, or that pose a potential threat to human health or the environment, such as discharging to groundwater, surface water, or a storm drain
 - 1. Notify DEQ, 24-hour Answering Service, at (801) 536-4123.
 - 2. Coordinate with the Engineer to develop a remediation plan for spilled used oil or petroleum-based product according to UAC R315-15-8 and R315-15-9.
- C. Clean up spills less than 25 gallons when caused by Contractor.

1.9 OPEN BURNING

- A. Do not conduct open burning within the site of work without approval from the Utah Division of Air Quality (DAQ).

1.10 FUGITIVE EMISSIONS AND FUGITIVE DUST

- A. Comply with fugitive emissions and fugitive dust requirements as defined in UAC R307.
 - 1. Obtain a Fugitive Dust Control Plan (FDCP) when project occurs in Nonattainment and Maintenance Areas for PM10 and PM2.5.

1.11 ENVIRONMENTAL COMPLIANCE

- A. Provide environmental clearances to demonstrate compliance with applicable environmental regulations before beginning any ground disturbance in areas not previously evaluated in the project environmental document such as wasting project-generated material, excavating or processing borrow material, creating a concrete batch plant, locating equipment, storage areas, office sites, utility lines, or holding ponds.
 - 1. Coordinate with the Engineer to determine appropriate documentation required for environmental clearances to applicable regulations.

1.12 DISCOVERY OF HISTORICAL, ARCHAEOLOGICAL, OR PALEONTOLOGICAL OBJECTS, FEATURES, SITES, OR HUMAN REMAINS

- A. Suspend work within the vicinity if historical, archaeological, or paleontological objects, features, sites, or human remains are discovered and do the following:
 - 1. Provide a 100 ft minimum buffer around the perimeter of the discovery.
 - 2. Protect the discovery area.
 - 3. Notify the Engineer immediately of the nature and exact location of the discovery.
- B. Do not recommence work within the area of discovery until notified by the Engineer.

1.13 STORMWATER MANAGEMENT COMPLIANCE

- A. Comply with CGP requirements for projects with one or more acres of land-disturbing activity.
 - 1. Designate an individual as the Environmental Control Supervisor (ECS) with the following responsibilities:
 - a. Maintain current certifications for UDOT Environmental Control Supervisor training.
 - b. Coordinate with the Engineer regarding CGP requirements and environmental commitments.
 - c. Manage implementation, modification and record keeping of the project SWPPP.
 - d. Supervise the installation, maintenance, and removal of Best Management Practices (BMPs).
 - e. Conduct SWPPP inspections.
 - f. Be available 24 hours a day, seven days a week, and be on-site within a reasonable amount of time from notification as determined by the Engineer.

2. Complete the SWPPP for the project using the draft provided by the Engineer.
 3. Complete the Notice of Intent (NOI) to the Utah Division of Water Quality (DWQ), after the SWPPP has been signed by the Engineer.
 4. Conduct SWPPP inspections at least once every seven calendar days as required by the CGP.
 - a. Use the Department required Stormwater Inspection Software and coordinate with the Engineer for access.
 - b. Use the Department required SWPPP Inspection Forms when internet service is not available at the project site. Refer to <http://www.udot.utah.gov/go/standardsreferences>.
 5. Coordinate with the Engineer to determine if the project has met CGP requirements before submitting the Notice of Termination (NOT) to DWQ.
- B. Comply with the UDOT MS4 Permit for projects with less than one acre of land-disturbing activity.
1. Coordinate with the Engineer regarding MS4 permit requirements and environmental commitments.
 2. Complete MS4 Compliance Plan before start of construction activities.
 3. Install, maintain, and remove Best Management Practices (BMPs) as required in the site of work.
- C. Implement at least the following Pollution Prevention and Good Housekeeping Practices:
1. Concrete Washout
 - a. Provide a watertight container on-site before concrete placement activities begin and where concrete trucks, tools and equipment are to be washed.
 - 1) Do not exceed 75 percent of total storage capacity.
 - 2) Do not place within 50 feet of storm drain inlets, open ditches or watercourses.
 - b. Remove and properly dispose of concrete waste and washout water.
 2. Street sweeping debris generated from construction track-out.
 - a. Sweep debris back onto disturbed pervious project areas
 - 1) Remove trash and litter
 - b. Store debris collected by sweeping equipment on disturbed pervious project areas where it cannot enter a waterway or storm drain system.
 - c. Add signage to designated sweeping waste piles.

3. Waste collected from stormwater conveyance features such as cleaning pipes, inlets, culverts, ditches, or ponds.
 - a. Dispose of waste at a solid waste disposal facility currently regulated by the State of Utah, as follows:
 - 1) Coordinate with the facility in advance to determine disposal requirements.
 - 2) Comply with facility acceptance requirements.
 - 3) Document waste collection and disposal using the Department's waste disposal tracking form. Refer to <http://www.udot.utah.gov/go/standardsreferences>.
 - b. Waste may be temporarily stored within a contained and impervious surface that prevents runoff to adjacent areas and seepage into the ground until disposal.
 - c. Coordinate with the Engineer for the disposal of waste that is not accepted at a solid waste disposal facility.
4. Other waste generated from project activities such as sanitary waste, trash, spills, chemicals, paints, equipment maintenance and other materials to be collected and disposed as required by DEQ.
 - a. Document disposal of any chemicals, paints, or other waste at an appropriate waste disposal facility using the Department's waste disposal tracking form. Refer to <http://www.udot.utah.gov/go/standardsreferences>.
5. Prevent material from entering stormwater conveyances, such as storm drain inlets and drainage pipes, ditches, natural waterways, and wetlands.
6. Use drip pans and absorbent materials to mitigate discharges from leaking equipment until repairs can be made. Maintain a spill kit within the site of work.

1.14 NOXIOUS WEED PREVENTION

- A. Clean all earth-moving equipment before mobilizing onto the project site.
 1. Use high-pressure water blasting or steam cleaning methods to clean all earth-moving construction equipment (scrapers, bulldozers, excavators, backhoes, trenchers) of dirt, mud, plant parts and seed residue.
 2. Do not perform any equipment cleaning on Department right-of-way.

END OF SECTION

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN # 21890**

SECTION 01455S

MATERIAL QUALITY ASSURANCE

Delete Section 01455 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials Quality Assurance

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES

- A. UDOT Materials Manual of Instruction
- B. UDOT Minimum Sampling and Testing Requirements

1.4 DEFINITIONS

- A. Authorized Products List (APL) – A listing of manufactured products that have been verified as meeting the requirements in the standard specifications.

1.5 SUBMITTALS

- A. Permission agreements for storing materials on private property, for information.

1.6 MATERIALS QUALITY ASSURANCE

- A. Prequalification of Suppliers
 - 1. Use a Department pre-qualified supplier according to the Quality Management Plans (QMP) listed for the following materials:
 - a. Cement – QMP 502
 - b. Reinforcing Steel Epoxy – QMP 503
 - c. Reinforcing Steel – QMP 504

- d. Precast / Prestressed Concrete Structures – QMP 505
 - e. Ready Mix Concrete – QMP 506
 - f. Fly Ash and Pozzolan – QMP 507
 - g. Asphalt Emulsion – QMP 508
 - h. Asphalt Binder – QMP 509
 - i. Hydrated Lime – QMP 510
 - j. Reinforcing Steel Galvanized Coating – QMP 512
 - k. Pavement Marking Paint – QMP 513
 - l. Hot Mix Asphalt – QMP 514
2. Products delivered by suppliers who are not qualified or who lose qualification during the project will be rejected.

B. Authorization of Materials Before Use Based on Manufacturer Information.

- 1. The contract designates manufactured materials that can be incorporated in the work when authorized before use based upon manufacturer information.
 - a. The manufacturer information required for authorization is specified in the technical specifications as submittals.
 - b. APL Compliance Form
 - 1) Manufactured materials can be incorporated in the work only if listed on the APL when the APL Compliance Form is listed as a submittal in the technical specifications. The APL Compliance Form and application to submit products for placement on the APL can be found on the UDOT website.
 - 2) Materials not listed on the APL when the technical specifications list the APL Compliance Form as a submittal will not be authorized for use.
 - c. Certificates of Compliance
 - 1) Manufactured materials and assemblies can be incorporated in the work if accompanied by a manufacturer's Certificate of Compliance when a Certificate of Compliance is listed as a submittal in the technical specifications. Includes the following:
 - a. Project number and description, location, and Contractors' name;
 - b. Manufacturer's name, along with the material source location and point of manufacture or assembly;
 - c. Identification of the party the material was sold or supplied to;
 - d. Lot identification or manufacturer's identification of the certified materials or assemblies delivered to the project;

- e. Reference to the technical section or requirement of the contract specifications fulfilled through certification along with test reports, when applicable; and
 - f. Statement that the materials or assemblies comply with the particular requirements of the contract cited above and signed by a manufacturer's representative in a position to legally bind the manufacturer.
- 2) The Department may sample and test materials or assemblies used on the basis of Certificates of Compliance and reject if determined not to meet contract requirements.
- d. Manufacturer's product data sheets and installation instructions
 - 1). Materials may be incorporated into the project based on information provided through manufacturer's product data sheets and installation instructions when listed as a submittal in the technical specifications.
 - 2). Provide sufficient information to demonstrate conformance with product requirements before incorporating the product into the work.
 - 3). Installation instructions supplement Part 3 Execution requirements of technical Sections; in case of conflict, the more stringent requirements apply.
 - 4). APL Compliance Form may be submitted in lieu of product data sheets and installation instructions if the product is listed in the Department's APL.

C. Verification

- 1. Inspection
 - a. The Department field verifies material properties and their incorporation into the project as required in the technical specifications.
- 2. Sampling and Testing
 - a. The Department verifies certain properties of work for acceptance using sampling and testing.
 - b. Only those properties determined by a certain test are considered accepted by that test.
 - c. The UDOT Minimum Sampling and Testing Requirements and the UDOT Materials Manual of Instruction define procedures for anyone performing tests for verification.
 - d. The Department does not allow contract time extension for or as a result of testing.

- e. The Department may deduct from payment due the costs for retesting of materials made necessary by the Contractor's activities.
 - f. Laboratories and technicians must be qualified according to the requirements of the UDOT Materials Manual of Instruction to perform materials sampling and testing.
 - g. The Engineer reserves the right to select and test material from any location at the construction site. The Engineer will establish the limits of nonconforming materials sampled non-randomly.
- D. Other
 - 1. Materials and products of work where method for authorization or verification is not defined in the technical specification must be verified for conformance by using one of the methods listed in this Article.

1.7 SUPPLY SOURCE AND QUALITY REQUIREMENTS

- A. Notify the Engineer of the proposed source of materials to be used before their delivery.
- B. The Department encourages the re-use of industrial byproducts that meet contract requirements.
 - 1. Use new materials for the work in cases where industrial byproducts do not meet contract requirements.
- C. Required testing for aggregate sources will be deemed invalid unless testing occurred within a year of submittal.

1.8 PLANT INSPECTION

- A. The Department may inspect and test materials at the acquisition, manufacturing, or supplying source for compliance with specified manufacturing methods.
- B. Cooperate fully and assist the Engineer during the inspection and testing.
 - 1. Allow the Engineer full access to all parts of the plant used to manufacture or produce materials.
 - 2. Provide and maintain adequate safety measures.
 - 3. Provide mechanisms for providing samples during inspections.
 - a. Equip crushing or screening facilities with automatic or semiautomatic mechanical sampling devices.

1.9 MATERIAL STORAGE AND HANDLING

- A. Store and handle materials according to manufacturer requirements.
- B. Transport bulk materials in a manner to prevent loss or segregation after loading and measuring.
- C. Store materials so they can be easily inspected and tested.
- D. Restore storage and plant sites to their original condition.
- E. Do not store materials and equipment on bridge decks and in areas that add loads to bridge elements.

1.10 DEPARTMENT FURNISHED MATERIALS

- A. Schedule, pickup, and deliver Department furnished materials to install at the specified site.
 - 1. Receive, inventory, store, protect, distribute and install at site as specified.
- B. Contractor is responsible for all materials received. The Department deducts from money due the Contractor for the following:
 - 1. Shortages, deficiencies, and damage that may occur to the material after physical transference from the Department.
 - 2. The demurrage charges resulting from failure to accept the material at the designated time and point of delivery.
- C. The terms Department furnished, State furnished, and owner furnished are used interchangeably throughout the contract documents to mean components for specific use in the project that are provided by an entity other than the Contractor.

1.11 CONVICT PRODUCED MATERIALS

- A. Federal-aid projects are subject to Title 23, Code of Federal Regulations, CFR Part 635.417, Convict Produced Materials.
 - 1. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:
 - a. Produced by convicts who are on parole, supervised release, or probation from a prison.

- b. Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facilities for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

PART 2	PRODUCTS	Not Used
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PART 3	EXECUTION	Not Used
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END OF SECTION

January 9, 2026

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 01511S

CONSTRUCT USU ACCESS

PART 1 GENERAL

1.1 DESCRIPTION

- A. This work consists of furnishing and constructing an Access Roadway with a crushed gravel surface as the final surface for a private access, including material production, placement, shaping, and compaction.

1.2 RELATED SECTIONS – NOT USED

1.3 REFERENCES – NOT USED

1.4 DEFINITIONS – NOT USED

1.5 SUBMITTALS

- A. Aggregate Source and Gradation
- B. Proposed Construction Method, including placement and compaction approach.

PART 2 MATERIALS

2.1 AGGREGATE

- A. Provide crushed gravel/aggregate for surfacing that is locally available and similar in appearance and performance to the existing access surfacing. Material shall have a nominal maximum size of 1-1/4 inch, according to Table 1.
- B. Aggregate shall be well-graded, clean, hard, tough, durable, and sound mineral aggregates consisting of crushed stone, crushed gravel, or crushed slag, free of organic matter and contamination from chemical or petroleum products.

2.2 GRADATION

Table 1

Gradation Limits	
Sieve Size	Job Mix Gradation Target Band
1-1/4 inch	100
1" inch	40 – 70
3/4" inch	25 – 55
1/2" inch	10 – 30
3/8" inch	5 – 15
No. 4	0 – 8
No. 200	0 – 2

- A. Gradation variations typical of local pit production will be permitted, provided that the material remains 100 percent passing the 1-1/4 inch sieve and the No. 200 sieve passing does not exceed 2 percent.

PART 3 EXECUTION

3.1 GENERAL

- A. Surface shall be placed only when the subgrade is properly prepared and capable of supporting compaction equipment

3.2 PLACEMENT

- A. Crushed gravel/aggregate shall be placed in a single lift of 4 inches.
- B. Material shall be spread uniformly.

3.3 COMPACTION

- A. Compact Surface Course to not less than 95 percent of maximum dry density, as determined by AASHTO T 99 unless otherwise directed by the Engineer.
- B. Final surface shall be firm, stable, and free of loose or segregated material.

PART 4 PAYMENT

4.1 MEASUREMENT

- A. Surface Course will be measured by the square foot, based on the plan dimensions and accepted work.
- B. No classification by thickness or lift will be made.

4.2 PAYMENT

- A. Payment will be made at the Contract Unit Price for
CONSTRUCT USU ACCESS – Square Foot
- B. Payment shall be full compensation for furnishing materials, placement, compaction, finishing, and all incidentals necessary to complete the work.

END OF SECTION

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 01554S

TRAFFIC CONTROL

Delete Section 01554 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary traffic control requirements necessary to control vehicular and pedestrian traffic flow in a safe and efficient manner in construction zones.

1.2 RELATED SECTIONS

- A. Section 00555: Prosecution and Progress
- B. Section 01556S: Night Work Lighting
- C. Section 01558: Temporary Pavement Markings
- D. Section 02844: Concrete Barrier
- E. Section 02890: Retroreflective Sheeting

1.3 REFERENCES

- A. AASHTO Roadside Design Guide
- B. AASHTO Manual for Assessing Safety Hardware (MASH)
- C. American National Standards Institute (ANSI)
- D. Americans with Disabilities Act
- E. American Traffic Safety Services Association (ATSSA)
- F. ASTM C 1107: Packaged Dry, Hydraulic-Cement Grout (Nonshrink)

- G. ASTM D 6690; Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavement
- H. Institute of Transportation Engineers (ITE) Standard on Vehicle Traffic Control Signal Heads
- I. International Safety Equipment Association (ISEA)
- J. National Electrical Manufacturers Association (NEMA) TS 5: Portable Traffic Signal Systems (PTSS) Standard
- K. NCHRP Report 350: Recommended Procedures for the Safety Performance Evaluation of Highway Features
- L. UDOT Flagger Training Handbook
- M. UDOT Guidelines for Crash Cushions and Barrier End Treatments
- N. UDOT Quality Guidelines for Temporary Traffic Control Devices
- O. Utah Manual on Uniform Traffic Control Devices (Utah MUTCD)
- P. UDOT Sign Manual
- Q. UDOT Standard Highway Signs Supplement

1.4 DEFINITIONS

- A. Automated Flagger Assistance Device (AFAD) – A remotely operated temporary traffic control device with high visibility signage, signal heads, and automated flags. These devices are intended to direct and control traffic using only one person.
- B. Preconstruction Posted Speed Limit - The permanent posted speed limit prior to commencement of construction activities.
- C. Temporary Pedestrian Access Route (TPAR) – A temporary detectable pedestrian route that is provided when existing routes are disrupted, closed or relocated and includes accessibility features present in the existing facility.
- D. Temporary Portable Rumble Strips (TPRS) – An array of three heavy rubber strips that create noise when they are run over and are used to alert drivers to the presence of road construction.

- E. Temporary Portable Traffic Signal System (TPTSS) – A complete, integrated, and functional system deployed in the field that manages the movement of vehicular traffic, pedestrian traffic or both in a particular place for a particular purpose.
- F. Traffic Slow Down – An isolated planned event where traffic on a highway is reduced in speed to provide a gap for work to proceed.
 - 1. Examples include the crossing of the highway with heavy equipment or the adjustment of traffic control devices.

1.5 SUBMITTALS

- A. Traffic control plan for review.
 - 1. Include at least the following:
 - a. Traffic control measures for each phase of work in sufficient detail to provide for the safe and efficient movement of traffic, pedestrians, and bicycles during construction.
 - 1) Describe equipment, devices, and implementation instructions.
 - b. Work elements to be accomplished in each phase.
 - c. Details for each change to traffic control that is planned for the duration of the project.
 - d. Expected duration of each traffic control configuration.
 - e. Length of Need (LON) for temporary barriers.
 - f. Taper lengths, lane shift widths, device spacing, and sign locations for temporary and existing signs.
 - g. Removal of traffic control elements that conflict with temporary traffic control measures, such as existing traffic signs or traffic signals.
 - h. Worker parking, work vehicle access, and equipment access.
 - i. Location and hours of use for TPRS.
 - j. TPAR and devices for pedestrian access.
 - k. Temporary traffic signal (TPTSS) plans and list of proposed equipment.
 - 1) Red, yellow, and green times and basis of timing calculations.
 - 2. Provide supporting engineering calculations.
 - 3. Provide the seal of a Professional Engineer licensed in the State of Utah on drawings and calculations.
- B. Traffic Control Inspection forms weekly for information.
 - 1. Submit on a day and time acceptable to the Engineer.

