ARIZONA DEPARTMENT OF TRANSPORTATION

PUBLIC-PRIVATE PARTNERSHIP
DESIGN-BUILD-OPERATE-MAINTAIN AGREEMENT

REQUEST FOR PROPOSALS

Volume II – TECHNICAL PROVISIONS

For

I-17, Anthem Way TI to Jct. SR 69 (Cordes Junction)

ADOT Project No. 17 MA 229 H6800 01C
Federal Project No. NHPP-017-A(228)S
Phoenix – Cordes Junction Highway

October 28, 2021

TABLE OF CONTENTS

SECTION A
GENERAL PROVISIONS (GP)

TABLE OF CONTENTS

GP 110 CONTRACT ADMINISTRATION

110.01 General

Developer shall perform all Work set forth in the TPs. Headings and captions in the TPs are subject to Section 1.1.1 of the Agreement and are for convenience only. Developer shall not construe such headings and captions to limit Developer's responsibilities hereunder. As an example, certain construction requirements may be included under "design" sections, and vice-versa. In either case such requirement shall apply to both the design and construction of the Project.

Developer shall perform all Work in compliance with the requirements of Section GP 110 of the TPs.

110.01.1 References

110.01.1.1 Applicable Standards

Developer shall design and construct the Project in accordance with the Contract Documents, Good Industry Practice, Occupational Safety & Health Administration (OSHA) requirements, and all applicable Laws.

Developer shall design and construct in accordance with ADOT Standard Specifications, manuals, and guidelines, unless otherwise specified in the Contract Documents. Division 1, General Provisions (Sections 100 through 109) of the ADOT Standard Specifications does not apply to the Project, except as follows:

(a) Section 105.09 of the ADOT Standard Specifications shall apply;

(b) Definitions in Section 101 of the ADOT Standard Specifications shall apply to the extent they are used in the ADOT Standard Specifications and are not otherwise defined in the Contract Documents; and

(c) To the extent specifically provided otherwise in the Contract Documents.

For elements outside the Project ROW, Developer shall design and construct in accordance with the applicable Governmental Entity or third party standards, manuals, and guidelines, unless otherwise specified in the Contract Documents. The standards, manuals, and guidelines listed throughout the Contract Documents are not a comprehensive list; other applicable publications might be required to complete the Project. Developer shall determine the applicable standard, manual, and/or guideline for the Work and shall understand any modifications to those standards set forth in the Contract Documents. Applications for Deviations must be in accordance with Section 8.2.5 of the Agreement.

Developer shall use the most current version of each standard, manual, and guideline as of the Setting Date, unless otherwise specified in the Contract Documents. If the standard, manual, or guideline is superseded, expires, or revisions are issued during the course of the Project, Developer shall contact ADOT to determine whether to continue to use the standard, manual, or guideline, use the revision, or use a replacement standard, manual, or guideline identified by ADOT. If Developer becomes aware of any ambiguities or conflicts relating in any way to the standards, manuals, or guidelines, Developer shall immediately notify ADOT. If there is any unresolved ambiguity in the applicable standards, Developer shall obtain clarification from ADOT before proceeding with design, construction, maintenance, or operations. All references to "as-built" and "as-built drawings" in the ADOT Standard Specifications, manuals, and guidelines means Record Drawings. Developer shall incorporate into the Project any safety change to the applicable standards issued by ADOT. If ADOT issues a safety change to the applicable

standards, Developer shall immediately contact ADOT for direction and shall obtain ADOT's approval of Developer's proposed course of action prior to implementing such change.

110.01.1.2 Basis of Design Report

Developer shall prepare a Basis of Design Report for the Project that includes, at a minimum, the following:

A. Cover sheet;
B. Table of contents;
C. A summary of specific methodologies, manuals, or references that Developer proposes to use for the analysis and design of the Project for each technical discipline outlined in the TPs;
D. A summary of all anticipated software and the applications for each proposed software for the design and analysis of the Work;
E. A summary of specific methodologies, manuals, or references that Developer proposes to use to construct the Project; and
F. All other items as required by the Contract Documents.