- C. Traffic Slow Down.
 - 1. Submit request for approval at least 7 working days prior to Traffic Slow Down.
 - 2. Include at least the following:
 - a. The route,
 - b. The beginning and ending mileposts or mile markers,
 - c. Direction of the closure
 - d. The date and time of the beginning of closure
- D. Traffic Control Supervisor certification or certificate of completion for information.
- E. ATSSA or Department approved flagger certification for information
- F. TPTSS manufacturer's signal training program certificate of completion for information.
 - 1. Certificates of completion from the TPTSS manufacturer are valid for three years from date of issue.
- G. AFAD type and manufacturer's training program certificate of completion for information.
 - 1. Certificates of completion from the AFAD manufacturer may not be more than 3 years old.
- H. APL Compliance Form and manufacturer's installation instructions for the following product when used.
 - 1. Temporary Steel Barrier.

1.6 TRAFFIC CONTROL COORDINATION MEETING

- A. Schedule a traffic control coordination meeting with the Engineer and invite at least the following:
 - 1. Contractor's Traffic Control Designer
 - 2. Contractor's Traffic Control Maintainer

1.7 DEVICE CRASHWORTHINESS

- A. Crashworthiness requirements.
 - 1. Devices manufactured on or before December 31, 2019 and that meet NCHRP 350 crashworthiness criteria may be used on projects advertised, or having a Request for Proposal (RFP) Issue date for construction before July 1st, 2025.
 - 2. Devices manufactured after December 31, 2019 are required to meet MASH 2016 crashworthiness criteria or have a current Department Certification Letter.

- B. Devices in the following FHWA device category are required to meet crashworthiness requirements:
1. Category 1 - cones, barrels and delineators
 2. Category 2 - barricades and sign stands
 3. Category 3 - barriers, crash cushions and truck mounted attenuators
 4. Category 4 - arrow boards and portable variable message signs
 - a. Category 4 devices are certified by a Department Certification Letter.
- C. Department Certified devices can be found at <http://www.udot.utah.gov/go/standardsreferences>

1.8 TRAFFIC CONTROL REQUIREMENTS

- A. Meet the following requirements for traffic control and document them in the traffic control plan:
1. Meet the requirements in the TC series Standard Drawings, Utah MUTCD, and the Americans with Disabilities Act.
 2. Provide for the safe and efficient movement of traffic.
 - a. Address expected delay with the Project Public Involvement Team or the Region Communications Manager if the project does not have a Public Involvement Team.
 3. Provide for the safe and efficient movement of pedestrians and cyclists when existing facilities are disrupted, closed or relocated by a work zone.
 - a. Provide detectable temporary facilities that include accessibility features consistent with the features present in the existing pedestrian facility
 - b. Temporary removal of parking is possible with approval of local agencies and coordination with Project Public Involvement in order to provide a temporary bikeway
 - c. Detour Length should not exceed original bike route length by more than a half mile
 4. Provide concrete barrier, crash cushions and attenuators including:
 - a. Protection as required for hazard mitigation for workers. Refer to TC 3 Series Standard Drawings.
 - b. Protect all hazards to motorists within the appropriate AASHTO clear zone including bridge parapets, barrier blunt ends, poles, and large equipment. Refer to the UDOT Guidelines for Crash Cushions and Barrier End Treatments for acceptable devices.
<http://www.udot.utah.gov/go/standardsreferences>.

5. Provide and remove temporary pavement markings as needed for traffic control.
 - a. Remove any existing permanent pavement markings that conflict with temporary markings.
 - b. Refer to Section 01558
6. Incorporate proposed traffic signal timing, phasing, and detection plans if the operation or equipment of permanent traffic signals will be impacted by construction.
7. Incorporate TPRS when there is a change in the width, alignment or number of lanes on freeways or interstates with two lanes in a single direction.
8. Zipper Merge Signing as required
9. Use lane width restrictions of less than 12 ft only when approved by the engineer with the following minimums:
 - a. Preconstruction posted speed limit less than 55 mph, minimum lane width 10 ft.
 - b. Preconstruction posted speed limit of 55 mph or greater, minimum lane width 11 ft.
10. Use the preconstruction posted speed limit prior to work zone to compute the sign spacing, taper length, buffer zone, and work clear zone distances. Use the work zone posted speed limit to determine the tangent spacing for channelizing devices.
11. Refer to <http://www.udot.utah.gov/go/standardsreferences>, Policy 06C-61 for information.

1.9 TRAFFIC CONTROL MAINTAINER

- A. Provide a traffic control maintainer to install, maintain and remove temporary traffic control devices according to the authorized traffic control plan.
- B. Qualifications:
 1. Certified by the Department or by the American Traffic Safety Services Association (ATSSA) as a Traffic Control Supervisor. A list of approved training providers is available at <http://www.udot.utah.gov/go/standardsreferences>
 2. Persons that have passed the ATSSA Traffic Control Technician (TCT) course but do not have the required experience for certification may also perform the inspections and sign documentation.
- C. Authority
 1. Obtains and uses labor, equipment, and materials necessary to maintain traffic control.

2. Changes traffic control operations according to the authorized traffic control plan, except for any adjustment to timing, phasing, or detection, or any other settings in the signal controller for permanent traffic signals.

D. Responsibilities and Duties

1. Oversee traffic control operations and TPAR devices.
2. Be present and an active participant during the installation, maintenance, and removal of temporary traffic control devices.
3. Implement the authorized traffic control plan.
4. Remain available 24 hours a day, 7 days a week and can be on-site within 30 minutes of notification.
5. Correct deficiencies immediately upon notification from the Engineer.
6. Manage traffic control inspections.
 - a. Document inspections on a form acceptable to the Engineer.
 - 1) Include at least the following:
 - a) Assessment of device quality.
 - b) Items in compliance with the authorized traffic control plan.
 - b. Inspect at least four times each day with at least one of the inspections conducted during nighttime hours, when construction work is occurring:
 - 1) Before beginning of shift,
 - 2) At mid-shift,
 - 3) Half-hour after shift ends, and
 - 4) At the midpoint of the off-shift period.
 - c. Conduct traffic control inspections twice each day when construction is not occurring, but traffic control is present.
 - 1) Once during daylight hours.
 - 2) Once during nighttime hours.
 - 3) At least 8 hours between inspections.
7. Coordinate project traffic control with emergency services and local law enforcement agencies.
8. Monitor traffic queue lengths and adjust advanced warning signs to provide adequate warning of the actual back of queue resulting from construction activities.
9. Adjust the TPRS as necessary to maintain proper alignment, spacing and location.
10. Adjust the TPAR devices as necessary to maintain a detectable route that is consistent with the accessibility present in the existing pedestrian facility.

1.10 FLAGGERS

- A. Flaggers must have a current ATSSA or Department approved flagging certificate and must present proof of certification upon request by the Department.
 - 1. Refer to <http://www.udot.utah.gov/go/standardsreferences> for a list of acceptable courses taught by certified instructors.

1.11 PRICE ADJUSTMENTS

- A. The Department reduces payment when traffic control is not in compliance with the authorized traffic control plan or when the Contractor fails to meet all requirements cited or referenced in this Section.
 - 1. The amount per day by which the Contractor's compensation will be reduced is calculated using the daily charge in the Schedule of Liquidated Damages in Section 00555 or the Contract lump sum bid price for Traffic Control divided by the number of contract days, whichever is greater.

1.12 TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM (TPTSS) TRAINING

- A. The setup, programming, signal timing changes, maintenance, and repairs of a TPTSS must be performed by at least one person who has successfully completed a signal training program for the TPTSS in use.

1.13 AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) TRAINING

- A. The setup, programming, operation, maintenance, and repair of the AFAD must be performed by a person who has successfully completed a training program for the AFADs in use.

1.14 MOVING LANE OPERATION FOR MULTI LANE LESS THAN ONE HOUR

- A. Duration at any one location not to exceed 1 hour.
- B. Coordinate with TOC (801) 887-3700 to use overhead variable message signs for advance notification when available.
- C. Use 2 additional truck mounted arrow boards for each lane, one straddling the lane and one in the closed lane(s) with a TMA when closing more than two lanes. The Engineer's approval for this is required.

PART 2 PRODUCTS

2.1 PILOT CAR

- A. Equip with a retroreflective sign.
 - 1. Refer to Section 02890.
 - 2. Utah MUTCD sign G20-4.
- B. Equip with at least two rotating, oscillating, or strobe lights.
 - 1. Minimum 4 inch diameter/width and minimum 6 ft mounting height.
 - 2. Yellow color.

2.2 FLAGGER EQUIPMENT AND CLOTHING

- A. Refer to the UDOT Flagger Training Handbook.
<http://www.udot.utah.gov/go/standardsreferences>.
- B. Safety Clothing
 - 1. Flagger vest and hard hat – Orange, red-orange, or fluorescent version of these colors.
 - a. Wear safety apparel meeting the requirements of ANSI/ISEA "American National Standard for High-Visibility Apparel and Headwear" or equivalent revisions and labeled as meeting the current ANSI/ISEA publication year, standard performance for Class 3 risk exposure.
 - b. Hard hat with 10 square inches of white or strong yellow-green retroreflective tape placed around the base of the hard hat and visible to traffic from all directions.

2.3 TRAFFIC CONTROL SIGNING AND DEVICES

- A. Signs
 - 1. Comply with Section 02890.
 - 2. Comply with TC Series Standard Drawings.
 - 3. Comply with SN Series Standard Drawings when using post mounted signs.
- B. Channelizing Devices
 - 1. Comply with TC Series Standard Drawings.
 - 2. Comply with Section 02890.

- C. Precast Concrete Barrier
 - 1. Stabilization pins for temporary precast concrete barrier may be used in any pavement surface.
 - a. Comply with BA Series Standard Drawings.
 - b. Comply with Section 02844.
- D. Temporary Steel Barrier
 - 1. Stabilization pins for temporary steel barrier may be used in any pavement surface.
 - a. MASH Compliance
 - b. Comply with manufacturer's instructions and procedures
- E. Use a truck-mounted attenuator rated for the preconstruction posted speed limit.
 - 1. Test Level 2 for speeds 45 mph or less.
 - 2. Test Level 3 for speeds greater than 45 mph.
 - 3. Do not use a truck-mounted attenuator (TMA) to protect blunt end for more than 72 hours.

2.4 ARROW BOARD

- A. Comply with all standards as specified in the Utah MUTCD, Section 6F.61 Arrow Boards.
- B. Refer to the TC Series Standard Drawings and the Utah MUTCD.

2.5 TEMPORARY PORTABLE RUMBLE STRIPS (TPRS)

- A. Roadquake 2 Series
Temporary Portable Rumble Strip manufactured by:
Plastic Safety Systems
2444 Baldwin Road
Cleveland, OH 44104
(800) 662-6338

2.6 TEMPORARY WALKWAY AND RAMPS

- A. Refer to TC Series Standard Drawings and the Utah MUTCD

2.7 TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM (TPTSS)

- A. Utah MUTCD-compliant.
- B. Manufactured according to the latest edition of NEMA TS 5.

- C. Trailer
 - 1. General
 - a. Self-contained trailer-mounted unit, consisting of at least two signal heads per trailer.
 - 1) At least one signal head mounted on an overhead mast arm capable of extending over the travel lane.
 - 2) One signal head mounted on a vertical upright.
 - b. Safety orange color finish.
 - 2. Accessories
 - a. Removable or lockable self-storing tongue.
 - b. Lifting ring that is integral to the TPTSS trailer and structurally sufficient to facilitate the lifting and placing of a fully equipped TPTSS trailer.
 - c. Four stabilizer jacks rated for the full anticipated load.
 - 3. Power
 - a. Batteries sufficient to operate the signal for a minimum of 21 days at temperatures of 50 degrees F or higher without supplemental charging.
 - b. Equipped with a charging system for solar collection capability, and an onboard battery charger capable of being used with a 120VAC power source.
 - 4. Wind Load
 - a. The TPTSS trailer and all mounted equipment must withstand winds of 90 mph.
- D. Lift System
 - 1. Equipped with a hydraulic lift system sufficient to raise and lower the vertical upright and horizontal mast arm to and from the operating position.
 - 2. Overhead mast arm and signal head bracket must allow a minimum vertical clearance of 17.5 ft measured from the bottom of the lowest portion of the signal head or bracket to the road surface.
- E. Signal Heads
 - 1. Cast aluminum or polycarbonate and have 12 inch LED indications, conforming to ITE Standard on "Vehicle Traffic Control Signal Heads."
 - 2. Include back plates and retroreflective tape border.
 - 3. Refer to SL Series Standard Drawings.
- F. Operation
 - 1. Equipped with at least one Controller Unit (CU).
 - 2. All CUs within a traffic control setup must be in communication with each other, with signal timings coordinated.

- 3. Each CU equipped with a Malfunction Management Unit (MMU) conforming to NEMA TS 5.
 - a. Each signal within the signal system must be equipped with its own MMU to make certain of redundancy within the Malfunction Management System.
- G. Detection
 - 1. Installed with vehicle detection hardware that communicates to the CU.

2.8 AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)

- A. AFADs that comply with the Utah MUTCD requirements.
Use either:
 - 1. Red/Yellow AFAD with 12 inch circular signal heads and mechanical gate arm.
 - 2. Stop/Slow AFAD with mechanically changed signs and 12 inch circular red signal head (optional mechanical gate arm)
- B. Manufactured according to the latest edition of NEMA TS 5.
- C. Provide at least one ATSSA Certified flagger trained to operate the AFAD product, on site at all times while work zone temporary traffic control is in operation.

2.9 CRACK SEAL

- A. Meet the requirements of ASTM D 6690

2.10 NON-SHRINK GROUT

- A. Use packaged dry, hydraulic-cement grout (non-shrink) according to ASTM C 1107.

PART 3 EXECUTION

3.1 GENERAL

- A. Implement and maintain traffic control according to the authorized traffic control plan.
 - 1. Make changes immediately and notify the Engineer if traffic control changes that deviate from the authorized traffic control plan are required to make the work zone safe for workers or the traveling public.

2. Update the traffic control plan with the changes and resubmit for review.
- B. Maintain traffic control as required by the authorized traffic control plan when traffic control is in place and work is not actively occurring, including overnight, weekends and holidays.
- C. Maintain traffic control devices during and after all snow plowing operations.
 1. Clear snow and ice away from the following so that they function as intended:
 - a. Traffic control devices.
 - b. TPAR devices.
 - c. Contractor provided TPAR features.
- D. The UDOT Quality Guidelines for Temporary Traffic Control Devices identifies different levels of device quality. Refer to:
<http://www.udot.utah.gov/go/standardsreferences>
 1. Meet the acceptable device quality level for all traffic control devices.
 2. Wash or replace devices as needed to meet acceptable level.
- E. Remove equipment, material, traffic control devices and debris that encroaches upon or inhibits travel in the travel lanes, bike lanes or TPAR identified in the traffic control plan.
- F. Fill holes in pavement created by use of temporary barrier stabilization pin installation flush with the pavement surface.
 1. Use crack seal for asphalt pavements
 2. Use non-shrink grout for concrete pavements.
- G. Implement the Night Work Lighting plan as required. Refer to Section 01556S.

3.2 TRAFFIC CONTROL SIGNING AND DEVICES

- A. Use preconstruction posted speed limit to compute sign spacing, taper lengths, buffer zones, and construction clear zone.
 1. Use plastic drums or directional barricades for lane closure taper devices for speeds 50 mph and greater.
 2. Do not use tubular markers at night.
 3. Use drums, vertical panels or cones for night work.
- B. Use preconstruction posted speed limit during construction to compute the tangent spacing for channelizing devices.

- C. Use a construction zone attenuator or permanent style end sections, as listed in the UDOT Guidelines for Crash Cushions & Barrier End Treatments. <http://www.udot.utah.gov/go/standardsreferences>
 - 1. Use a construction zone attenuator when approach ends of temporary precast barrier are within the maximum AASHTO clear zone.
 - a. Use AASHTO Roadside Design Guide to determine proper clear zone distance requirements.
 - b. Refer to the CC Series Standard Drawings and manufacturer's recommendations to install crash cushions.
- D. Maintain cable barrier and anchor systems during construction.
 - 1. Protect existing hazards when cable barrier and anchor systems are rendered inoperable by work.
 - a. Address barrier length of need for the hazard.
 - 2. Maintain the required tension in the cable barrier system when the cable is disconnected by installing anchor systems on each end of the disconnect.
 - a. Do not cut cable. Disconnect cable at cable splice or anchor system locations only.
 - 3. Install manufacturer's approved terminal compatible with existing cable system.
 - a. Tension cable to manufacturer's requirements.
 - 4. Remove anchor system when cable barrier is reestablished.
- E. Remove all traffic control devices from site of work that are no longer necessary for the authorized traffic control plan.
 - 1. Relocate traffic control devices from the roadway a distance twice that of the Work Clear Zone if they will be used within 24 hours of the daily work stoppage and are not required for immediate traffic control. Refer to the TC Series Standard Drawings.
 - a. Obtain written permission from property owner before storing traffic control devices on private property.
 - 2. Crashworthy traffic control devices moved with a barrel mover or similar equipment may be relocated to the hard surface shoulder within 1 ft of the outer edge of shoulder if they will be used for traffic control within 48 hours of the daily work stoppage and are not required for immediate traffic control.
 - 3. Cover post mounted signs completely with an opaque and durable covering when the signs are not applicable.
- F. Cover or remove non-applicable work zone signs.

3.3 ARROW BOARD

- A. May substitute Type C units for Type B units. Refer to the TC Series Standard Drawings.

- B. Do not substitute Type B units for Type C units.
- C. Remove Arrow Board from the site of work when not needed for the control of traffic within a four-hour period.

3.4 TRAFFIC SIGNALS

- A. Use uniformed police officer when construction activities are impacting an operating signalized intersection.
- B. Use of flaggers at traffic signals permitted when the signals have been turned to red flash mode or are inoperable. Signal change over is not considered an inoperable signal.
 - 1. Control each approach by separate flaggers.
 - a. Flaggers can control only two lanes of approach traffic.
 - 1) Third lane control permitted when left or right turn bays present.
- C. The Department will make all changes to timing, phasing, detection, or any other settings in the signal controller for permanent traffic signals.
 - 1. Notify the Engineer at least 72 hours in advance of any needed changes.
- D. Maintain at least two signal heads for the primary movement at a signalized intersection on all approaches.
- E. Temporary Traffic Signals
 - 1. Span Wire Signals
 - a. Use only for durations greater than 30 days, unless needed for:
 - 1) Signal head placement.
 - 2) Number of signal heads for desired movements and phases.
 - b. Do not attach span wire to existing signal poles or luminaire poles.
 - c. Refer to SL Series Standard Drawings for clearance and signal head requirements.
 - 2. Temporary Portable Traffic Signal System (TPTSS)
 - a. Limit use of TPTSS to a maximum of 30 days.
 - b. Position at least one signal head within the dimensions of each travel lane.
 - c. Left turn phases are not allowed while using TPTSS.
 - d. Maintain at least 2 feet of shy distance from the travel shoulder line and edge of any TPTSS equipment.
 - e. Maintain appropriate channelization around TPTSS equipment according to channelization for arrow boards in TC Series Standard Drawings.
 - f. Setup each Controller Unit (CU) within the allowable communication range of each other.

- g. Setup, maintenance, and operation of TPTSS during construction is the responsibility of the contractor.

3.5 CONSTRUCTION ZONE SPEED LIMIT REQUIREMENTS

- A. Use approved traffic slow down for regulatory and advisory speed reductions.
 - 1. Use speed reductions only during approved times and areas.
 - 2. Restore preconstruction regulatory speed limit at locations where traffic is not being impacted by work activities.
 - 3. Refer to TC Series Standard Drawings.

3.6 TRAFFIC SLOW DOWN

- A. Obtain approval from the Department and law enforcement at least 48 hours before slow down.
- B. Use a Highway Patrol Trooper, or other law enforcement officer, in a marked vehicle with overhead flashing lights to conduct the slow down.
- C. Use the officer in the marked vehicle to slow down one or two lanes.
 - 1. Use, in any combination either, contractor-supplied vehicles equipped with overhead amber flashing lights or additional officers in marked vehicles at the rate of one vehicle per lane thereafter for all lanes of the highway to affect the traffic slow down.
- D. Additional vehicles as described in this article may be used in the traffic slow down to supplement the law enforcement vehicle when required by the officer.
- E. The duration of any traffic slowdown is not to exceed five minutes.

3.7 TEMPORARY PORTABLE RUMBLE STRIPS (TPRS)

- A. Space and locate TPRS according to TC Series Standard Drawings.
- B. Clean road surface with broom or blower to remove all gravel, sand, dust, or other debris.
- C. Assemble modular pieces into strips that match the width of the travel lane as closely as possible.
 - 1. Follow manufacturer's recommendations so that pieces are properly interlocked.
- D. Place TPRS perpendicular to traffic and centered in lane.
 - 1. Follow manufacturer's recommendations and TC series standard drawings for installation and product orientation.
 - 2. Do not glue, nail, or otherwise affix TPRS to the road surface.

- E. Place TPRS at the same time as other traffic control devices, prior to work taking place.
 - 1. Maintain the TPRS in proper condition, alignment, spacing, and location.
 - a. Adjust TPRS when any one rumble strip becomes skewed by a distance of 3 ft or more.
 - 1) Skew distance is the distance parallel to direction of travel between the ends of the strip.
 - b. Adjust the TPRS if the parallel distance between the individual rumble strips decreases by 5 ft or more.
 - c. Temporary paint marks may be placed to give reference of original locations.
 - d. Make adjustments to TPRS as often as necessary during working hours, but at least during each traffic control inspection.
 - 1) Adjustments to TPRS must be made within 30 minutes of discovery or notification of misalignment.
 - e. Remove TPRS during non-working hours.
 - f. Implement a Traffic Slow Down if necessary to enter the travel lanes to deploy or reset TPRS.
- F. Do not use TPRS during snow events, or at temperatures outside of the manufacturer's recommendations.

3.8 LANE CLOSURES

- A. Notify the Engineer and the UDOT Traffic Operations Center in advance of every lane closure.
 - 1. Provide notification:
 - a. As soon as it is known that a lane closure is necessary to execute the work, but not less than 72 hours before the closure begins.
 - b. As soon as practical when the schedule, location, or need for an upcoming lane closure arises or changes.
 - 1) Notify the Engineer immediately by phone call, by text message, or by email.
 - c. Send information to the UDOT Traffic Operations Center by email at tc-controlroom@utah.gov.
 - 2. Include at least the following:
 - a. The route,
 - b. The beginning and ending mileposts or mile markers,
 - c. Number of lanes to be closed,
 - d. Direction of the closure,
 - e. The date and time of the beginning of closure, and
 - f. The date and time of the ending of the closure

- B. Enter lane closure information into the UDOT Traffic Lane Closure system via the UDOT Traffic website before lane closure begins.
 1. Contact the Control Room Manager at tc-controlroom@utah.gov to obtain access to the UDOT Traffic Lane Closure system.
 2. Include Traffic Control Maintainer contact information.
 3. Make requests for the use of overhead VMS at least 72 hours before lane closure begins.
 - a. Send request to tc-controlroom@utah.gov.
- C. Provide real-time confirmation of every lane closure on the state routes listed in Table 1, and subsequent lane reopening, by calling the UDOT Traffic Operations Center at 801-887-3700.
 1. Begin Lane Closure: Confirm lane closure details 30 to 45 minutes before placing the first traffic control device in the travel lane.
 2. End Lane Closure: Confirm lane reopening 30 to 45 minutes before removing the last traffic control device in the lane.

Table 1

State Routes Requiring Real Time Lane Closure Confirmation
All interstates (I-15, I-70, I-80, I-84, I-215) US-6 (East of I-15) SR-30 (I-15 to Logan) SR-36 (I-80 to Tooele) SR-67 SR-68 SR-85 SR-154 SR-179 SR-194 SR-201 SR-224 SR-248 US-40 US-89 (Davis, Weber, Cache, Rich and Box Elder Counties) US-91 (I-15 to Logan) US-189 US-191 (Moab to I-70)

END OF SECTION

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 02741S

ASPHALT MIX

Delete Section 02741 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Flexible pavement consisting of one or more layers of an asphalt mixture comprised of aggregate, asphalt binder, hydrated lime, and other additives.
- B. An option to incorporate Reclaimed Asphalt Pavement (RAP) materials into Asphalt Mix.

1.2 RELATED SECTIONS

- A. Section 01456: Materials Dispute Resolution
- B. Section 02701: Pavement Smoothness
- C. Section 02742S: Project Specific Surfacing Requirements
- D. Section 02745: Asphalt Material
- E. Section 02746: Hydrated Lime
- F. Section 02748: Prime Coat/Tack Coat

1.3 REFERENCES

- A. AASHTO M 323: Superpave Volumetric Mix Design
- B. AASHTO R 35: Superpave Volumetric Design for Asphalt Mixtures
- C. AASHTO T 11: Materials Finer Than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

- D. AASHTO T 19: Bulk Density ("Unit Weight") and Voids in Aggregate
- E. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates
- F. AASHTO T 89: Determining the Liquid Limit of Soils
- G. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils
- H. AASHTO T 96: Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
- I. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
- J. AASHTO T 112: Clay Lumps and Friable Particles in Aggregate
- K. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test
- L. AASHTO T 195: Determining Degree of Particle Coating of Asphalt Mixtures
- M. AASHTO T 209: Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures
- N. AASHTO T 255: Total Evaporable Moisture Content of Aggregate by Drying
- O. AASHTO T 304: Uncompacted Void Content of Fine Aggregate
- P. AASHTO T 335: Determining the Percentage of Fracture in Coarse Aggregate
- Q. UDOT Materials Manual of Instruction
- R. UDOT Minimum Sampling and Testing Requirements
- S. UDOT Quality Management Plans

1.4 DEFINITIONS

- A. Longitudinal Joint – Any new asphalt lift abutting an existing paving lift. This includes joints created by echelon paving and new asphalt placed against a milled asphalt edge.
- B. Lot – The amount of Asphalt Mix placed in a single Production Day.

- C. Minor Target Change – A change from the verified mix design gradation target on a maximum of two sieves with the following limitations.
 - 1. The maximum change from the verified target gradation on the No. 8 or any coarser sieve is limited to 3 percent passing per sieve.
 - 2. The maximum change from the verified target gradation on the No. 16 or No. 50 sieves is 2 percent passing per sieve.
 - 3. The maximum change from the verified target gradation on the No. 200 sieve is 0.5 percent passing.
 - 4. No target change may violate the mix design requirements in this section.
- D. Overband – an 8 inch protective asphalt coating sealing the longitudinal joint of final riding surface, as proposed by the contractor and approved by the Engineer
- E. Production Day – A 24 hour period in which Asphalt Mix is being placed.
- F. RAP – Recycled Asphalt Pavement. Crushed or milled asphalt materials that have been removed from pavements for recycling.
- G. Thin Overlay Pavement – New Asphalt Mix design thickness less than 2 inches.
- H. Lane-Leveling – Variable depth paving to correct minor rutting and longitudinal variations in the roadway. Depth varies from the maximum aggregate size to the depth needed to correct variations.
- I. Profile leveling - Variable depth paving to correct minor profile variations in the roadway. Depth varies from the maximum aggregate size to the depth needed to correct variations.

1.5 SUBMITTALS

- A. Mix design for verification and approval before paving according to UDOT Materials Manual of Instruction Section 960.
- B. Changes in job mix design
 - 1. Submit a written request for any proposed change in the job-mix design
 - a. Allow at least 12 hours for approval before incorporating a minor target change into production.
 - b. Allow at least six working days for verification and approval of any other change.

2. Include documentation supporting correlation between suggested target changes and mix design volumetric requirements.
 - a. Acceptable documentation may include Department or Contractor testing data.
 3. Submit samples according to the UDOT Materials Manual of Instruction 960 for a volumetric mix design verification for anything other than approved minor target changes.
- C. Corrective action plan for approval according to this Section, Article 3.3, paragraph C2 and Article 3.4, paragraph A4b.
- D. Refer to this Section, Article 3.4 for laboratory correlation submittals for information.
- E. Mat joint layout plan to the Engineer for review before placement.

1.6 ACCEPTANCE

- A. Acceptance sampling and testing of material is according to UDOT Minimum Sampling and Testing Requirements.
- B. Gradation and asphalt binder content
1. The Engineer evaluates a lot on the test results of four or more samples, except when only three samples can be taken.
 2. Evaluate the lot using the number of tests “n” in Table 3.
 3. The Engineer informs the Contractor of the time and place of sampling not more than 15 minutes before sampling.
 4. Increase sample sizes to accommodate validation or third-party testing as required.
- C. Density and Thickness
1. Obtain cores from the mat and longitudinal joint within two calendar days after the pavement is placed and according to UDOT Materials Manual of Instruction, Section 984.
 - a. The Engineer marks coring location for in-place mat density and longitudinal joint density cores.
 - b. Fill core holes with Asphalt Mix, SMA or high-asphalt-content cold mix and compact in thin lifts within 24 hours and before returning to traffic.
 - c. The Department witnesses the coring operation, takes possession of the cores immediately, and begins testing the cores within 24 hours for density acceptance.

2. Density Requirements
 - a. The target for in-place density for the mat is 93.5 percent of Theoretical Maximum Specific Gravity except for thin overlay pavements.
 - b. The target for in-place density for the longitudinal joint is 91.5 percent of the Theoretical Maximum Specific Gravity (G_{mm}).
 - c. The target for in-place density is 92.5 percent of theoretical maximum specific gravity for thin overlay pavements.
 - 1) Do not take longitudinal joint cores for thin overlay pavements.
3. Thickness is evaluated with mat density cores. The thickness requirement may be waived when matching up to existing pavement, curb and gutter for Pavement in or next to intersections.
 - a. The Department accepts a lot for thickness when:
 - 1) The average thickness is not more than $\frac{1}{2}$ inch greater or $\frac{1}{4}$ inch less than the total design thickness specified.
 - 2) No individual subplot shows a deficient thickness of more than $\frac{3}{8}$ inch.
 - b. Excess Thickness – The Engineer may allow excess thickness to remain in place or may order its removal.
 - 1) The Department pays for 50 percent of the mix for material in excess of the $+\frac{1}{2}$ inch tolerance when excess thickness is allowed to remain in place.
 - c. Deficient Thickness – Place additional material where lots or sublots are deficient in thickness.
 - 1) The Department pays for material necessary to reach specified thickness.
 - 2) The Department pays for 50 percent of the mix for additional material over specified thickness necessary to achieve minimum lift thickness.
 - 3) Minimum compacted lift is 3 times the nominal maximum aggregate size.
 - d. Thickness tolerances established above do not apply to leveling courses.
 - 1) Check final surfaces in staged construction.
 - e. Check thickness regularly with a depth probe during placement and take corrective action as necessary.

4. Longitudinal Joint
 - a. The edge of a new asphalt mat may be removed for the purpose of meeting longitudinal joint density requirements.
 - 1) The material wasted is still included in the payment.
 - 2) Up to 3 inches for a confined edge is allowed.
 - 3) Up to 6 inches for an unconfined edge is allowed.
- D. The Department applies one Incentive/Disincentive for the lowest dollar value for Gradation/Asphalt Content, one Incentive/Disincentive for In-Place Mat Density, and one Incentive/Disincentive for Longitudinal Joint Density. The Engineer computes Incentives/Disincentives as follows for each lot
 1. Compute incentive/disincentive for Gradation/Asphalt Binder and In-place Mat Density and Longitudinal Joint Density according to Table 1.
 2. Base the incentive/disincentive on Percent within Limit (PT) computation using Tables 2, 3, and 4.
 3. Use lowest single PT value combined for gradation (each of the sieves) and asphalt binder content for calculating the gradation/asphalt binder content incentive/disincentive.
 4. Use Tables 2, 3, and 4 to determine PT for in-place Mat Density and Longitudinal Joint Density.
 5. Meet PT of 88 or greater for in-place mat density or the Department does not pay incentives on joint density or gradation/asphalt binder content except for lane-leveling material.
 6. The Department pays or assesses the longitudinal joint density incentive/disincentive per ton of Asphalt Mix placed adjacent to, and on the hot side of the longitudinal joint for each lift:
 - a. The incentive/disincentive will be calculated from the core densities taken from all abutting joints if the Asphalt Mix mat has a longitudinal joint on more than one side.
- E. The Department applies incentive/disincentive for smoothness according to Section 02701.
 1. Refer to Section 02701 for smoothness requirements.
- F. The Department rejects lots:
 1. If the PT for any individual gradation measurement is less than 52 percent as shown in Table 1.
 2. If the PT for asphalt binder content or mat density measurement is less than 60 percent as shown in Table 1.

3. The Engineer may accept a reject or non-conforming lot. Refer to Section 01456.
 - a. A price reduction of 35 percent of the pay item or \$20 per ton, whichever is greater, will be assessed.
 - b. The lot will not be eligible for any incentive.
- G. The Engineer may elect to accept material on visual inspection according to the Minimum Sampling and Testing Requirements.
 1. Incentives/Disincentives are not applied to material accepted visually.
 2. The Engineer reserves the option of conducting any acceptance tests necessary to determine that the material and workmanship meets the project requirements.
- H. Meet production control requirements of Table 9.
 1. Material placed within the Cease Production Limit in Table 9 is not eligible for incentives.

1.7 DISPUTE RESOLUTION

- A. Refer to Section 01456 when disputing the validity of the Department's acceptance tests.

Table 1

Incentive/Disincentive for Asphalt Binder Content, and Mat Density	
PT Based on Min. Four Samples	Incentive/Disincentive (Dollars/Ton)
>99	2.00
96-99	1.50
92-95	1.00
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
<60	Reject
Incentive/Disincentive for Gradation	
PT Based on Min. Four Samples	Incentive/Disincentive (Dollars/Ton)
>99	2.00
96-99	1.50
92-95	1.00
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
56-59	-5.00
52-55	-10.00
<52	Reject
Incentive/Disincentive for Longitudinal Joint Density	
PT Based on Min Four Samples	Incentive/Disincentive (Dollars/Ton)
>99	2.00
96-99	1.50
92-95	1.00
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
56-59	-2.60
52-55	-5.00
<52	Apply \$5 penalty and Overband Longitudinal Joint if Final Surface Lift

Table 2

Upper and Lower Limit Determination	
Parameter	UL and LL
3/8 inch sieve for 1/2 inch Asphalt Mix No. 4 sieve for 3/8 inch Asphalt Mix	Target Value $\pm$ 6.0%
No. 8 sieve	Target Value $\pm$ 5.0%
No. 50 sieve	Target Value $\pm$ 3.0%
No. 200 sieve	Target Value $\pm$ 2.0%
Asphalt Binder Content	Target Value $\pm$ 0.35%
Mat Density	Lower Limit Target Value - 2.0% Upper Limit Target Value + 4.0%
Longitudinal Joint Density	Lower Limit Target Value - 2.0% Upper Limit Target Value + 6.0%

Table 3

Use the appropriate "number of tests" column and round down to the nearest value.