Prior to issuance of NTP 2, Developer shall submit the Basis of Design Report to ADOT for approval. Upon the addition of new methodologies, manuals, or references to the Project, Developer shall immediately amend and prepare an updated Basis of Design Report, as required to identify such new methodologies, manuals, and references. Upon the amendment of the Basis of Design Report or updated Basis of Design Report, Developer shall submit an updated Basis of Design Report to ADOT for approval.

110.01.1.3 Reference Information Documents

ADOT and other Governmental Entities have undertaken certain planning and preliminary concept work concerning the Project development, which are included in the Reference Information Documents (RIDs). Except as expressly provided elsewhere in the Contract Documents, the RIDs are not Contract Documents.

110.01.2 Work Performed by Developer

Developer shall:

A. Manage, plan, execute, and control all aspects of the Work;
B. Coordinate its activities with Governmental Entities and other Persons that are directly or indirectly impacted by the Work; and
C. Document and report all Work in accordance with Good Industry Practice, applicable Governmental Entities' requirements, and the Contract Documents.

110.01.2.1 Basic Configuration

The Schematic Design included in the RIDs conveys the general intent and layout of the Project. The Basic Configuration means the following:

A. Those portions of the Schematic Design that depict the following:
    1. The number, widths, and types of lanes and shoulders;
    2. The approximate location of the flex lane cross-overs;
    3. The locations of ramps converted from taper-type to parallel-type entrance or exit;
B. The replacement of the southbound Moores Gulch bridge;
C. The rehabilitation (deck replacement) of the northbound Bumble Bee TI bridge;

D. Temporary configuration to support South Segment Substantial Completion;

E. All other new construction or reconstruction indicated by the Schematic Design within the lines delineating the outside boundaries of the Project set forth in the Schematic ROW, as such boundaries may be adjusted from time to time in accordance with the Contract Documents (including adjustments for ADOT Additional Properties, and Developer-Designated ROW);

F. The control of access limits as set forth in Section DR 440 of the TPs; and

G. The avoidance of the Environmentally Sensitive Avoidance Areas as further described in Section DR 420 of the TPs.

110.01.2.2 Coordination of the Work

Developer shall coordinate the Design Work and Construction Work with all development planning, design, and construction projects that might affect the Work. Developer shall monitor and coordinate Work with such projects, whether performed by ADOT or other Governmental Entities, community groups, landowners, Utility Companies, Utility Companies' consultants or contractors, resource agencies, environmental groups, or any other Person. Developer shall be aware of the impact all such work may have on the Project and shall account for all such impacts in the Design Documents and Construction Documents.

Developer shall identify and examine features of any work for each project that might affect the Project and shall demonstrate full compatibility in horizontal and vertical alignment and other pertinent technical data between the Work and the work of such project(s). The Design Documents must resolve any inconsistencies or design conflicts between the Design Work and the work of such project(s).

Developer shall provide Project documents, including computer aided drafting and design (CADD) files, to outside entities and other Governmental Entities as directed by ADOT.

110.01.2.2.1 Future Projects

Work by other contractors on the projects listed in Table 110-1 might be in progress adjacent to or within the Site during progress of the Work. The anticipated future projects shown in Table 110-1 are nonexclusive and might be incomplete. Developer shall prepare a Future Projects List that includes the projects in Table 110-1, any other projects that might affect the design or construction of the Project, and the project status. Developer shall submit an updated Future Projects List to ADOT within the Monthly Progress Report. During the design and construction of the Project, Developer shall actively and aggressively pursue and implement measures to facilitate the overall construction of the Project in coordination with Adjacent Work.

Table 110-1
Future Projects

ADOT - Broadband Initiative for I-17

Developer shall immediately notify ADOT of future projects that impact the Work. Developer shall identify design, construction, material, and schedule impacts of any potential changes given the timing of future projects.

110.01.3 Submittals

Table 110-2 reflects a nonexclusive list of Submittals identified in Section GP 110.01 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format.

At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Basis of Design Report	3	0	1	Prior to issuance of NTP 2	GP 110.01.1.2
Updated Basis of Design Report	3	0	1	When the Basis of Design Report or updated Basis of Design Report is amended	GP 110.01.1.2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.02 Meetings

Developer shall perform all Work in compliance with the requirements of this Section GP 110.02 of the TPs. Developer shall arrange and conduct Project meetings with ADOT and other parties as determined by ADOT, as reflected in Table 110-3 and the Contract Documents. The meetings identified in Table 110-3 reflect a nonexclusive list of meetings identified in this Section GP 110.02 of the TPs and might not be an all-inclusive or exhaustive listing of meetings in the Contract Documents.