Quality Index Values (QU or QL) for Estimating Percent Within Limits										
PU or PL	n=3	n=4	n=5	n=6	n=7	n=8	n=10	n=12	n=15	n=20
100	1.16	1.50	1.75	1.91	2.06	2.15	2.29	2.35	2.47	2.56
99	1.16	1.47	1.68	1.79	1.89	1.95	2.04	2.09	2.14	2.19
98	1.15	1.44	1.61	1.70	1.77	1.80	1.86	1.89	1.93	1.97
97	1.15	1.41	1.55	1.62	1.67	1.69	1.74	1.77	1.80	1.82
96	1.15	1.38	1.49	1.55	1.59	1.61	1.64	1.66	1.69	1.70
95	1.14	1.35	1.45	1.49	1.52	1.54	1.56	1.57	1.59	1.61
94	1.13	1.32	1.40	1.44	1.46	1.47	1.49	1.50	1.51	1.53
93	1.12	1.29	1.36	1.38	1.40	1.41	1.43	1.43	1.44	1.46
92	1.11	1.26	1.31	1.33	1.35	1.36	1.37	1.37	1.38	1.39
91	1.10	1.23	1.27	1.29	1.30	1.31	1.32	1.32	1.32	1.33
90	1.09	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.27	1.27
89	1.08	1.17	1.20	1.21	1.21	1.21	1.21	1.21	1.22	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.12	1.13	1.13	1.13	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.05	1.04	1.04	1.04	1.04	1.04
84	1.02	1.02	1.02	1.01	1.01	1.01	1.00	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.96
82	0.98	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.92
81	0.96	0.93	0.92	0.91	0.90	0.90	0.89	0.89	0.89	0.88
80	0.94	0.90	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.85
79	0.92	0.87	0.85	0.84	0.83	0.83	0.82	0.82	0.82	0.81
78	0.89	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78
77	0.87	0.81	0.79	0.78	0.77	0.76	0.76	0.75	0.75	0.75
76	0.84	0.78	0.76	0.75	0.74	0.73	0.72	0.72	0.72	0.72
75	0.82	0.75	0.73	0.72	0.71	0.70	0.69	0.69	0.69	0.68
74	0.79	0.72	0.70	0.68	0.67	0.67	0.66	0.66	0.66	0.65
73	0.77	0.69	0.67	0.65	0.64	0.64	0.62	0.62	0.62	0.62
72	0.74	0.66	0.64	0.62	0.61	0.61	0.60	0.59	0.59	0.59
71	0.71	0.63	0.60	0.59	0.58	0.58	0.57	0.56	0.56	0.56
70	0.68	0.60	0.58	0.56	0.55	0.55	0.54	0.54	0.54	0.53
69	0.65	0.57	0.55	0.54	0.53	0.52	0.51	0.51	0.51	0.50
68	0.62	0.54	0.52	0.51	0.50	0.50	0.48	0.48	0.48	0.48
67	0.59	0.51	0.49	0.48	0.47	0.47	0.46	0.45	0.45	0.45
66	0.56	0.48	0.46	0.45	0.44	0.44	0.43	0.42	0.42	0.42
65	0.53	0.45	0.43	0.42	0.41	0.41	0.40	0.40	0.40	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.37
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34
62	0.43	0.36	0.34	0.33	0.33	0.33	0.32	0.31	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.30	0.29	0.29	0.29	0.28
60	0.36	0.30	0.28	0.27	0.26	0.26	0.25	0.25	0.25	0.25
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24	0.23	0.23	0.23

Table 3 Continued										
PU/PL	n=3	n=4	n=5	n=6	n=7	n=8	n=10	n=12	n=15	n=20
58	0.29	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.20
57	0.25	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.15
55	0.18	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 4

Definitions, Abbreviations, and Formulas for Acceptance	
Term	Explanation
Target Value (TV)	The target values for gradation and asphalt binder content are given in the Contractor's volumetric mix design. See this Section, Article 1.6 for density target values.
Average (AVE)	The sum of the lot's test results for a measured characteristic divided by the number of test results—the arithmetic mean.
Standard Deviations (s)	The square root of the value formed by summing the squared difference between the individual test results of a measured characteristic and AVE, divided by the number of test results minus one.
Upper Limit (UL)	The value above the TV of each measured characteristic that defines the upper limit of acceptable production. (Table 2)
Lower Limit (LL)	The value below the TV of each measured characteristic that defines the lower limit of acceptable production. (Table 2)
Upper Quality Index (QU)	$QU = (UL - AVE)/s$
Lower Quality Index (QL)	$QL = (AVE - LL)/s$
Percentage of Lot Within UL (PU)	Determined by entering Table 3 with QU.
Percentage of Lot Within LL (PL)	Determined by entering Table 3 with QL.
Total Percentage of Lot Within UL and LL (PT)	$PT = (PU + PL) - 100$
Incentive/Disincentive	Determined by entering Table 1 with PT or PL.

PART 2 PRODUCTS

2.1 ASPHALT BINDER

- A. Project Specific Surfacing Requirements – Refer to Section 02742S.
- B. Asphalt Material – Refer to Section 02745 and Quality Management Plan 509: Asphalt Binder.

2.2 AGGREGATE

- A. Crusher produced virgin aggregate material consisting of crushed stone, gravel, or slag.
- B. Refer to Table 5 to determine the suitability of the aggregate.
 - 1. Coarse aggregates
 - a. Retained on No. 4 sieve, AASHTO T 27
 - 2. Fine aggregates
 - a. Clean, hard grained, and angular
 - b. Passing the No. 4 sieve, AASHTO T 27
- C. Meet the gradation requirements in Table 6. (AASHTO T 11, AASHTO T 27)

Table 5

Aggregate Properties – Asphalt Mix			
Test Method	Test No.	75 Design Gyration and Greater	Less Than 75 Design Gyration
One Fractured Face	AASHTO T 335	95% minimum	90% minimum
Two Fractured Faces	AASHTO T 335	90% minimum	90% minimum
Fine Aggregate Angularity	AASHTO T 304	45 minimum	45 minimum
Flakiness Index	UDOT MOI 933 (Based on $\frac{3}{8}$ inch sieve and above)	17% maximum	17% maximum
L.A. Wear	AASHTO T 96	35% maximum	40% maximum
Sand Equivalent	AASHTO T 176, alternate method 2, pre-wet method (test the sample in the wet condition).	60 minimum	45 minimum
Plasticity Index	AASHTO T 89 and T 90	0	0
Unit Weight	AASHTO T 19	minimum 75 lb/ft ³	minimum 75 lb/ ft ³
Soundness (sodium sulfate)	AASHTO T 104	16% maximum loss with five cycles	16% maximum loss with five cycles
Clay Lumps and Friable Particles	AASHTO T 112	2% maximum	2% maximum
Natural Fines	N/A	0%	10% maximum

Table 6

Aggregate Gradations (Percent Passing by Dry Weight of Aggregate)			
Sieve Size		$\frac{1}{2}$ inch	$\frac{3}{8}$ inch
Control Sieves	$\frac{3}{4}$ inch	100.0	
	$\frac{1}{2}$ inch	90.0 – 100.0	100.0
	$\frac{3}{8}$ inch	< 90	90.0 - 100.0
	No. 4		< 90
	No. 8	28.0 - 58.0	32.0 - 67.0
	No. 200	2.0 – 10.0	2.0 – 10.0

2.3 ADDITIVES / STABILIZERS

- A. Hydrated Lime:
Meet the requirements of Section 02746.
- B. Notify the engineer of all warm mix additives used on the project.

2.4 RECLAIMED ASPHALT PAVEMENT (RAP) (OPTIONAL)

- A. Do not adjust the asphalt binder grade if the lower end is already a PG XX-34.
- B. Do not adjust the asphalt binder grade when RAP content is not more than 15 percent by total weight of the asphalt mix and RAP asphalt binder content is not more than 15 percent of the total asphalt binder content by weight.
- C. Adjust asphalt binder grade according to AASHTO M 323 when RAP asphalt binder content is between 15 to 25 percent of the asphalt binder weight.
 - 1. Select one grade softer than the grade specified. Do not adjust the asphalt binder grade if the lower end is already a PG XX-34.
 - 2. Provide test reports indicating that the PG grade and quantity of the recovered asphalt binder is consistent throughout the stockpile.
 - 3. Limit RAP to 25 percent of the total weight of the asphalt mix and RAP binder to 25 percent of the total binder.
- D. RAP aggregate is required to meet Table 5 with exception of Sand Equivalent. Refer to AASHTO T 176.

2.5 VOLUMETRIC MIX DESIGN

- A. Perform Superpave Volumetric Mix Design according to UDOT Materials Manual of Instruction Section 960 and the following:
 - 1. Incorporate hydrated lime into all designs. Refer to Section 02746.
 - 2. Comply with Table 7 and Table 8.
- B. Obtain Department approval for the mix design. Refer to the UDOT Materials Manual of Instruction Section 960.
 - 1. Submit for verification and approval.
 - 2. Do not begin paving until verification is complete.

Table 7

Volumetric Design Gyration			
Compaction Parameters			Voids Filled with Asphalt (VFA) (%)
N_{initial} /% of G_{mm}*	N_{design} /% of G_{mm}*	N_{max} /% of G_{mm}*	
6 / ≤ 91.5	50 / 96.5	75 / ≤ 98	70 – 80
7 / ≤ 90.5	75 / 96.5	115 / ≤ 98	70 – 80

* G_{mm}: Theoretical maximum specific gravity of the mix.
Refer to AASHTO T 209.

Table 8

Mix Design Requirements	
Asphalt Mix design mixing and compaction temperatures	Provided by the approved mix design
Dust Proportion Range	0.6 - 1.40
Voids in Mineral Aggregate (VMA) at N _{design} AASHTO R 35.9.2 using G _{sb} Oven Dry. Equation based on percent of total mix.	14.0% - 15.0% for ½ inch 15.0% - 16.0% for ¾ inch
Air voids at N _{design}	3.5 %
Hamburg Wheel Tracker UDOT MOI 990	75 Design Gyration and Greater: < 10.0 mm at 20,000 Cycles Less than 75 Design Gyration: < 10.0 mm at 10,000 Cycles

2.6 CONTRACTOR INITIATED CHANGES TO MIX DESIGN

- A. The Department may allow up to two minor target changes to the most current verified mix design per project, per mix design, without penalty to the Contractor.
 1. The Department charges \$1,000 for each additional minor target change.
- B. The Department performs up to two volumetric mix design verifications per project, per mix design, at no cost to the Contractor.
 1. The Department charges \$3,000 for each additional laboratory or field verification required including all laboratory or field volumetric mix design verifications required due to contractor initiated target changes.

- C. Submit requests in writing to the Engineer at least 12 hours before incorporating changes into production.
 - 1. Include documentation supporting correlation between suggested minor target change and mix design volumetric requirements.
 - 2. Acceptable documentation may include Department or Contractor testing data.
 - 3. The Region Materials Engineer approves the target change if the mix meets the requirements.
- D. Do not make changes to production mix until the request is approved.
- E. Submit a new laboratory volumetric mix design for any change made to mix design properties other than gradation.
 - 1. When adding or modifying an additive/stabilizer to the mix design, only the portions of the verification affected by the addition or modification of the additive/stabilizer need to be verified.
- F. The Engineer may require Hamburg Wheel-Track testing after a target change to evaluate the performance of the mix with the target change.

2.7 TACK COAT

- A. Refer to Section 02748.

PART 3 EXECUTION

3.1 ASPHALT MIX

- A. Dry aggregate to an average moisture content of not more than 0.2 percent by weight.
 - 1. May be verified by AASHTO T 255.
 - 2. Adjust burners to avoid damage or soot contamination of the aggregate.
- B. Treat aggregate with hydrated lime. Refer to Section 02746.
 - 1. Method A or B
 - 2. The Department applies a deduction for mix produced by a non-certified supplier to cover the costs of inspection.
 - a. The deduction is applied according to the UDOT Quality Management Plan 514.
- C. Coat with asphalt binder 100 percent of the particles passing and 98 percent of the particles retained on the No. 4 sieve.
 - 1. May be verified by AASHTO T 195.

2. Discontinue operation and make necessary corrections if material is not properly coated.
- D. Maintain temperature of the Asphalt Mix between the limits identified on the Volumetric Mix Design Verification Letter for mixing and compacting.
1. The Department rejects materials heated over the identified limits.
 2. Remove all material rejected by the Department for overheating.
- E. Minimum compacted lift thickness is 3 times the nominal maximum aggregate size.

3.2 ASPHALT MIX PLANT

- A. Provide the following:
1. Positive means to determine the moisture content of aggregate on a daily basis.
 2. Positive means to sample all material components.
 3. Sensors to measure the temperature of the Asphalt Mix at discharge.
 4. The ability to maintain discharge temperature of the mix according to the mix design.
- B. Asphalt Binder Storage Tanks
1. Provide a positive means for separating and identifying asphalt grades when multiple products are used in mix production.
 2. Provide positive means of determining the quantity of material in the tank at any time.
 3. Provide a positive means of sampling the asphalt binder from the tanks.
 - a. The Engineer determines a common sampling point where multiple products are used in mix production.

3.3 PRODUCTION CONTROL LIMITS

- A. Apply the production control requirements as outlined in Table 9.
- B. Action Limit
1. Take appropriate action when air voids or VMA at N_{des} averaged for each lot are within the Action Limit.
 2. Continue paving the next scheduled work day at the Contractors discretion.
 3. Enter into the Cease Production Limit after three (3) consecutive production lots within the Action Limit.

C. Cease Production Limit

1. Take appropriate action when air voids or VMA at N_{des} averaged for each lot are within the cease Production Limit.
2. Submit a letter to the Engineer providing information on production changes to be made along with Contractor volumetric data verifying the results.
3. Suspend paving until Contractor provides test results from a minimum of two samples meeting the gradation and asphalt content requirements in Table 2 and air void and VMA requirements for the proceed limit in Table 9
 - a. Produce and place material for Cease Production evaluation at a location outside of the project limits.
 - b. Allow UDOT 24 hours to review the volumetric data.
 - c. After to two (2) occurrences per project per year of ceased production, contract time may be added for the necessary days missed to correct the cease production item(s).
 - 1) Submit critical path information for evaluation.
 - 2) Maximum ten (10) calendar days per project.
4. The Engineer may require a new mix design after two (2) cease-production lots.

Table 9

Production Control for VMA		
VMA (%) Range from Target Value (TV) X = Average Value (Minimum of three Samples)	Air Voids (%) Range from Target Value (TV) X = Average Value (Minimum of three Samples)	Action
$X > TV - 1.3$ and $X < TV + 1.3$	$X > TV - 1.0$ and $X < TV + 1.3$	Proceed Limit
$X \leq TV - 1.3$ and $X \geq TV - 1.5$ or $X \geq TV + 1.3$ and $X \leq TV + 1.5$	$X \leq TV - 1.0$ and $X > TV - 1.5$ or $X \geq TV + 1.3$ and $X < TV + 1.8$	Action Limit This Section, Article 3.3.B
$X < TV - 1.5$ or $X > TV + 1.5$	$X \leq TV - 1.5$ or $X \geq TV + 1.8$	Cease Production Limit This Section, Article 3.3.C

3.4 LABORATORY CORRELATION

- A. Perform split-sample, paired *t*-testing with the Department based on project quality control testing using Department-qualified lab.
 - 1. Perform split-sample, paired *t* analysis on all mix acceptance tests and tests related to volumetric properties.
 - 2. Perform paired *t* analysis as defined in the UDOT Materials Manual of Instruction, Appendix C.
 - 3. Continue paired *t*-testing until at least two consecutive production days meet $\alpha = 0.05$ for a two tailed distribution.
 - 4. Resolve discrepancies in lab results within the first five production days.
 - a. Cease production if the requirements for two consecutive days of the first five days cannot be met.
 - b. Submit a corrective action plan to the Engineer before production continues indicating the changes in procedures that will be implemented to correct the deficiencies.
 - c. Both Contractor and Department labs must make paired *t* test results available within 24 hours of sampling.

3.5 SURFACE PREPARATION

- A. Locate, reference, and protect all utility covers, monuments, curb and gutter, and other components affected by the paving operations.
- B. Remove all moisture, dirt, sand, leaves, and other objectionable material from the prepared surface before placing the tack coat and mix.
- C. Complete spot leveling, lane-leveling or profile leveling before placing pavement courses.
 - 1. Place, spread, and compact leveling mix on portions of the existing surface.
 - 2. Fill and compact any localized potholes more than 1 inch deep.
 - 3. Allow compacted mix to cool sufficiently to below 150 degrees F to provide a stable structural platform before placing additional lifts of Asphalt Mix.
- D. Apply tack coat to all paved surfaces and longitudinal and transverse joints before applying a leveling course or pavement lift as required in Section 02748.
- E. Allow sufficient cure time for prime coat/tack coat before placing Asphalt Mix. Refer to Section 02748.

3.6 SURFACE PLACEMENT

- A. Adjust the production of the mixing plant and material delivery until a steady paver speed is maintained.
- B. Do not allow construction vehicles, general traffic, or rollers to pass over the uncompacted end or edge of freshly placed mix until the mat temperature drops to a point where damage or differential compaction will not occur
- C. Echelon paving is the preferred method for constructing a longitudinal joint. When full-width or Echelon paving is impractical and more than one pass is required, provide a compactable sloped edge adjacent to the next pass.
 - 1. Coat edge with tack coat according to Section 02748 at the same application rate as the surface placement.
 - a. Angle nozzle to allow for proper application on the vertical or sloped edge.
 - b. Provide a 6 inch overlap of tack coat beyond the longitudinal and transverse joints.
- D. Construct the longitudinal joint to within 6 inches of the roadway centerline, the lane lines or at the center of the lane but never in a wheel path. Offset longitudinal joints 6 to 12 inches in succeeding courses.
 - 1. Core and test all longitudinal joints for compaction according to the specification if the lift is 2 or more inches thick.
 - 2. Verify all edges of the adjacent areas to through lanes have straight and uniform longitudinal lines and neat vertical edges.
 - 3. Fill core holes with Asphalt Mix, SMA, or high-asphalt-content cold mix and compact in thin lifts.
- E. Offset transverse construction joints at least 6 ft longitudinally.
- F. Taper the end of a course subjected to traffic at approximately 50:1 (horizontal to vertical).
 - 1. Make a transverse joint by saw or wheel cutting and remove the portion of the pass that contains the tapered end before placing fresh mix.
 - 2. Tack the contact surfaces before fresh mix is placed against the compacted mix.
- G. Use a motor grader, spreader box, or other approved spreading methods for projects under 180 yd², irregular areas, or for miscellaneous construction such as detours and sidewalks.

- H. Use a laydown machine for all lane-leveling and profile leveling activities.
 - 1. Place and drag the screed of the paving machine along the high portions of the roadway when lane-leveling to correct, rutting, minor variations and covering roadway crack seal material.
 - 2. Use a string line or follow a given profile when profile leveling to establish a best fit profile from high point to high point.

3.7 COMPACTION

- A. Compact the asphalt mixture to meet density requirements without crushing aggregates.
- B. Adjust compaction methods over bridge decks and approach slabs to avoid damage to the structures and appurtenances.
 - 1. Do not use vibratory compaction with large rollers on bridge decks or approach slabs.
 - 2. Adjust the rolling patterns to achieve specified density without vibratory compaction.
 - 3. Use a small compactor or a vibratory roller weighing less than ½ ton in addition to normal rolling to compact material adjacent to expansion joints, parapets, drainage inlets and other features.
- C. Operate compaction equipment in a transverse direction next to the sleeper slab stems and approach slabs.

3.8 LIMITATIONS

- A. Do not place Asphalt Mix on frozen base or subbase or during adverse climatic conditions such as precipitation or when roadway surface is icy or wet.
- B. Use a release agent that does not dissolve asphalt and is satisfactory to the Engineer for all equipment and hand tools used to mix, haul, and place the Asphalt Mix.
- C. Place Asphalt Mix from April 15 through October 15, and when the air temperature in the shade and the roadway surface temperature are above 50 degrees F.
 - 1. The Department determines if it is feasible to place Asphalt Mix outside these dates and temperature limits.
 - 2. Obtain authorization from the Engineer before paving outside these requirements.

END OF SECTION

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN 21890**

SECTION 02742S

PROJECT SPECIFIC SURFACING REQUIREMENTS

Add Section 02742:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Required PG Asphalt Binder or emulsion
- B. Number of gyrations (N_{values}) to use for Superpave Mix Design

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

PART 2 PRODUCTS

2.1 MIXES

- A. Asphalt Mix: (Refer to bid item for size)
 - 1. PG 64-34 Asphalt
 - 2. $N_{initial}$ 7 N_{design} 75 N_{final} 115

PART 3 EXECUTION Not Used

END OF SECTION

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 02743S

ASPHALT MIX FOR BIKE AND PEDESTRIAN PATHS

Delete Section 02743 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products and procedures for constructing a surface course of asphalt mix comprised of aggregate, asphalt binder, lime, and other additives for bike and pedestrian paths.
- B. An option to incorporate Reclaimed Asphalt Pavement (RAP) materials into Asphalt Mix.