Table 110-3
Meetings

Description	Period (Design and Construction (D&C) and/or Operations and Maintenance (O&M))	Frequency	Section Reference
Project kick-off meeting	D&C	Once	GP 110.02.1
Partnering meetings	D&C	Per Section 24.1.2 of the Agreement	Section 24.1.2 of the Agreement
Project management team meetings	D&C	Weekly	GP 110.02.2
Pre-design coordination meetings	D&C	Once per discipline	GP 110.02.3
Technical work group meetings	D&C	As determined by Developer	GP 110.02.4
Progress meetings	D&C	Monthly or as otherwise mutually agreed	Section 5.10.2 of the Agreement

Table 110-3 Meetings			
Description	**Period (Design and Construction (D&C) and/or Operations and Maintenance (O&M))**	**Frequency**	**Section Reference**
DBE/OJT meetings with the Compliance Oversight Committee	D&C	Monthly	Section 13.02 of the DBE Special Provisions (Exhibit 6) and Section 923-6 of the OJT Special Provisions (Exhibit 8)
MOT Task Force	D&C and O&M	Monthly or as adjusted by MOT Task Force	GP 110.02.5
Pre-construction coordination meetings	D&C	Prior to any Construction Work and once per activity	GP 110.02.6
O&M Period kick-off meeting	O&M	Once	GP 110.02.7
O&M Period progress meetings	O&M	Monthly or as otherwise mutually agreed	GP 110.02.8
Other requested meetings	D&C and O&M	When requested by either Party	Section 5.10.4 of the Agreement

Developer shall schedule all meetings, develop all meeting agendas, attend all meetings, and provide all meeting facilities and materials for all meetings required by the Contract Documents or as otherwise requested by ADOT. Not less than three Business Days prior to the associated meeting, Developer shall submit a Meeting Notice to ADOT. The Meeting Notice shall include the date, time, and location of the meeting. Developer shall send the Meeting Notice to ADOT and other attendees, as determined by ADOT, to all Project-related meetings. At least 24 hours prior to each meeting, Developer shall submit Meeting Schedules and Agendas to invitees. The Meeting Schedules and Agendas shall include all items that will be covered in the meeting and the order in which the items will be discussed.

For all meetings relating to the Project at which Developer is required to attend or an invitee (not just those called by Developer or ADOT), Developer shall record Meeting Notes of each meeting. The Meeting Notes must include the date of the meeting, list of all attendees, issues considered by the participants, and related responses or decisions for the issues. Within five Business Days after the meeting, Developer shall submit copies of such Meeting Notes to ADOT for review and comment. Developer shall incorporate ADOT's comments and prepare final Meeting Notes. Within five Business Days of receipt of ADOT's comments, Developer shall submit final Meeting Notes to ADOT.

110.02.1 Project Kick-off Meeting

No more than ten Business Days after issuance of NTP 1, Developer shall schedule, and the Parties will attend a Project kick-off meeting to discuss the Project and to exchange information. At this meeting, the Parties will also discuss additional topics relevant to the Project, as identified by ADOT or Developer.

110.02.2 Project Management Team Meeting

Developer shall participate in weekly executive management team meetings or meetings held at the request of ADOT to review and discuss the status of the Project. The Parties may agree to adjust the meeting schedule and frequency. In the meetings, the Parties will address the causes, responsible party, impacts, and potential solutions to all issues identified with the intent of finding the most effective solutions to problems through the following:

A. Developer shall make available the Project Manager and appropriate personnel to participate in the executive management team meetings.

B. Developer shall make and record an action item list that specifies who is responsible for resolving existing or pending issues and the date by which the resolution is to occur to avoid Project delays.

C. Developer shall make available the Safety Manager.

110.02.3 Pre-Design Coordination Meetings

Developer shall schedule a pre-design coordination meeting, per discipline, with ADOT to familiarize the designers and ADOT's review personnel with the design concepts, issues, status, and review procedures. Developer shall conduct the first pre-design coordination meeting no later than (1) ten Business Days prior to any Design Work to be conducted pursuant to NTP 1 or (2) issuance of NTP 2.

110.02.4 Technical Work Group Meetings

Developer may arrange and conduct technical work group (TWG) meetings with ADOT to identify and resolve issues and concerns raised by ADOT or Developer. The purpose of these TWG meetings is to acquaint personnel with the details and features of the Work and to facilitate completion of the Project.

The TWG meetings can include Project visits at either Party's request. At a minimum, the Key Personnel assigned to perform the relevant type of Work involved must attend. Developer shall invite ADOT and other relevant Governmental Entities' staff.

Developer shall prepare TWG Minutes for each TWG meeting that includes observations, discussions, meeting notes, action items, and any questions that pertain to the scope of Work and level of effort for the Work. The TWG meetings do not replace the review process described in Section GP 110.10 of the TPs. Within five Business Days after each TWG meeting, Developer shall submit TWG Minutes to ADOT for review and comment. Developer shall incorporate ADOT's comments and prepare final TWG meeting notes. Within five Business Days of receipt of ADOT's comments, Developer shall submit final TWG meeting notes to ADOT.

110.02.5 Maintenance of Traffic Task Force

Developer shall establish a Maintenance of Traffic (MOT) Task Force as provided in Section DR 462.2.2 of the TPs. Developer shall prepare a MOT Task Force Invitees List that lists all parties invited to take part in the MOT Task Force. At least ten Business Days prior to the first MOT Task Force meeting, Developer shall submit a MOT Task Force Invitees List to ADOT for

review and comment. Developer shall establish and convene the initial meeting of the MOT Task Force no later than 30 days prior to activities affecting traffic.

Developer shall schedule and chair MOT Task Force meetings once a month from issuance of NTP 2 to Project Substantial Completion. The MOT Task Force members may agree to adjust the meeting schedule and frequency.

110.02.6 Pre-Construction Coordination Meetings

Developer shall schedule a pre-construction coordination meeting with ADOT prior to any Construction Work and on any new construction activity as identified in the Project Schedule or with any new personnel at least ten Business Days prior to beginning construction, unless otherwise authorized in writing by ADOT.

Developer shall establish the level of detail to be required for measuring progress with regard to construction prior to the pre-construction coordination meeting and shall discuss such details, the Safety Management Plan, and Environmental Management Plan at the pre-construction coordination meeting. Developer shall discuss its construction schedule and identify early construction elements.

110.02.7 O&M Period Kick-off Meeting

Developer shall schedule an O&M Period kick-off meeting with ADOT to discuss the O&M Period and to exchange information at least ten Business Days prior to issuance of the Certificate of Project Substantial Completion. Developer shall discuss additional topics relevant to the O&M Period, as identified by ADOT or Developer, at the meeting.

110.02.8 O&M Period Progress Meeting

Developer shall participate (either in person or by telephone or other electronic means of communication) in monthly progress meetings or meetings held at the request of ADOT to review and discuss the status of the Project during the O&M Period. The Parties may agree to adjust the meeting schedule and frequency. In the meetings, the Parties will address the causes, responsible party, impacts, and potential solutions to all issues identified with the intent of finding the most effective solutions to problems through the following:

A. Developer shall make available the Project Manager and appropriate personnel to participate in the executive management team meetings.

B. Developer shall make and record an action item list that specifies who is responsible for resolving existing or pending issues and the date by which the resolution is to occur to avoid Project delays.

C. Developer shall make available the Safety Manager.

110.02.9 Submittals

Table 110-4 reflects a nonexclusive list of Submittals identified in Section GP 110.02 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Except for the Meeting Notes which shall be submitted in both electronic format and hardcopy format, Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-4 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Meeting Notice	5	0	1	A minimum of three Business Days prior to the associated meeting	GP 110.02
Meeting Schedules and Agendas	5	0	1	At least 24 hours (earlier preferred) prior to each meeting	GP 110.02
Meeting Notes	4	1	1	Within five Business Days after the meeting	GP 110.02
Final Meeting Notes	4	0	1	Within five Business Days of receipt of ADOT's comments.	GP 110.02
TWG Minutes	4	0	1	Within five Business Days after each TWG meeting	GP 110.02.4
MOT Task Force Invitees List	4	0	1	At least ten Business Days prior to the first MOT Task Force meeting	GP 110.02.5