1.2 RELATED SECTIONS

- A. Section 02741: Asphalt Mix
- B. Section 02745: Asphalt Material
- C. Section 02746: Hydrated Lime
- D. Section 02748: Prime Coat/Tack Coat

1.3 REFERENCES

- A. AASHTO T 11: Materials Finer Than 75 μm (No. 200) Sieve In Mineral Aggregates By Washing
- B. AASHTO T 19: Bulk Density (Unit Weight) and Voids in Aggregate
- C. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates
- D. AASHTO T 30: Mechanical Analysis of Extracted Aggregate
- E. AASHTO T 89: Determining the Liquid Limit of Soils

- F. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
- G. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
- H. AASHTO T 112: Clay Lumps and Friable Particles in Aggregate
- I. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test
- J. AASHTO T 209: Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures
- K. AASHTO T 304: Uncompacted Void Content of Fine Aggregate
- L. AASHTO T 308: Determining the Asphalt Binder Content of Asphalt Mixtures by the Ignition Method
- M. AASHTO T 335: Determining the Percentage of Fracture in Coarse Aggregate
- N. AASHTO T 355: In-Place Density of Asphalt Mixtures by Nuclear Methods.
- O. UDOT Materials Manual of Instruction (MMOI)

1.4 DEFINITIONS

- A. Lot – The amount of Asphalt Mix placed in two Production Days.
- B. Production Day – A 24-hour period in which Asphalt Mix is being placed.

1.5 SUBMITTALS

- A. Mix design for verification and approval before paving according to UDOT Materials Manual of Instruction Section 960.
- B. Asphalt Mix materials documentation weekly, for information.
 - 1. Provide daily asphalt mix plant reports showing the asphalt binder content, RAP content and hydrated lime at least weekly.

1.6 ACCEPTANCE

- A. The Department will perform acceptance testing and inspection according to the following.
 - 1. Gradation and asphalt binder content
 - a. Test according to AASHTO T 30 and T 308 Method A, except for Note 6.
 - b. Maximum lot size is two production days
 - c. Take four random samples per lot.
 - 1) Take two samples on each production day of two consecutive production days.
 - a) Take three samples per day if there are no consecutive production days.
 - 2) Sample from the truck transports at the hot plant; refer to MMOI 984.
 - b) Sample location may change to behind the paver if material issues are noticed.
 - d. The Engineer evaluates a lot on the test results of four or more samples, except when only three samples can be taken.
 - e. Evaluate the lot using the number of tests “n” in Table 3.
 - f. The Engineer informs the Contractor of the time and place of sampling not more than 15 minutes before sampling.
 - g. Sample sizes will be increased to accommodate validation or third-party testing as required.
 - 2. The Department applies one Incentive/Disincentive for the lowest dollar value for gradation/asphalt binder content.
 - a. Compute incentive/disincentive for Gradation/Asphalt Binder according to Table 1.
 - b. Base the incentive/disincentive on Percent within Limit (PT) computation using Tables 2, 3, and 4.
 - c. Use lowest single PT value combined for gradation (each of the sieves) and asphalt binder content for calculating the gradation/asphalt binder content incentive/disincentive.
 - 3. The Department rejects lots:
 - a. If the PT for any individual gradation measurement is less than 52 percent as shown in Table 1.
 - b. If the PT for asphalt binder content is less than 60 percent as shown in Table 1.
 - c. The Engineer may accept a reject or non-conforming lot. Refer to Section 01456.
 - 1) A price reduction of 35 percent of the pay item or \$20 per ton, whichever is greater, will be assessed.
 - 2) The lot will not be eligible for any incentive.

Table 1

Incentive/Disincentive for Asphalt Binder Content	
PT Based on Min. Four Samples	Incentive/Disincentive (Dollars/Ton)
>99	2.00
96-99	1.50
92-95	1.00
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
<60	Reject
Incentive/Disincentive for Gradation	
PT Based on Min. Four Samples	Incentive/Disincentive (Dollars/Ton)
>99	2.00
96-99	1.50
92-95	1.00
88-91	0.00
84-87	-0.26
80-83	-0.60
76-79	-0.93
72-75	-1.27
68-71	-1.60
64-67	-1.93
60-63	-2.27
56-59	-5.00
52-55	-10.00
<52	Reject

Table 2

Upper and Lower Limit Determination	
Parameter	UL and LL
3/8 inch sieve for 1/2 inch Asphalt Mix	Target Value $\pm$ 6.0%
No. 4 sieve for 3/8 inch Asphalt Mix	
No. 8 sieve	Target Value $\pm$ 5.0%
No.50 sieve	Target Value $\pm$ 3.0%
No. 200 sieve	Target Value $\pm$ 2.0%
Asphalt Binder Content	Target Value $\pm$ 0.35%

Table 3

Use the appropriate "number of tests" column and round down to the nearest value.

Quality Index Values (QU or QL) for Estimating Percent Within Limits										
PU or PL	n=3	n=4	n=5	n=6	n=7	n=8	n=10	n=12	n=15	n=20
100	1.16	1.50	1.75	1.91	2.06	2.15	2.29	2.35	2.47	2.56
99	1.16	1.47	1.68	1.79	1.89	1.95	2.04	2.09	2.14	2.19
98	1.15	1.44	1.61	1.70	1.77	1.80	1.86	1.89	1.93	1.97
97	1.15	1.41	1.55	1.62	1.67	1.69	1.74	1.77	1.80	1.82
96	1.15	1.38	1.49	1.55	1.59	1.61	1.64	1.66	1.69	1.70
95	1.14	1.35	1.45	1.49	1.52	1.54	1.56	1.57	1.59	1.61
94	1.13	1.32	1.40	1.44	1.46	1.47	1.49	1.50	1.51	1.53
93	1.12	1.29	1.36	1.38	1.40	1.41	1.43	1.43	1.44	1.46
92	1.11	1.26	1.31	1.33	1.35	1.36	1.37	1.37	1.38	1.39
91	1.10	1.23	1.27	1.29	1.30	1.31	1.32	1.32	1.32	1.33
90	1.09	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.27	1.27
89	1.08	1.17	1.20	1.21	1.21	1.21	1.21	1.21	1.22	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.12	1.13	1.13	1.13	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.05	1.04	1.04	1.04	1.04	1.04
84	1.02	1.02	1.02	1.01	1.01	1.01	1.00	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.96
82	0.98	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.92
81	0.96	0.93	0.92	0.91	0.90	0.90	0.89	0.89	0.89	0.88
80	0.94	0.90	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.85
79	0.92	0.87	0.85	0.84	0.83	0.83	0.82	0.82	0.82	0.81
78	0.89	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78
77	0.87	0.81	0.79	0.78	0.77	0.76	0.76	0.75	0.75	0.75
76	0.84	0.78	0.76	0.75	0.74	0.73	0.72	0.72	0.72	0.72
75	0.82	0.75	0.73	0.72	0.71	0.70	0.69	0.69	0.69	0.68
74	0.79	0.72	0.70	0.68	0.67	0.67	0.66	0.66	0.66	0.65
73	0.77	0.69	0.67	0.65	0.64	0.64	0.62	0.62	0.62	0.62
72	0.74	0.66	0.64	0.62	0.61	0.61	0.60	0.59	0.59	0.59
71	0.71	0.63	0.60	0.59	0.58	0.58	0.57	0.56	0.56	0.56
70	0.68	0.60	0.58	0.56	0.55	0.55	0.54	0.54	0.54	0.53
69	0.65	0.57	0.55	0.54	0.53	0.52	0.51	0.51	0.51	0.50
68	0.62	0.54	0.52	0.51	0.50	0.50	0.48	0.48	0.48	0.48
67	0.59	0.51	0.49	0.48	0.47	0.47	0.46	0.45	0.45	0.45
66	0.56	0.48	0.46	0.45	0.44	0.44	0.43	0.42	0.42	0.42
65	0.53	0.45	0.43	0.42	0.41	0.41	0.40	0.40	0.40	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.37
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34
62	0.43	0.36	0.34	0.33	0.33	0.33	0.32	0.31	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.30	0.29	0.29	0.29	0.28
60	0.36	0.30	0.28	0.27	0.26	0.26	0.25	0.25	0.25	0.25
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24	0.23	0.23	0.23

Table 4

Definitions, Abbreviations, and Formulas for Acceptance	
Term	Explanation
Target Value (TV)	The target values for gradation and asphalt binder content are given in the Contractor's volumetric mix design. See this Section, Article 1.6 for density target values.
Average (AVE)	The sum of the lot's test results for a measured characteristic divided by the number of test results—the arithmetic mean.
Standard Deviations (s)	The square root of the value formed by summing the squared difference between the individual test results of a measured characteristic and AVE, divided by the number of test results minus one.
Upper Limit (UL)	The value above the TV of each measured characteristic that defines the upper limit of acceptable production. (Table 2)
Lower Limit (LL)	The value below the TV of each measured characteristic that defines the lower limit of acceptable production. (Table 2)
Upper Quality Index (QU)	$QU = (UL - AVE)/s$
Lower Quality Index (QL)	$QL = (AVE - LL)/s$
Percentage of Lot Within UL (PU)	Determined by entering Table 3 with QU.
Percentage of Lot Within LL (PL)	Determined by entering Table 3 with QL.
Total Percentage of Lot Within UL and LL (PT)	$PT = (PU + PL) - 100$
Incentive/Disincentive	Determined by entering Table 1 with PT or PL.

- B. The Department will determine the theoretical maximum specific gravity (G_{mm}).
1. Test according to AASHTO T 209
 2. Maximum lot size is two production days
 3. Take three samples in conjunction with the VMA determination from samples taken with those for gradation and binder content.
 4. Sample from the truck transports at the hot plant. If the mix behind the paver shows visible segregation the Department may change the sampling location to behind the paver.

5. Follow MMOI 984 with one determination being the average of two test results split from a single sample.
 - a. The two test results must be within the “Acceptable Range of Two Results – single-operator precision” as defined in T 209.
 - b. A third test result from the same sample may be necessary to have two within the range.
- C. The Department will perform acceptance testing for voids in the mineral aggregate (VMA).
 1. Test according to AASHTO T 312 and R 35
 2. Maximum lot size is two production days
 3. Take three samples in conjunction with the Rice determination from samples taken with those for gradation and binder content.
 4. Sample from the truck transports at the hot plant. If the mix behind the paver shows visible segregation the Department may change the sampling location to behind the paver.
 5. Follow MMOI 984 with one VMA determination based on an average of two samples.
- D. The Department will perform acceptance testing for in-place mat density.
 1. One randomly located test in each of four equally-divided sublots per production day.
 - a. Eight measurements for the two days that make a lot.
 - b. Move transversely to a point 1 ft from the edge of the pavement for in place mat density if the random location for coring falls within 1 ft of the edge of the pavement.
- E. The Department may perform visual acceptance according to the following:
 1. According to 02741 Minimum Sampling and Testing Requirements but adjusted only for small quantity production days of 100 tons or less.
 2. Incentives/Disincentives are not applied to material accepted visually.

1.7 DISPUTE RESOLUTION

- A. Refer to Section 01456 when disputing the validity of the Department's acceptance tests.

PART 2 PRODUCTS

2.1 ASPHALT MATERIALS

- A. Use the following asphalt materials from a Department qualified supplier.
Refer to Section 02745:
1. PG 64-34 asphalt binder.
 2. Flush Coat – CQS-1, CSS-1 or SS-1.

2.2 AGGREGATE

- A. Refer to Section 02741 excluding Aggregate Properties Table.
- B. Use Table 5 following for Aggregate Properties.

Table 5

Aggregate Properties		
Properties	Test Method	Test Requirements
Two Fractured Face	AASHTO T 335	90% Min.
Fine Aggregate Angularity	AASHTO T 304	45 Min.
Flakiness Index	MOI 933 Based on $\frac{3}{8}$ inch and above	17% Max.
L.A. Wear	AASHTO T 96	35% Max.
Sand Equivalent	AASHTO T 176, alternate method 2, pre-wet method (test the sample in the wet condition).	45 Min.
Plasticity Index	AASHTO T 89 and T 90	0
Unit Weight	AASHTO T 19	75 lb/ft ³ Min.
Soundness Loss	AASHTO T 104 – Sodium Sulfate	16% Max. loss with five cycles
Deleterious Materials	AASHTO T 112	2% Max.
Natural Fines	---	10% Max.

- C. Meet gradation in Table 6.

Table 6

Aggregate Gradations Percent Passing by Dry Weight of Aggregate AASHTO T 11 and AASHTO T 27	
Control Sieve	Percent
½ inch	100.0
¾ inch	90.0 - 100.0
# 4	< 90.0
# 8	32.0 - 67.0
#200	2.0 - 10.0

2.3 HYDRATED LIME

- A. Use at least one percent hydrated lime, refer to Section 02746.

2.4 RECLAIMED ASPHALT PAVEMENT (RAP) (OPTIONAL)

- A. Limit RAP to 25 percent of the total weight of the asphalt mix and RAP binder to 25 percent of the total binder.
- B. RAP aggregate is required to meet Table 5 with exception of Sand Equivalent. Refer to AASHTO T 176.

2.5 VOLUMETRIC DESIGN REQUIREMENTS

- A. Perform Superpave Volumetric Mix Design according to UDOT Materials Manual of Instruction 960 and the following:
1. Incorporate hydrated lime into all designs. Refer to Section 02746.
 2. Comply with Table 7 and Table 8.

Table 7

Volumetric Design Gyrations			Void Filled with Asphalt (VFA %)
Compaction Stage	Number of Gyrations (N)	% of G_{mm} (AASHTO T 209)	
Initial	5		
Design	50	≥ 99.0	≥90.0
Maximum	75	≤ 100.0	

Table 8

Mix Design Requirements	
Asphalt Mix design mixing and compaction temperatures	Provided by approved mix design
Dust Proportion Range	0.6 – 1.4
Voids in Mineral Aggregate (VMA) at N _{design} AASHTO R 35.9.2 using G _{sb} Oven Dry. Equation based on percent of total mix.	15.0% - 17.0%
Air voids at N _{design}	0.75 to 1.25%
Hamburg Wheel Tracker UDOT MMOI 990 with 10,000 passes	12.5 mm max

PART 3 EXECUTION

3.1 ASPHALT MIX

- A. Refer to Section 02741, Part 3.

3.2 ASPHALT MIX PLANT

- A. Refer to Section 02741, Part 3.

3.3 PRODUCTION CONTROL LIMITS

- A. Refer to Section 02741, Part 3.

3.4 SURFACE PREPARATION

- A. Refer to Section 02741, Part 3.

3.5 PLACEMENT AND COMPACTION

- A. Establish and use a rolling pattern, and proper compaction equipment to obtain the required density without over-stressing the pavement.
- B. Measure compaction levels relative to the roller pattern 4 times daily.
- C. Provide a pavement with compaction that is an average of 96 percent or more of the G_{mm} with no test below 94 percent.

3.6 MAT THICKNESS

- A. Place the asphalt mix according to the design thickness, plus or minus 0.5 inches.

3.7 ASPHALT EMULSION

- A. Apply the flush coat at a uniform rate of 0.10 gal/yd² undiluted emulsion or 0.15 gal/yd² 2:1 diluted emulsion.
 - 1. Diluted emulsion 2:1 represents two parts undiluted emulsion and one part water.

3.8 LIMITATIONS

- A. Refer to Section 02741 Part 3.

END OF SECTION

February 25, 2026

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 02772S

TACTILE DIRECTIONAL INDICATOR

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. furnishing and installing a surface-applied tactile directional indicator (TDI) panel system at locations shown in the plans to provide linear wayfinding guidance within the pedestrian access route.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS

- A. Manufacturer's product data sheets for review.
 - 1. Include recommended installation instructions and safety data sheets for information.
 - 2. Include color sample for Approval and selection by owner.

PART 2 PRODUCTS

2.1 GENERAL

- A. Provide factory-manufactured tactile directional indicator panels designed for permanent surface application to existing concrete or asphalt surfaces using structural epoxy adhesive, or other approved permanent bonding material.
- B. Panels shall be 6 inches in nominal width and installed to create a continuous strip of the length shown in the plans.

2.2 PANEL REQUIREMENTS

- A. Nominal Width: 6 inches.
- B. Length: Manufacturer standard modular panels, installed end-to-end
- C. Bar Orientation: Parallel to direction of travel
- D. Surface: Slip-resistant texture
- E. Color: Dark or contrasting color relative to adjacent concrete (as approved in submittal)

2.3 MATERIAL

- A. Panels shall be constructed of cast iron, galvanized polymer concrete, composite, or other manufacturer-approved material suitable for exterior pedestrian applications.
- B. Material shall be resistant to:
 - 1. Freeze-thaw cycling
 - 2. Deicing chemicals
 - 3. UV exposure
 - 4. Snow removal equipment
- C. Provide integral anchorage designed for embedding in fresh concrete,

2.4 ADHESIVE BONDING SYSTEM

- A. Adhesive shall be:
 - 1. Two-component structural epoxy
 - 2. Manufacturer-recommended for exterior pedestrian traffic
 - 3. Suitable for bonding to existing concrete and/or asphalt
 - 4. Rated for freeze-thaw exposure
 - 5. Capable of long-term bond performance under regular use

2.5 SURFACE PREPARATION

- A. Prepare existing surface in accordance with manufacturer's written requirements.
- B. Surface shall be clean, dry, and free of dust, oil, curing compounds, sealers, and debris. Structurally sound. Free of loose or deteriorated material.

PART 3 EXECUTION

3.1 DELIVERY, HANDLING, AND STORAGE

- A. Check materials upon delivery to verify that no damage occurred during shipping.
- B. Store materials in such a manner to provide proper ventilation and drainage and to protect against damage, weather, vandalism, and theft.

3.2 EXAMINATION

- A. Do not place tactile directional indicator panels until surface has been cleaned according to manufacturer's instructions.

END OF SECTION

August 29, 2025

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN #21890

SECTION 02813S

PRESSURIZED IRRIGATION SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aboveground, underground, and drip irrigation systems complete with heads, valves, controls, and accessories.

1.2 RELATED SECTIONS

- A. Section 03055 Portland Cement Concrete

1.3 REFERENCES

- A. ASTM B 88: Copper Pipe
- B. ASTM B 687: Brass, Copper, and Chromium Plated Pipe Nipples
- C. ASTM D 1784: Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated poly (Vinyl Chloride) (CPVC) Compounds
- D. ASTM D 1785: Poly (Vinyl Chloride) PVC Plastic Pipe, Schedules 40, 80, and 120
- E. ASTM D 2464: Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings; Schedule 80
- F. ASTM D 2466: Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings; Schedule 40
- G. ASTM D 2672: Joints for IPS PVC Pipe Using Solvent Cement
- H. ASTM F 656: Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings
- I. Chloride) (PVC) Plastic Pipe and Fittings
- J. ASSE 1013, 1015: Backflow Preventers, Pressure Reducers

1.4 DEFINITIONS

- A. Connection (POC) to the valves.
- B. Lateral Lines: The system of pipes that carry water from the valves to the sprinkler heads or emitters.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's technical data and installation instructions.
- B. Certificates of compliance to Engineer prior to installation.
- C. As-Built Drawings: Red-lined plan layout and details illustrating mainline and lateral lines location, size, and assembly. Include type and coverage of heads, type of valves, controllers, fittings and accessories.
- D. Operating and Maintenance Data:
 - a. Instructions covering full operation, care, and maintenance of system and controls and manufacturers parts catalog. Include drain procedures, blow out features for example.
 - b. Instruct maintenance personnel in proper adjustment of sprinkler heads and use of special tools for adjustments.
- E. Keys:
 - a. Gate Valve Key.
 - b. Stop and Waste Valve Key: "T" handle, rigid steel, 5 ft long minimum, key end to fit the stop and waste valve nut.

1.6 PERFORMANCE REQUIREMENTS

- A. Location of sprinkler heads:
 - 1. Adjust as necessary to avoid existing plants and other obstructions.
- B. Water Coverage:
 - 1. Head to head coverage in turf and other planting areas (100 percent).
 - 2. Do not increase or decrease number of heads or size of pipe indicated unless approved by Engineer.
- C. PVC Pipe: Must be stamped with certified NFS.
- D. Drain the system at the end of each work day if work is to continue after November 1, or resume before April 15. Do not permit water to remain in pipe overnight.
- E. Verify and mark the location of all utilities and underground obstructions.

PART 2 PRODUCTS

2.1 GENERAL

- A. Refer to plans and details for additional requirements.

2.2 PIPE AND FITTINGS

- A. Mainline: Solvent welded schedule 40 PVC through 1½ inch, then Class 200 PVC. ASTM D 1784 and ASTM D 1785.
- B. Lateral line: Solvent welded schedule 40 PVC through 1½ inch, then Class 200 PVC. Meet ASTM D 1784 and ASTM D 1785.
- C. Pipe Fittings: Solvent welded schedule 80 PVC. Meet ASTM D 2464.
- D. Valve Fittings: Solvent welded schedule 80 PVC. Meet ASTM D 2464.
- E. Risers: Threaded schedule 80 PVC. Meet ASTM D 2464.
- F. Copper Pipe: Type K as specified in ASTM B 88.
- G. Copper Fittings: Wrought or cast as specified in ASTM B 687.
- H. Maximum flows allowed through main line and lateral line pipe shall be determined by water speed in the pipe. The maximum water speed allowed in both main lines and lateral lines is five (5) feet per second. The resulting maximum gallons per minute (gpm) allowed to flow through PVC pipes are as follows:

<u>PIPE SIZE</u>	<u>GPM</u>
¾".....	8
1".....	12
1 ¼".....	22
1 ½".....	30
2".....	50
2 ½".....	75
3".....	110
4".....	190
6".....	425A.

For sizes larger than 6", consult manufacturer's recommendations.

2.3 VALVES

- A. Automatic Drip Control Valve Kit:
 - 1. Body made of high-strength, non-corrosive PVC material.
 - 2. Pressure regulating set at 40 psi.
 - 3. Slow and smooth opening and closing with a manual flow control and internal bleed screw.

4. Highly efficient, totally encapsulated 24 VAC solenoid.
 5. High-strength rubber or synthetic rubber diaphragm.
 6. 150 mesh; 100 microns stainless steel screen
- B. Gate Valve: Threaded brass construction, 100 psi rated (minimum) and sized according to main line.
- C. Manual Drain Valve: ¾ inch bronze body, angle valve with replaceable seat disc and brass tee head.

2.4 FILTER AND ENCLOSURE

- A. Filters shall be either plastic or steel construction with screen (perforated weave-wire stainless steel) or plastic disc filter elements.
- B. Filter shall be installed in valve box per details.
- C. See Landscape Irrigation plans and details for additional information.

2.5 AUTOMATIC CONTROLLER

- A. General: A 9V battery operated controller that provides commercial-level irrigation control that you can program with your smartphone
1. Twelve-hour duration for any or all stations.
 2. Three programs, with eight start times each.
 3. One master valve terminal, one programmable by station.
 4. Three hundred sixty-five day calendar with leap year intelligence.
 5. Programmable rain delay.
 6. Water budget by program with adjustments from 0 to 300 percent in one percent increments.
 7. Capable of having total run time split into usable cycles.
 8. Manual or automatic operation.

2.6 CONTROL VALVE WIRE (FOR TRADITIONAL SYSTEM)

- A. All irrigation control wire shall bear approval as U.L. listed type of underground feeder (direct burial) and each conductor shall be of electrical conductivity grade solid copper in accordance with ASTM 30.
- B. No aluminum wire shall be used on this project.
- C. Wire size shall be #14 gauge minimum.
- D. Provide wire with 0.060 inches insulation, minimum covering of ICC 100 compound for positive weatherproofing protection.
1. Use a single conductor solid copper wire for wire sizes 14, 12, 10, and 8. Use stranded copper wire for sizes 6 and 4.
 2. Make control or "hot" wires red and all common or "ground" wires white.

- E. Two spare wires shall be run from each controller to the farthest valve under its control in all directions and any valve which is on a dead-end line.
- F. All wire crossing water, attached to bridges, going under paving, or where conditions require protection, shall be housed in conduit or sleeves. All out-of-ground conduits shall be rigid metal. All buried conduit may be PVC.
- G. All splices shall be water-tight. All connections made inside the box to connect wires to the valve shall be made using a 3M DBR/Y dry-splice connector or pre-approved equal. Each connector shall be completely sealed and water-proofed.
- H. All other splices in control wire shall be housed in a separate valve box.
- I. The pigment or color of the wires shall be integrated into the covering, rather than painted on. All common or ground wires shall be white in color. Where more than one controller is required, a different colored hot wire shall be used for each controller. A separate color shall be used for all spare wires.

2.7 CONTROL VALVE WIRE (FOR A 2-WIRE SYSTEM)

- A. All irrigation control wire from the controller to the decoders must be Polyethylene double-jacketed or UF-B UL PVC double-jacketed two-conductorsolid core designed for direct burial systems. The following is recommended:
- B. All controller wire shall be soft drawn, annealed, solid copper conforming to ASTM B33. Conductor insulation must be 4/64-inch thick PVC, conforming to UL Standard #493 for thermoplastic-insulated style UF (Underground Feeder), rated at 60 degrees C.
- C. The two insulated conductors are laid in parallel and encased in a single outer jacket of 3/64-inch thick, high density, sunlight resistant polyethylene conforming to ICEA S-61-402 and NEMA WC5, having a minimum wall thickness of 0.045-inch.
- D. The two conductors must be color-coded: normally one conductor red and one black. Both conductors shall be the same size: 14 AWG.
- E. All wire crossing water, attached to bridges, going under paving, or where conditions require protection, shall be housed in conduit or sleeves. All out-of-ground conduits shall be rigid metal. All buried conduit may be PVC.
- F. All splices shall be water-tight. All connections made inside the box to connect the controller to the valve shall be made using a dry-splice

connector DBR/Y. Each connector shall be completely sealed and water-proof.

- G. All other wire splices shall be housed in a separate round valve box and use DBR/Y connectors.
- H. Lightning arrestors and eight (8) foot long by 5/8-inch diameter copper ground rods shall be used as recommended by the manufacturer and be installed per manufacturer recommendations and installation details of this project. Attach bare copper wire to ground rods using Cadweld™ type connection and install in eight (8) inch round valve box.
- I. No aluminum wire shall be used on this project.

2.8 SPRINKLER HEADS (NOT REQUIRED ON THIS PROJECT)

- A. Fixed Riser
 - 1. ½ inch x 24 inch schedule 80 riser Male Pipe Threads (MPT).
 - 2. ½ inch shrub head adaptor Female Pipe Threads (FPT) x MPT.
 - 3. ½ inch FPT barbed swing pipe adapter.
- B. Pop-up Spray Head
 - 1. Made of plastic and stainless steel materials.
 - 2. Pop-up risers of 4 inch, 6 inch, and 12 inch.
 - 3. Stainless steel retraction spring.
 - 4. Ratcheting mechanism.
 - 5. Side and bottom inlets on 6 inch and 12 inch heads.
- C. Rotary Head
 - 1. High-impact plastic construction with stainless steel ratcheting riser.
 - 2. Four-inch minimum pop-up with water-lubricated gear driven design.
 - 3. Integral rubber cover.
 - 4. Heavy-duty, stainless steel retraction spring.
 - 5. Built-in check valve.
- D. Pop-up Impact Head
 - 1. High-impact plastic construction with plastic clapper.
 - 2. Four-inch pop-up design with internal wiper seals.
 - 3. Heavy-duty, stainless steel retraction spring.
 - 4. Built in check valve required when used with more than 3 feet of elevation change on the lateral line.
 - 5. Plastic Sprinkler Nozzles
 - a. Interchangeable.
 - b. Matched precipitation.
 - 6. Three quarter inch side or bottom inlet.
- E. Above-ground Impact

1. Brass construction with stainless steel clapper.
2. Mounted above ground with no pop-up features.
3. Four-inch riser mounted impact.
4. Three quarter inch MPT inlet.
5. Brass Sprinkler Nozzles.
 - a. Interchangeable.
 - b. Matched precipitation.

2.9 PLASTIC NOZZLES

- A. Fixed Spray
 1. Radius patterns and gal/min as shown on plans.
 2. Matched precipitation rates.
 3. Stainless steel adjustment screw.
 4. FPT to match ½ inch shrub head adapter.
 5. Pressure regulating: Required when the psi at the sprinkler does not fall within the range recommended for its use. See manufacturer's specifications.
 6. Filter screen.
- B. Bubbler
 1. Made of high-impact plastic.
 2. Pressure compensating with adjustable flow and radius as shown on plans.
 3. Half inch FPT.
 4. Attach to fixed riser or pop-up spray.
 5. Filter screen.

2.10 DRIP TUBING

- A. Self cleaning, pressure compensating, polyethylene dripperline.
- B. Dripper discharge: 0.53 gal/hr and choice of 12 inch spacing.
- C. Pressure compensation range from 22 psi to 60 psi.
- D. 0.66 inch (±0.01 inch) outside diameter; 0.56 inch (±0.01 inch) inside diameter.

2.11 POINT SOURCE DRIP SYSTEM

- A. Place one (1) drip emitter on up hill side of each shrub, perennial, and ornamental grass.
- B. Place three (3) drip emitters equally spaced around trees.
- C. Emitters shall be staked near the edge of the newly planted root ball and inside the watering well.

2.12 LINE FLUSH VALVE

- A. Made of high impact plastic.
- B. Maximum flow rate per flush valve: 15 gal/min.
- C. Automatic cleaning operation.
- D. Can be disassembled allowing for winterization blow-out.
- E. ½ inch MPT threads.

2.13 AIR/VACUUM RELIEF VALVE

- A. Brass body and cap and rated to 200 psi.
- B. Temperature resistant silicone disc seat.

2.14 DISK FILTER

- A. Corrosion resistant thermoplastic design.
- B. Multiple disk filter design: 120 mesh.
- C. 3/4" inch MPT threads.
- D. Constructed of durable, non-corrosive components and equipped with O-ring seals.

2.15 SWING PIPE

- A. Flexible Polyethylene Pipe: Maximum flow 6.0 gal/min. Inside diameter of ½ inch (±0.01 inch) with a wall thickness of 3/32 inch (±0.01 inch) and 80 psi rated.
- B. Flexible Polyethylene Pipe: For flows exceeding 6 gal/min. Inside diameter of 15/16 inch (±0.01 inch) with a wall thickness of 3/32 inch (±0.01 inch) and 80 psi rated.
- C. ½ inch Barbed Male Elbow: Plastic
- D. ¾ inch Barbed Male Elbow: Plastic
- E. 1 inch Barbed Male Elbow: Plastic

2.16 VALVE BOX

- A. Precast concrete or polyester resin, fiberglass, and calcium carbonate with adequate hand room to operate small tools and provisions for locking cover to frame.

2.17 QUICK COUPLER

- A. Constructed of stainless steel with a 1 inch FPT bottom inlet.
- B. Operating flow range of 10 gal/min to 50 gal/min with a pressure range of 5,000 psi to 101,500 psi.
- C. Stainless steel valve key.
- D. ¾ inch hose ell.

2.18 WASHED AGGREGATE

- A. 1½ inch maximum with 100 percent retained on a No. 4 sieve.

2.19 JOINT PRIMER AND SOLVENT CEMENT

- A. Refer to ASTM F 656 and ASTM D 2672.

2.20 ACCESS SLEEVE

- A. 2 inch, Schedule 40 PVC with a yellow rubber cap.

2.21 TEFLON TAPE

- A. Use quality grade, 0.004 inch (± 0.001) on threaded joints.

2.22 CLASS B CONCRETE

- A. Refer to Section 03055.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Stake pipe and sprinkler locations for approval.

- B. Excavate trenches for sprinkler system to provide 24-30 inches of cover over main lines and 12-14 inches over lateral lines.
 - 1. Do not damage roots where trenching is required in proximity to trees that are to remain.
- C. Barricade trenches within the clear zone and along pedestrian routes that are left open overnight.

3.2 INSTALLATION

- A. General: Plans are diagrammatic. Proceed with installation in accordance with the following:
 - 1. Install stop and waste valves, backflow preventors, filters and other equipment required by local authorities according to Utah Laws and Regulations to make system complete.
 - 2. Install main line, automatic control valves, lateral lines, fittings, and heads/drip line as specified.
 - 3. Thoroughly flush main lines before installing automatic control valves, and laterals before installing sprinklers. Flush supply lines thoroughly before installing backflow preventers or other regulating devices.
 - 4. Adjust heads to be plumb and flush with finished grades, even with top of soil level or top of material level after completion of grading, seeding or sodding, and rolling of grass areas.
- B. Piping: Assemble all mainline and lateral lines in accordance with manufacturer's recommendations with no cul-de-sacs.
 - 1. Pack the opening around the pipe with non-shrink grout at wall penetrations. Fill perimeter slot with backer rod and sealant at exterior face. Repair below grade waterproofing and make penetration watertight.
 - 2. Install PVC pipe in dry weather above 40 degrees F as specified by manufacturer's recommendations. Allow joints to cure a minimum of 8 hours before testing.
- C. Sleeving: Coordinate sleeving installation before placing pavement.
 - 1. Pipe sleeves shall be required for all piping under all new concrete or other new paving.
 - 2. The size of the sleeve shall be at least twice the size of the pipe or wires to be sleeved.
 - 3. Wires shall be sleeved separately within their own sleeve.
 - 4. All pipe sleeves four (4) inches and smaller in diameter shall be PVC Schedule 40 pipe; sleeves greater than four (4) inches in diameter shall be Class 200 PVC, unless otherwise specified on the drawings.
- D. Control Valves:

1. Install at plan locations and according to detail.
- E. Manual Drains: Install at locations indicated on plans and according to detail.
- F. Quick Coupling Valves: Install at plan locations and according to detail.
- G. Filter and Enclosure:
 1. Install assembly according to detail.
 2. In below grade installations, provide washed aggregate drain sump.
- H. Valve Access Boxes:
 1. Install over all automatic control valves, manual control valves, or zone shutoff valves and sized to provide adequate room for maintenance.
 2. Install valve boxes flush with finish grade and place parallel or perpendicular to adjacent curbs, sidewalks, or driveways.
 3. Imprint a valve control number on each valve box cover that corresponds to the valve controller clock. Print the valve box number a minimum of one inch high in a permanent and legible manner.
 4. Place washed aggregate in sump as shown on plans.
- I. Automatic Controller: Install at plan locations and according to detail and manufacturer's recommendations.
 1. Provide a laminated copy of the irrigation plan indicating valve station numbers and field locations and attach it inside the controller.
 2. Program the controller to provide the appropriate amount of water for each station.
 3. Supply the Engineer with manufacturer's warranties and operating instructions for the controller.
- J. Wire and Electrical Work:
 1. Use electrical control and ground wire suitable for sprinkler control cable of size indicated on plans.
 2. Control wires shall be sleeved under all hardscape areas.
 3. Run a single 14-gauge wire along the top of the main line to be used for tracking the location of the main line. The color of the tracing wire shall be different than any other wire color used.
- K. Spray Heads, Fixed Risers and Bubblers:
 1. Install as per plans.
 2. Adjust sprinkler nozzles to allow for adequate coverage and minimize overspray onto walks, roads, driveways, and buildings.

3.3 TEST

- A. Notify the Engineer 24 hours in advance of pressure testing the main line.
- B. Hydrostatic pressure test all supply and pressure irrigation lines by maintaining 120 psi for four consecutive hours before backfilling and after air pockets have been vented from the lines.
- C. Test connections for leaks prior to backfilling and repair all leaks. Lateral lines may be tested in sections to expedite backfilling work.

3.4 BACKFILL OPERATION

- A. Bed all pipe a minimum of 2 inches, surrounding the pipe with native material excavated from the trench and passing through a 1 inch sieve.
- B. Prevent soil, rocks, or debris from entering pipes or sleeves.
- C. Compact backfilled trenches thoroughly to prevent settling damage to grades or plant materials. Repair irrigation system and plants at no additional cost to Department.

3.5 IRRIGATION INSTALLATION INSPECTION

- A. Notify the Engineer to schedule the inspection with the Region Landscape Architect after the irrigation system is completely installed and fully.
- B. Make the required field adjustments and changes after the inspection.

3.6 SUBSTANTIAL COMPLETION:

- A. At substantial completion of the irrigation system, the Contractor shall call for an operational and coverage test. Substantial completion shall be defined as the complete installation of all irrigation equipment and completion of all backfilling and grading operations in their entirety. Substantial completion shall not be given for designated portions of the project.
- B. Notice by the Contractor shall be given, in writing, at least three (3) days in advance to the Owner so that proper scheduling can be made for those who are to attend.
- C. At the appointed time, an inspection of all irrigation equipment, including control valve assemblies, controllers, isolation valves, quick coupling valves, drain valves, and sprinklers shall be made. The entire system will be tested for operation, coverage, and head adjustment. Please note that the pressure testing of the main lines shall already have been completed prior to this time.
- D. A list of uncompleted items or repairs (punch list) shall be generated by the Owner and distributed to the Contractor and other involved parties

within three (3) days of the operational testing. Each item on the punch list shall be corrected before the system will be approved and accepted by the Owner. The Contractor will be back charged for time spent by the Owner and any consultants who have been brought to the site for a final inspection when the project is not ready for said inspection.