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.03 Submittals Prior to Notice to Proceed and Project Substantial Completion

Developer shall perform all Work in compliance with the requirements of this Section GP 110.03 of the TPs. Developer shall submit various plans and other documents, respond to and address all comments, and/or obtain approval of such plans and documents, prior to issuance of NTP 2 and the Project Substantial Completion in accordance with Sections 9.4 and 8.6 of the Agreement. Table 110-5 reflects a nonexclusive list of plans and documents that must be submitted to and/or approved by ADOT for issuance of NTP 2 or the Certificate of Project Substantial Completion.

Table 110-5 Submittals						
No.	**Description**	**Level of Review***	**Required Prior to NTP 2**	**Required Prior to Start of Construction**	**Required Prior to Certification of Project Substantial Completion**	**Section Reference**
1	Project Management Plan (PMP)	2				GP 110.04
	• Project Administration	2	X			GP 110.04.1
	• Quality Management Plan (QMP)	2				GP 110.07.2.1
	○ Volume I – QMP General Requirements	2	X			GP 110.07.2.1.1
	○ Volume II – Professional Services Quality Management Plan (PSQMP)	2	X			GP 110.07.2.1.2
	○ Volume III – Construction Quality Management Plan (CQMP)	2	X			GP 110.07.2.1.3
	○ Volume IV – Operations and Maintenance Quality Management Plan (OMQMP)	2			X	GP 110.07.2.1.4
	• Environmental Management Plan	2	X			DR 420.2.3
	• Reputation Management Plan	2	X			CR 425.2.2.3
	• Crisis Communications Plan	2	X			CR 425.2.2.4
	• Safety Management Plan	2	X			GP 110.09.2.1
	• O&M Management Plan (OMMP)	2			X	OMR 400.2.1.1
2	Collocated Office Layout Plan	4	X			GP 110.05.2.6
3	Network Administration Plan	4	X			GP 110.05.4.2
4	Project Baseline Schedule	2	X			GP 110.06.2.6
5	Segment Limits Map	2	X			GP 110.10.2.5.2

Table 110-5 Submittals						
No.	**Description**	**Level of Review***	**Required Prior to NTP 2**	**Required Prior to Start of Construction**	**Required Prior to Certification of Project Substantial Completion**	**Section Reference**
6	Design Submittal Schedule	2	X			GP 110.10.2.5.2
7	Basis of Design Report	3	X			GP 110.01.1.2
8	Draft SWPPP	3	X			CR 420.3.2.2
9	Transportation Management Plan (TMP)	4	X			DR 462.2.3
10	Vehicle Project Logo	2	X			GP 110.05.4.3
11	Utility Coordination Plan	4	X			DR 430.2.2.1
12	Plant Inventory	4	X			DR 450.2.3
13	Sign Inventory	5	X			DR 460.2.3
14	ITS Inventory	5	X			DR 466.2.3
15	DBE Utilization Plan	2				Section 11.2.5 of the Agreement
	• Professional Services DBE Utilization Plan	2	X			
	• Contractor DBE Utilization Plan	2		X		
16	OJT Utilization Plan	2	X			Section 11.3.3 of the Agreement
18	Operations Manual	2			X	OMR 400.2.1.5
19	Operations and Maintenance Safety Management Plan	2			X	OMR 400.2.1.1
20	Generic Traffic Control Plans	2			X	Section 10.10.1 of the Agreement

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

Developer shall provide written notification to ADOT prior to performing any Work in the Project ROW. ADOT shall have no obligation to receive or review Submittals of Design Documents until approval of the Professional Services Quality Management Plan (PSQMP) in accordance with Section GP 110.07.2.1.2 of the TPs.