3.7 RESTORE SPRINKLER SYSTEM

- A. Restore or replace all pipes, sprinkler heads, valves, wires, connections, and other appurtenances that are damaged or removed during the construction process with new materials.
- B. Modify existing system, where necessary, due to construction impacts. Relocate heads and piping as necessary to create a fully functional and operational system that provides coverage at least equal to that of before construction.
- C. System to stay operational during long duration impacts (i.e. cut off and cap pipes).
- D. Ensure landscaping has adequate water for irrigation during construction.
- E. Coordinate with property owner prior to beginning work.

END OF SECTION

August 12, 2025

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN #21890**

SECTION 02817S

(2 RAIL) SPLIT RAIL FENCE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Instructions for obtaining and installing a 2-rail wood fence.

1.2 RELATED SECTIONS Not Used

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

PART 2 PRODUCTS

2.1 WOOD FENCE 2-RAIL

- A. Rails
 - 1. 5 ½" x 2" wooden member.
- B. Posts
 - 1. 5 ½" x 5 ½" square wood members manufactured.
- C. Finish
 - 1. Color Brown or Natural Wood.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Locate the wood fence as indicated on the Drawings. Provide a finished fence that is plum, taut, true to line and grade, and complete in detail.

- B. Follow the general finished grade of the ground when installing the fence. Do not exceed 3 inches for the distance between the bottom of the fence and the finished ground line. Properly grade the ground before fence posts are located to permit the grade of the fence to remain constant over local elevation or depressions in the ground line. Clean up the surplus dirt, concrete, etc. and dress up the grade upon completion of the work.
- C. Set the fence posts in concrete foundations with a depth no less than 2 ft. Provide concrete at least 10 inches in diameter for the line posts and 12 inches in diameter for corner posts and gates. Finish the top of the concrete under each fence post to a smooth and uniform surface to assure proper alignment of the post and a tight fit between the base plate and concrete
- D. Provide concrete that is Class A(AE) 6 bag mix, 3,500 psi compressive strength having a slump of 3 inches plus or minus 1 inch and air content of 6 percent plus or minus 1 percent.

END OF SECTION

February 6, 2026

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN # 21890**

SECTION 02821M

CHAIN LINK FENCING AND GATES

Add Paragraphs C and D to Section 3.2 INSTALL FENCE FABRIC:

3.2 INSTALL FENCE FABRIC

- C. Provide and install 8-foot Class 1 chain-link fence including fabric, posts, bracing, fittings, top rail, bottom tension wire, footings, hardware, and all incidentals necessary for a complete installation.
- D. Section shall include privacy slats

END OF SECTION

January 21, 2026

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 02824M

FENCE ON STRUCTURE

Add Paragraph E to Section 2.3 ORNAMENTAL FENCING:

2.3 ORNAMENTAL FENCING

- E. Ameristar Aegis II, manufactured by:
Ameristar / Assa Abloy
(888) 333-3422
 - 1. Install this fence model when using direct bury posts.
 - 2. Meet all limitations and dimensional requirements shown.
 - 3. Provide type "Majestic", unless shown otherwise.
 - 4. Provide 4" square x 11 ga. posts.

Add the following Article to PART 2 PRODUCTS

2.5 RUB RAIL AND TOE BOARD

- A. Rail and board material.
 - 1. Wood Type: Ipe
 - 2. Density: 1,050 KG/m³.
 - 3. Janka Hardness: 3,680 lbs
 - 4. Grade: Select
 - 5. Grain: MG
 - 6. Usage: S4SE4E
 - 7. Size: Nominal
 - 8. Decay Resistance: Meet or exceed International Building Code requirements for "Natural Durable Wood" Class 2.

END OF SECTION

August 12, 2025

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN #21890

SECTION 02826S

DECORATIVE FENCE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Decorative steel fencing and accessories.

1.2 RELATED SECTIONS

- A. Section 03055 Portland Cement Concrete
- B. Section 05120 Structural Steel

1.3 REFERENCES

- A. AASHTO M 111: Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
- B. ASTM A 36: Carbon Structural Steel
- C. ASTM A 307: Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
- D. ASTM D 7803: Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Powder Coating.

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS

- A. Certified mill test report (MTR) for structural steel for information.
 - 1. Seven (7) calendar days before delivery to site, including materials manufactured outside of the United States.
 - 2. Clearly indicate country of origin on MTR.

August 12, 2025

- B. Manufacturer's product data sheets for review.
 - 1. Include recommended installation instructions and safety data sheets for information.
- C. Decorative fence shop drawings for review.
 - 1. Show finish such that an aesthetic determination can be made.
 - 2. Include at least the following:
 - a. Post, rail, picket and base plate member sizes, spacing and materials
 - i. Clearly indicate if the post spacing is different from spacing shown.
 - b. Plans, profiles, cross sections, and details for fence components and connections
 - c. Anchorage requirements
- D. Powder coating warranty for information
 - 1. Provide at least a 5-year manufacturer's warranty against cracking, peeling, chipping, blistering or corroding under normal and proper use.

PART 2 PRODUCTS

2.1 GENERAL

- A. Anchor Bolt Assembly
 - 1. Headed Anchor Bolt according to ASTM F 1554 Grade 55
 - 2. Nuts according to ASTM A 563
 - 3. Washers according to ASTM F 436
 - 4. Hot-dip galvanize assembly components
- B. Fasteners
 - 1. Bolts according to ASTM A 307, Grade A
 - 2. Nuts according to ASTM A 563
 - 3. Washers according to ASTM F 844 or ASTM F 436
 - 4. Hot-dip galvanize fastener components.
- C. Weld according to AWS D1.1

2.2 DECORATIVE FENCE

- A. Pickets
 - a. 1" galvanized square steel tubular members manufactured per ASTM A-924/A-924M, having at least 45,000 psi yield strength and hot-dip galvanized per ASTM A653/A653M with a G90 zinc coating, 0.90 oz/ft².

- b. Space pickets 5" on center.
 - c. Attach each picket to each rail with 1/8" welds.
- B. Rails
 - a. 2" diameter galvanized round steel tubular member manufactured per ASTM A-924/A-924M, having at least 45,000 psi yield strength and hot dip galvanized per ASTM A-653/A-653M with a G90 zinc coating, 0.90 oz/ft².
 - b. Attach rails to posts with bolts or 1/8" welds.
- C. Posts
 - a. 2" galvanized round steel tubular members manufactured per ASTM A-653/A-653M having at least 45,000 psi yield strength and G90 zinc coating, 0.90 oz/ft².
 - b. Zinc coating is (inside and outside), (Posts zinc coated outside and painted inside are unacceptable).
- D. Rub Rail and Toe Board
 - a. Wood Type: Ipe
 - b. Density: 1,050 KG/m³
 - c. Janka Hardness: 3,680 lbs
 - d. Grade: Select
 - e. Grain: MG
 - f. Usage: S4SE4E
 - g. Size: Nominal
 - h. Decay Resistance: Meet or exceed International Building Code requirements for "Natural Durable Wood" Class 2.
 - i. Use Galvanized Steel Post Adaptor to connect rub rail and toe board to fence posts and/or rails.
- E. Accessories
 - a. Assembled panels with decorative accessories attached using welds to prevent removal and vandalism.
- F. Finish
 - a. Pickets, channels, posts, fittings, and accessories polyester coated individually after welding and layout, to provide maximum corrosion protection (Coating of assembled sections is unacceptable).
 - b. Components are given a 4-stage "Power Wash" pre-treatment process that cleans and prepares the galvanized surface to assure complete adhesion of the finish coat.
 - c. Metal is then given a polyester resin-based powder coating applied by the electrostatic spray process, at least 2.5 mils.
 - d. The finish is then baked in a 450°F (metal temperature) oven for 20 minutes.
 - e. Color: Match existing fence color (bronze/brown).

2.3 ACCESSORIES

- A. Decorative Fence Accessories: Provide indicated items required to complete fence system. Galvanize each ferrous metal item according to ASTM B695 and finish to match framing.

2.4 COATING

- A. Polymer coat exposed elements when shown.
 - 1. Apply polymer coating over galvanized surface on fence components including nuts, bolts, washers, fittings and appurtenances. Refer to ASTM F 668.
 - 2. Use a field applied liquid polymer coating approved by the fence manufacturer for elements that are not practical to apply polymer coating in factory.
 - 3. Prepare surfaces to receive powder coating according to ASTM D 7803.
 - 4. Apply powder coat over galvanized surface on fence components including nuts, bolts, washers, fittings and appurtenances.
 - a. Use a field applied liquid polymer coating for items not feasible to powder coat before installation.
 - 5. Refer to this Section, Paragraph 1.5 D1 for warranty requirement.

2.6 SETTING MATERIAL

- A. Concrete: At least 28-day compressive strength of 4000 psi.
- B. Flanged Posts: Provide flange type base plates with 4 holes for surface mounting of posts where indicated.

PART 3 EXECUTION

3.1 DELIVERY, HANDLING, AND STORAGE

- A. Check materials upon delivery to verify that no damage occurred during shipping.
- B. Store materials in such a manner to provide proper ventilation and drainage and to protect against damage, weather, vandalism, and theft.

3.2 EXAMINATION

- A. Verify areas to receive fencing are completed to final grades and elevations.

- B. Verify property lines and legal boundaries of work are clearly established.

3.3 INSTALLATION

- A. Install fence according to manufacturers' instructions.
- B. Space posts uniformly, matching existing fence post spacing, at no more than 6'-0" center to center unless otherwise indicated.
- C. Concrete Set Posts
 1. Drill hole in firm, undisturbed or compacted soil.
 2. Holes should have diameter 4 times greater than nominal outside dimension of post, and depths approximately 6" deeper than post bottom.
 3. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads.
 4. Set post bottom 24" below surface when in firm, undisturbed soil.
 5. Place concrete around post in a continuous pour.
 6. Trowel finish concrete around posts and slope to direct water away from posts.
- D. Surface mount (wall mount) posts with mounting plates where indicated. Fasten with lag bolts and shields.
- E. Check each post for vertical and top alignment and maintain in position during placement and finishing operation.
- F. Align fence panels between posts. Firmly attach rail to posts with bolts unless shown otherwise on the plans or with alternative methods approved by the Engineer. Verify the panels and posts remain plumb.

3.4 ACCESSORIES

- A. Install post caps and other accessories to complete fence.

3.5 CLEANING

- A. Clean up debris and unused material and remove from site.

END OF SECTION

September 1, 2025

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN #21890**

SECTION 02933S

RESTORE LANDSCAPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Remove, stockpile, and replace existing landscaping rock to restore landscaping and tie into new trail.
- B. Remove and replace landscaping curb that is impacted by trail grading to restore landscaping and tie into new trail.

1.2 RELATED SECTIONS

- A. SECTION 03055: Portland Cement Concrete

1.3 REFERENCES Not Used

1.4 DEFINITIONS Not Used

1.5 SUBMITTALS Not Used

PART 2 PRODUCTS

2.1 LANDSCAPE ROCK

- A. Use landscape rock that matches the color and size of existing rock on the Uintah Basin Technical College property.

PART 3 EXECUTION

3.1 REMOVE, STOCKPILE, AND REPLACE LANDSCAPE ROCK

- A. Remove landscaping rock and boulders from area to be graded for the trail before beginning grading operations.

- B. Do not mix different types and colors of landscaping rock.
- C. Stockpile and protect the landscaping rock boulders to be placed back in landscaped area to restore landscaping. Rock and boulders may be stockpiled on site.
- D. Clean and finish disturbed areas as follows:
 - 1. Remove protrusions or depressions greater than 3 inches on graded surface before placing rocks and boulders.
 - 2. Place weed barrier on ground before placing rock.

3.2 REMOVE AND REPLACE LANDSCAPING CURB

- A. Document location of existing landscaping curb.
- B. Remove and dispose of landscaping curb impacted by new trail location and grading.
- C. Construct new landscaping curb matching the existing curb dimensions and locations following the completion of the trail grading.
- D. Protect landscaping curb when placing landscaping rock.

END OF SECTION

SPECIAL PROVISION

PROJECT # S-TR03(2)
PIN # 21890

SECTION 03055S

PORTLAND CEMENT CONCRETE

Delete Section 03055 in its entirety and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Portland Cement Concrete.

1.2 RELATED SECTIONS

- A. Section 01456: Materials Dispute Resolution

1.3 REFERENCES

- A. AASHTO M 6: Fine Aggregate for Hydraulic Cement Concrete
- B. AASHTO M 80: Coarse Aggregate for Hydraulic Cement Concrete
- C. AASHTO M 85: Portland Cement
- D. AASHTO M 154: Air-Entraining Admixtures for Concrete
- E. AASHTO M 194: Chemical Admixtures for Concrete
- F. AASHTO M 295: Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- G. AASHTO T 97: Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
- H. AASHTO T 121: Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
- I. AASHTO T 160: Length Change of Hardened Hydraulic Cement Mortar and Concrete

- J. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test
- K. AASHTO T 325: Estimating the Strength of Concrete in Transportation Construction by Maturity Tests
- L. AASHTO T 358: Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration
- M. AASHTO T 396: Evaluating the Workability of Slip Form Concrete Paving with the Box Test
- N. ACI 301: Specification for Structural Concrete
- O. ACI 305: Hot Weather Concreting
- P. ACI 306: Cold Weather Concreting
- Q. ASTM C 260: Air-Entraining Admixtures for Concrete
- R. ASTM C 595: Blended Hydraulic Cements
- S. ASTM C 1116: Fiber-Reinforced Concrete
- T. ASTM C 1157: Hydraulic Cement
- U. ASTM C 1567: Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
- V. ASTM C 1602: Mixing Water Used in the Production of Hydraulic Cement Concrete
- W. ASTM C 1609: Flexural Performance of Fiber-Reinforced Concrete (Using Beam With Third-Point Loading)
- X. ICC Evaluation Service (ICC-ES) AC32: Concrete with Synthetic Fibers
- Y. UDOT Materials Manual of Instruction
- Z. UDOT Minimum Sampling and Testing Requirements
- AA. UDOT Quality Management Plan

1.4 DEFINITIONS

- A. Cold Weather Protection Period - The amount of time recommended to prevent concrete from being adversely affected by exposure to cold weather, below 40 degrees F, during construction.
- B. Fibrillated Microfiber – Synthetic fibers with diameters or equivalent diameters less than 0.012 inch.
- C. Macrosynthetic Fiber – Synthetic fibers with diameters or equivalent diameters greater than 0.012 inch.
- D. Retempering – The process of changing the consistency of a concrete mixture by adding water and remixing.
- E. Water Cementitious Ratio - The ratio of the mass of water, excluding that absorbed by the aggregate, to the mass of cementitious material in a mixture, stated as a decimal and abbreviated w/cm.

$$\frac{w}{cm} = \frac{\text{Water (lbs)}}{\text{Cement (lbs)} + \text{Pozzolan (lbs)}}$$

1.5 SUBMITTALS

- A. Mix design for all AAA, AA, and A concrete classes to be used for review.
 - 1. The Department authorizes concrete mix designs based on trial batch test results or on Department project history.
 - 2. Include at least the following:
 - a. The proposed mix design.
 - b. Target slump value.
 - c. Trial batch test results.
 - d. Test results verifying that coarse and fine aggregates meet this Section, Article 2.2, paragraph B.
 - e. Test results for the proposed mix design for potential reactivity of coarse and fine aggregates according to UDOT Quality Management Plan 506: Ready-Mix Concrete.
 - f. Test results demonstrating the ability of the combinations of cementitious materials and aggregates to control the reactivity when using potentially reactive aggregates in a mix design.
 - g. Written plan for admixtures. Refer to this Section, Article 2.2, paragraph D.
 - h. Well-graded combined aggregate gradation for the mix design when used.
 - 1) Provide targets for each required sieve (listed in Table 6) for control and acceptance.

- 2) Include the sum of the percent retained on the #8, #16 and #30 sieves. Submit the sum of the percent retained on each of the #30-200 sieves listed in Table 6.
 - 3) Identify the aggregate size and number of component stockpiles.
 - 4) Provide gradations for each component stockpile and the target percentages of each stockpile used to achieve the total combined gradation.
 - i. Test results establishing a density (unit weight) target of freshly mixed concrete according to AASHTO T 121 when using Class AA(LSF) and AA(ES) concrete.
 - j. Flexural strength test results when mix uses synthetic fiber reinforcement.
- B. Class B concrete mix design, manufacturer's product data, or manufacturer's labeling, for review.
- C. Cold Weather Concreting Plan for review.
- 1. Refer to this Section, Article 3.2, paragraph D for cold weather concreting requirements.
- D. Evaporation Monitoring and Control Plan, for review.
- 1. Refer to this section, Article 3.2, paragraph E, for evaporation monitoring and control requirements.
- E. Construction Documentation.
- 1. Concrete surface temperature monitoring for information. Refer to this Section, Article 3.1, paragraph D4.
 - 2. Site Evaporation Monitoring data for information. Refer to this Section, Article 3.2.

1.6 ACCEPTANCE

- A. Sampling and testing for strength, and air entrainment is according to UDOT Minimum Sampling and Testing Requirements.
- 1. The following exceptions apply when using Class AA(LSF), AA(P), and AA(ES) concrete mixes:
 - a. Test fresh concrete density (unit weight) according to AASHTO T 121 at the same frequency as Air Content and Concrete Temperature.
 - 1) Batch fails if the unit weight of the fresh concrete in the field varies more than $\pm 5 \text{ lb/ft}^3$ from the target density for fresh concrete established by the mix design.

- b. Reject batch if water/cementitious ratio exceeds the water/cementitious ratio established in the trial batch.
- B. Compressive Strength
 1. The pay factor will be applied to the quantity of the product that is represented by the strength tests that fall below a specified strength.
 2. Department will calculate the pay factor using Table 1 based on 28 day compressive strength.

Table 1

Price Reduction for 28 Day Compressive Strength		
AAA(AE), AA(LSF), AA(LS), AA(ES) Concrete Classes		AA(AE), A(AE), AA(P) Concrete Classes
PSI below Specified Strength	Pay Factor	Pay Factor
1-100	0.95	N/A
101-200	0.90	N/A
201-300	0.85	N/A
301-400	0.80	N/A
More than 400	Reject	N/A
More than 500	Reject	Reject

3. The Engineer may accept a reject lot based on an engineering analysis. Refer to Section 01456.
 - a. The Department applies a 0.50 pay factor if a reject lot is allowed to remain in-place.

1.7 QUALITY ASSURANCE

- A. Uncontrolled mix designs
 1. The Department will monitor approved mix designs on the performance of compressive strength on all projects according to the UDOT Materials Manual of Instruction
 2. Mix designs showing strength test variability with no determined root cause are considered uncontrolled.
 3. Suspend use of uncontrolled mix designs when directed by the Department.

PART 2 PRODUCTS

2.1 CONCRETE CLASSES AND MIX REQUIREMENTS

- A. Use only concrete mixes that have a Department approved mix design.
 1. Refer to the requirements in Table 2.

- B. Mix concrete trial batches according to the UDOT Materials Manual of Instruction 974: Guidelines for Portland Cement Concrete Mix Design Trial Batches.
- C. Maximum nominal size of coarse aggregate:
 - 1. Not larger than $\frac{1}{5}$ the narrowest dimension between sides of forms.
 - 2. Not larger than $\frac{1}{3}$ the depth of slabs.
 - 3. Not larger than $\frac{3}{4}$ the minimum clear distance between reinforcing bars or between bars and forms, whichever is less.
- D. Use 20 to 30 percent pozzolan by weight of the total cementitious system.
 - 1. Include documentation of the total pozzolan content with the mix design.
- E. Use 94 lbs additional cementitious material per cubic yard to the amounts determined in the mix design for concrete deposited in water.
- F. Class AA(LSF) and AA(ES) concrete mixes require the following in addition to the requirements in Table 2:
 - 1. Synthetic Fiber Reinforcement according to this Section, Article 2.2, paragraph F.
 - a. Provide fibrillated microfibers and macrosynthetic fibers
 - 2. A well-graded combined aggregate gradation according to this Section, Article 2.2, paragraph B3.
- G. Class AA(P) concrete mixes require the following in addition to the requirements in Table 1:
 - 1. Meet a 28 day flexural strength of 650 psi verified through trial batch, refer to AASHTO T 97.
 - 2. Meet a minimum Sand Equivalent of 75. Refer AASHTO T 176, alternate method 2, pre-wet method (test the sample in the wet condition).
 - 3. Meet a maximum estimated voids ranking of 2 and a maximum average edge slump of $\frac{1}{4}$ inch verified through trial batch. Refer to AASHTO T 396.

Table 2

Concrete Classes and Mix Requirements							
Class	Coarse Aggregate Size	Maximum Water / Cementitious Ratio****	Maximum Percent Shrinkage at 28 days AASHTO T 160	Chloride Ion Penetration AASHTO T 358 Table 1	Air Content Percent (%) *	Mix Design Compressive Strength f'_{cr} (psi)	28 Day Minimum Compressive Strength f'_c (psi) **
AAA(AE)	1" to No. 4 ¾" to No. 4	0.40	N/A	N/A	5.0 - 7.5	6,200 or $f'_c + 1200$	5,000 or as shown
AA(LSF)	1" to No. 4 ¾" to No. 4	0.42	0.035	Low to Negligible	5.0 - 7.5	5,200	4,000
AA(LS)	1" to No. 4 ¾" to No. 4	0.40	0.035	Low to Negligible	5.0 - 7.5	5,200	4,000
AA(P)	2" to No. 4 1½" to No. 4 1" to No. 4	0.44	0.042	N/A	4.0 - 7.0 4.5 - 7.5 5.0 - 7.5	5,200	4,000
AA(ES)***	1½" to No. 4 1" to No. 4 ¾" to No. 4	0.42	0.035	Low to Negligible	4.5 - 7.5 5.0 - 7.5 5.0 - 7.5	5,200	4,000
AA(AE)	2" to No. 4 1½" to No. 4 1" to No. 4 ¾" to No. 4	0.44	N/A	N/A	4.0 - 7.0 4.5 - 7.5 5.0 - 7.5 5.0 - 7.5	5,200	4,000
A	1½" to No. 4 1" to No. 4 ¾" to No. 4	0.53 0.53 0.48	N/A	N/A	N/A	3,900	3,000
A(AE)	1½" to No. 4 1" to No. 4 ¾" to No. 4	0.53 0.53 0.48	N/A	N/A	4.5 - 7.5	3,900	3,000
B or B(AE)		0.62	N/A	N/A	N/A 3.0 - 6.0	3,250	2,500

Table 2 Notes:

* Values listed represent in-place air content. Make necessary adjustments for impacts to air content due to placement.

** For f'_c over 4,000 psi, design and proportion mixes according to ACI Manual of Concrete Practice 301: Specifications for Concrete and project specific criteria. Use air content percent in Table 2 for these mixes according to the class specified and the coarse aggregate size.

*** For Class AA(ES), achieve at least 3,000 psi at 24 hr.

****The Water/Cementitious ratios in this table are the maximum allowed. The mix design w/c ratio is established in the trial batch and will remain within the tolerances of this Section Article 2.3 during production.

Acronym Definitions:

AE = air-entrained

LSF = low shrinkage with fiber

LS = low shrinkage

P = pavement

ES = high early strength

2.2 MATERIALS

A. Cement

1. Use Type IL Portland-Limestone Cement or equivalent according to Table 4.
 - a. Type III Portland Cement may be used for precast items.
2. Blended Hydraulic Cement
 - a. Blended hydraulic cement substituted for Portland Cement:
 - 1) Refer to the equivalent cements listed in Table 4.

Table 4

Portland Cement/Blended Hydraulic Cement Equivalencies		
AASHTO M 85	ASTM C 595	ASTM C 1157
*Type I	IP, IL, IT	GU
Type II	IP(MS), IL(MS), IT(MS)	MS
Type III	IP(HE), IL(HE), IT(HE)	HE
*Type V	IP(HS), IL(HS), IT(HS)	HS

*Use only when specified

3. Do not mix cements originating from different sources.
4. Do not use air-entrained cement.

B. Aggregate

1. Coarse Aggregate
 - a. Use coarse aggregate that meets AASHTO M 80 physical properties. Use one of the gradations in Table 5.
 - b. Do not exceed percentages of deleterious substances as specified in AASHTO M 80, Table 2, for Class A aggregates.

Table 5

Coarse Aggregate Gradations - Percent Passing (by weight)									
Aggregate Size (inches or sieve size)	2½	2	1½	1	¾	½	⅜	No. 4	No. 200
2 to No. 4	100	95-100		35-70		10-30		0-5	0-1
1½ to No. 4		100	95-100		35-70		10-30	0-5	0-1
1 to No. 4			100	95-100		25-60		0-10	0-1
¾ to No. 4				100	90-100		20-55	0-10	0-1

2. Fine Aggregate
 - a. Use fine aggregate that meets AASHTO M 6 physical properties. Use the gradation in Table 6.
 - b. Do not exceed percentages of deleterious substances as specified in AASHTO M 6, Table 2, for class A aggregates, using option “b” for material finer than the No. 200 sieve.

Table 6

Fine Aggregate Gradation	
Sieve Size	Percent Passing (by weight)
$\frac{3}{8}$ inch	100
No. 4	95 to 100
No. 16	45 to 80
No. 50	10 to 30
No. 100	2 to 10
No. 200	0 to 3.0 ¹

1- For manufactured fine aggregate, if the material finer than the No. 200 sieve consists of the dust of fracture, essentially free of clay or shale, this limit shall be 5.0%.

3. A well-graded combined aggregate gradation is required for AA(LSF), AA(ES) and AA(P) concrete classes and may replace the gradation requirements in Tables 5 and 6 for other concrete classes when designed and approved as such.
 - a. Proportion well-graded combined aggregates to meet the Tarantula Curve Gradation Band in Table 7.
 - 1) The combined gradation must be within the boundary limits for each sieve size.
 - 2) Refer to the UDOT Materials Manual of Instruction, Section 975: Guidelines for Well-Graded Combined Aggregate Gradations for a graphical representation of the Tarantula Curve.
 - a) Slip formed pavements: retain at least 15 percent on the sum of the #8, #16 and #30 sieves.
 - b) Slip formed pavements: retain between 24 and 34 percent of fine sand on the sum of the #30 through #200 sieves.
 - c) Flowable applications: retain at least 20 percent on the sum of the #8, #16 and #30 sieves.
 - d) Flowable applications: retain between 25 and 40 percent of fine sand on the sum of the #30 through #200 sieves.

Table 7

Tarantula Curve Gradation Band	
Sieve Size	Individual Percent Retained
2 in.	0
1 ½ in.	0 to 5
1 in.	0 to 16
¾ in.	0 to 20
½ in.	4 to 20
3/8 in.	4 to 20
No. 4	4 to 20
No. 8	0 to 12
No. 16	0 to 12
No. 30	4 to 20
No. 50	4 to 20
No. 100	0 to 10
No. 200	0 to 2.3

- C. Water
1. Use potable water or water that meets ASTM C 1602, including Table 2.
- D. Admixtures
1. The Contractor assumes responsibility for the compatibility of admixtures with the mix design and their potential effects on concrete properties.
 2. Do not use calcium chloride.
 3. Air Entrainment according to ASTM C 260 as modified by AASHTO M 154 including the optional uniformity requirements in ASTM C 260, Section 5.
 4. Site-added air-entrainment – Refer to AASHTO M 154.
 - a. Limit the use of site-added air-entraining agents to one adjustment per truck, of as many units/bags as needed.
 - b. Use pre-measured admixtures.
 - c. Record amount used on batch ticket.
 - d. Rotate the drum at least 30 revolutions at the mixing speed recommended by the manufacturer.
 5. Water Reducing Agents
 - a. Refer to AASHTO M 194.
 - b. High Range Water Reducer (HRWR) – Include details regarding HRWR ingredients, production methods, handling, and placing in the written plan for admixtures.
 6. Accelerators – Refer to AASHTO M 194.

7. Set Retarding and Hydration Stabilizing Admixtures – Refer to AASHTO M 194.
 - a. Establish and inform the Engineer of the effective life of the set-retarding or stabilizing admixture if admixtures are required due to haul times.
 - b. Do not exceed manufacturer's recommendations for the use of the set retarding admixture.
 - c. Do not re-dose the concrete with additional set retarding admixture.
 - d. Add admixture at the batch plant at the time of initial batching operations.
 - e. Show on batch tickets the amount of admixture used.
 - f. Time of placement is established by the trial.
8. Shrinkage Reducers
 - a. Refer to AASHTO M 194.

E. Pozzolan

1. Fly Ash
 - a. Class F according to AASHTO M 295 except modify Table 2 with the following.
 - 1) Loss on Ignition (LOI) Not to exceed 3 percent.
 - 2) Allowable CaO content Not to exceed 15 percent.
 - b. Label the storage silo for fly ash to distinguish it from cement.
 - c. Use different size unloading hoses and fittings for cement and fly ash.
 - d. Use ASTM C 1567 to verify that expansion is less than 0.1 percent 14 days after the zero reading.
2. Natural Pozzolan (Class N)
 - a. Refer to AASHTO M 295.
 - b. Use ASTM C 1567 to verify that expansion is less than 0.1 percent 14 days after the zero reading.

F. Synthetic Fiber Reinforcement

1. Conform to ASTM C 1116, Type III and the requirements of ICC-ES AC308 Section 3.1.1 (plastic shrinkage reinforcement) and Section 3.1.2 (shrinkage and temperature reinforcement).
2. Fibrillated microfiber
 - a. Use fibrillated polypropylene fibers at 1 lb/yd³ of concrete mix.
3. Macrosynthetic fiber
 - a. Use 4 lb/yd³ of concrete mix.
 - b. Provide a minimum flexural strength ratio ($R_{e,3}$) of 25 percent when tested according to ASTM C 1609.
4. Store the fibers in a dry, covered area, free of contamination.
5. Evaluate trial batches to verify workability of the concrete.

2.3 BATCH MATERIALS

- A. Batch Tolerances. Refer to AASHTO M 157.
 - 1. Cementitious Material: ± 1 percent of the required mass
 - 2. Aggregate: ± 2 percent of the required mass
 - 3. Water: ± 1 percent of the required mix amount
- B. Batch Size
 - 1. Do not load trucks in excess of their rated mixing capacity.
 - 2. Maintain an accurate and legible truck load-rating plate on the truck.
 - 3. Maintain a minimum individual batch size of 2 yd³.
- C. Concrete with fiber reinforcement
 - 1. Follow the manufacturers recommendation as to when to add fiber to the concrete batch.
 - 2. Mix for at least five minutes after the addition of the fibers.

PART 3 EXECUTION

3.1 GENERAL

- A. Identify the concrete mix designs that will be used for each applicable pay item in the Departments business system and notify the Engineer when complete.
- B. Do not exceed the water/cementitious ratio of the mix design.

3.2 LIMITATIONS

- A. Retempering
 - 1. Do not retemper more than 60 minutes after batch time, unless the approved mix design includes a retarding admixture.
- B. Place concrete when the concrete temperature is between 50 and 90 degrees F or as described in the authorized cold weather protection plan.
 - 1. The Department will test every truckload of concrete for mix temperature within the first half-yard of concrete discharged.
 - 2. The Department will reject the full or remaining amount of the load of concrete if mix temperature exceeds 90 degrees F.
 - 3. The Department will retake the mix temperature if there is a delay of 10 minutes or more during discharge before placement resumes.
 - 4. Do not place concrete during adverse weather including rain, snow, and high winds without adequate protection.

- C. Pumping and Conveying Equipment
1. Do not use equipment or a combination of equipment and the configuration of that equipment that causes a loss of entrained air content that exceeds one-half of the range of air content allowed by specification.
 - a. Replace, reconfigure, or repair equipment that does not meet this requirement.
- D. Cold Weather Concreting – Comply with the following when placing, finishing, curing, and protecting concrete exposed to cold weather during the protection period.
1. Verify that all equipment and materials required to comply with the Cold Weather plan are available at the project site.
 2. Cold weather applies when the temperature is forecast to fall below 35 degrees F during the protection period.
 - a. Provide necessary cold weather protection during, surface preparation (saturated surface dry condition), placing, finishing, curing and protecting in-place concrete such as covers, insulation, and heat. Refer to ACI 305 for further information.
 - 1) Follow the authorized Cold Weather Concreting Plan when placing cast-in-place concrete.
 - b. Concrete materials
 - 1) Do not use chemical anti-freeze additives in the concrete. This does not apply to normal accelerators. Refer to AASHTO M 194.
 - 2) Remove and replace concrete damaged by frost.
 - 3) Heating Aggregate and Water
 - a) Provide and operate heating devices when heated aggregates are required.
 - b) Use aggregates free of ice.
 - c) Heat aggregates uniformly, avoid overheating or developing hot spots.
 - d) Use either steam or dry heat
 - c. Determine the compressive strength of the in-place concrete by one of the following methods:
 - 1) Field cured cylinders cured and protected the same as the concrete being protected.
 - 2) Maturity method. Refer to AASHTO T 325.
 - d. Monitor and maintain the temperature of the concrete at or above 50 degrees F during and after placement until the end of the protection period.
 - 1) Measure the specified concrete temperature at the concrete surface.
 - a) Use surface thermometers insulated from the surrounding air.

- b) Submit records of the concrete surface temperature readings daily through the cold weather protection period.
 - e. Placing concrete
 - 1) Do not proceed with concrete placement if the temperature of any contact surface, such as reinforcement or formwork, is less than 36 degrees F.
 - 2) Cease placement operations when the ambient temperature is 40 degrees F and decreasing unless adequate precautions are taken according to the authorized Cold Weather Concreting Plan.
 - f. Protection of in-place concrete
 - 1) Maintain the concrete above 50 degrees F during placement and until the end of the protection period.
 - a) The Cold Weather protection period is the time required for the concrete to reach a compressive strength of at least 3,500 psi.
 - b) Extend the duration of the Cold Weather protection period at least 24 hours beyond the termination of the cure before exposing the concrete to freezing temperatures when curing by the water method.
 - 2) Comply with the following when heating is required.
 - a) Adequately vent combustion-type heaters that produce carbon monoxide.
 - b) Position heaters and ducts so the hot dry air does not cause areas of the concrete surface to overheat or dry.
 - c) Keep concrete surfaces moist to avoid excessive loss of moisture from the concrete when applying external heat.
 - g. Termination of protection
 - 1) Do not allow the temperature of the concrete surfaces to drop by more than 40 degrees F during any 24 hour period.
- E. Evaporation Monitoring and Control – Comply with the following when placing, finishing, curing, and protecting concrete exposed to ambient temperatures above 90 degrees F and on all bridge decks and Portland Cement Concrete Pavement, regardless of ambient temperature.
 - 1. Monitor site conditions, including air temperature, relative humidity, and wind speed, to assess the need for evaporation control measures.
 - a. Begin monitoring no later than 1 hour before beginning concrete placing operations.

- b. Continue to monitor site conditions at intervals of 20 minutes or less until required curing procedures are applied.
- 2. Provide necessary evaporation protection.
 - a. Follow the authorized Evaporation Monitoring Plan when placing cast-in-place concrete.
 - b. Initiate evaporation control measures when concrete and air temperatures, relative humidity of the air, and wind speed have the capacity to evaporate free water from the fresh concrete surface at a rate equal to or greater than 0.2 lbs/ft²/hr.
 - 1) Determine the evaporation rate of surface moisture using the NRMCA Nomograph in Appendix B of ACI 305.1 or qualified monitoring device.
- 3. Cool all surfaces that will come in contact with the concrete to below 95 degrees F.
 - a. Do not proceed with concrete placement if the temperature of any contact surface, such as reinforcement or formwork, is greater than 95 degrees F.

3.3 AGGREGATE STOCKPILES

- A. Construct stockpile platforms so that subgrades are prevented from intruding into aggregates.
- B. Build stockpiles at least two days before use.
- C. Provide an operator and front-end loader to help the Engineer take aggregate samples.
- D. Provide separate stockpiles for coarse and fine aggregates.
- E. Construct stockpiles to minimize segregation of aggregates.
- F. Allow washed aggregates to drain to uniform moisture content before use (12 hours minimum).

3.4 CYLINDER STORAGE DEVICE

- A. Provide and maintain cylinder storage device.
 - 1. Maintain cylinders at a temperature range of 60 degrees F to 80 degrees F for the initial 16 hour curing period.
 - 2. Do not move the cylinders during this period.
 - 3. Equip the storage device with an automatic 24 hour temperature recorder that continuously records on a time/temperature chart with an accuracy of ± 1 degree F.

4. Have the storage device available at the point of placement at least 24 hours before placement.
5. Stop placement of concrete if the storage device is not provided or cannot accommodate the required number of test cylinders.
 - a. Cylinder strength results may not be disputed if storage devices are not provided.
6. Use water containing hydrated lime if water is to be in contact with cylinders.
7. The Engineer may require a 24 hour test run to determine the storage device capability to maintain and record temperature.

END OF SECTION

March 27, 2026

SPECIAL PROVISION

**PROJECT # S-TR03(2)
PIN # 21890**

SECTION 05125M

PREFABRICATED STEEL TRUSS BRIDGE

Add Article 1.5, Paragraph C:

- C. Estimate of Bridge Deck Quantities
 - 1. Structural Concrete according to Section 03110.
 - 2. Reinforcing Steel and Welded Wire according to Section 03211.

Delete Article 2.4 and replace with the following:

2.4 CONCRETE DECK

- A. Structural Concrete. Refer to Section 03110.
- B. Reinforcing Steel and Welded Wire. Refer to Section 03211.