110.04 Project Management Plan

Developer shall perform all Work in compliance with the requirements of this Section GP 110.04 of the TPs. Developer shall establish and maintain an organization that effectively manages all elements of the Work. Developer shall define and guide the Project management effort through the Project Management Plan (PMP), which is a collection of several management plan elements. Developer shall ensure that the PMP is an umbrella document that describes Developer's managerial approach, strategy, and quality procedures to design, build, and maintain the Project and achieve all requirements of the Contract Documents. Specification of PMP elements occurs throughout the TPs.

Table 110-6 includes an outline of acceptable structure of the PMP. Developer may propose an alternative structure for the PMP, but the proposed alternative PMP outline and content must comply with the requirements of the Contract Documents.

Table 110-6
Elements of the Project Management Plan

PMP Chapter	PMP Chapter Title	Section Reference
1	Project Administration	GP 110.04.1
1A	Document Management Plan	GP 110.04.2
1B	Site Documentation Plan	GP 110.04.3
2	Quality Management Plan	GP 110.07.2.1
2A	Volume I – QMP General Requirements	GP 110.07.2.1.1
2B	Volume II – Professional Services Quality Management Plan	GP 110.07.2.1.2
2C	Volume III – Construction Quality Management Plan	GP 110.07.2.1.3
2D	Volume IV – Operations and Maintenance Quality Management Plan	GP 110.07.2.1.4
3	Environmental Management Plan	DR 420.2.3
4	Reputation Management Plan	CR 425.2.2.3
5	Crisis Communications Plan	CR 425.2.2.4
5	Safety Management Plan	GP 110.09.2.1
6	Operations and Maintenance Management Plan	OMR 400.2.1.1

Developer shall prepare and submit Submittals of the PMP in accordance with the Technical Provisions. Developer shall ensure that all plans and components of the PMP remain valid and updated as appropriate throughout the Term. Developer shall propose updates to the PMP and/or affected components in the event of the following:

A. The occurrence of any changes to the Key Personnel, Quality Management Plan, Safety Management Plan, or Project administration policies and procedures;

B. The occurrence of other changes necessitating revision to the PMP; or

C. As otherwise directed by ADOT.

No later than ten Business Days after the occurrence of the change or direction triggering the need for the revisions to the PMP, Developer shall submit the revised PMP to ADOT for approval in ADOT's good faith discretion.

110.04.1 Project Administration

Developer shall prepare a Project Administration Chapter in the PMP that addresses the following:

A. Organization: Include an organization diagram;

B. Personnel: Establish Key Personnel and other personnel, and provide names, contact details, titles, and job roles. Include resumes for all Key Personnel and other personnel as identified in Section GP 110.08 of the TPs;

C. Subcontractors: Discuss Developer's Subcontractor approval process;

D. Schedule: Discuss schedule management procedures;

E. PMP Updates: Include procedures for preparation of amendments and submission of amendments to any part of the PMP;

F. Audit: Include procedures to facilitate review and audit by ADOT a minimum of every six months, auditing and management review of Developer's own activities under the PMP, and auditing and management review of Subcontractors' activities and management procedures;

G. Document Management: Include document management procedures in accordance with Section GP 110.04.2 of the TPs; and

H. Site Documentation Plan: Discuss the process and procedures to prepare Existing Conditions Site Documentation and Site Documentation in accordance with Section GP 110.11 of the TPs.

Prior to issuance of NTP 2, Developer shall submit the Project Administration Chapter to ADOT for approval in ADOT's good faith discretion.

110.04.2 Document Management

Developer shall establish and maintain a web-based Electronic Document Management System (EDMS) to transfer, store, catalog, and retrieve all Project-related documents. Unless the Contract Documents otherwise provide or ADOT directs, Developer shall provide ADOT and ADOT's designated representatives access to the EDMS records throughout the Term. Developer shall provide the records to ADOT as a condition of Final Acceptance. All electronic information provided must be text searchable and legible. The proposed EDMS is subject to review and comment by ADOT as part of the review and comment on the PMP.

Developer shall prepare a Document Management Plan that:

A. Describes Developer's document control system to store and record all documents, correspondence, design inputs, drawings, progress reports, technical reports, specifications, Contract Documents, Submittals, calculations, test results, inspection reports, Noncompliance Reports, administrative documents, and other documents generated under the Contract Documents. This includes all hardcopy and electronic records;

B. Identifies how records are to be maintained and kept throughout the Term;

C. Describes the methods by which all documents Developer issues or receives are to be logged, tracked, retrieved, and approved;

D. Identifies how all documents are to be tracked using a unique document control number;

E. Describes how Developer intends to submit all Submittals and other documentation required by the Contract Documents to ADOT's project management information system; and

F. Describes how Developer intends to transfer all Project data to ADOT at the end of the D&C Period and at the end of the O&M Period.

Developer shall provide ADOT with EDMS procedures, software for accessing all documents generated under the Contract Documents, and access to Developer's document control database in accordance with the requirements of the Contract Documents and as deemed necessary by ADOT. Developer shall submit the Document Management Plan to ADOT as part of the Project Administration Chapter.

110.04.3 Site Documentation Plan

Developer shall prepare a Site Documentation Plan that:

A. Describes Developer's policies, procedures, and staffing to perform and provide Existing Conditions Site Documentation as required by Section GP 110.11.1 of the TPs and

B. Describes Developer's policies, procedures, and staffing to perform and provide Site Documentation as required by Section GP 110.11.2 of the TPs.

Developer shall submit the Site Documentation Plan to ADOT as part of the Project Administration Chapter.

110.04.4 Submittals

Table 110-7 reflects a nonexclusive list of Submittals identified in Section GP 110.04 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Unless otherwise indicated, Developer shall submit all Submittals in both electronic format and hardcopy format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-7
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Project Administration Chapter	2	2	1	Prior to issuance of NTP 2	GP 110.04.1
Revised PMP	2	2	1	No later than 10 Business Days after the occurrence of the change or direction triggering the need for the revisions to the PMP	GP 110.04
Document Management Plan	2	2	1	As part of the Project Administration Chapter	GP 110.04.2

Table 110-7 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Site Documentation Plan	2	0	1	As part of the Project Administration Chapter	GP 110.04.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.05 Project and Facilities Management

110.05.1 General Requirements

Developer shall perform all Work in compliance with the requirements of Section GP 110.05 of the TPs. Other sections in the TPs identify additional office requirements for the Project.

Developer shall maintain and post, in a conspicuous location(s) at the Site that is available to employees and applicants for employment, the current and updated versions of notices setting forth the provisions of the nondiscrimination requirements. Developer shall erect one or more bulletin boards, large enough to display posters and other information on the Site prior to construction. The location of the bulletin board(s) is subject to the approval of ADOT. Developer shall post, at a minimum, the following notices:

A. The posters as shown on the ADOT Engineering and Construction Posters website (http://www.azdot.gov/business/engineering-and-construction/construction/posters);
B. The wage decision included in Attachment 3 to Exhibit 4 to the Agreement;
C. The EEO Policy of Developer and Subcontractors with contracts greater than $10,000;
D. List of safety officers for Developer and major Subcontractors; and
E. The Notice of Intent for Storm Water Discharges (EPA form 3510-618-98).

Developer shall post the following items at the collocated office and field office:

A. Name and telephone number of Contractor's EEO policy enforcement officer;
B. Emergency contact telephone numbers; and
C. OSHA postings and other Project safety and security information, as identified in the Safety Management Plan.

110.05.2 Collocated Office Requirements

Developer shall provide and maintain in good operating condition and repair the collocated office and other building space, including office space for ADOT, and all facilities, equipment, and parking for vehicles necessary to design and construct the Project. The ADOT office space in the collocated office must accommodate a staff size of approximately 10 people composed of ADOT, ADOT representatives, and guests. Developer shall provide sufficient office space in Developer's office in the collocated office for simultaneous occupancy by both design and construction personnel. At a minimum, Key Personnel must collocate with ADOT in the collocated office.

110.05.2.1 Location and Duration

The definition of “collocate” is to occupy office spaces that are in the same building along or adjacent to the Project and that are within 13.5 miles of the Anthem Way traffic interchange. ADOT facilities area must be a separate area than Developer facilities area, unless otherwise specified in the Contract Documents.

Developer shall make the ADOT office space in the collocated office available for occupancy as a condition of issuance of NTP 2. Developer shall continue to provide to ADOT the office space in the collocated office until 90 days after Project Substantial Completion to facilitate Project coordination and daily communication. Developer is not obligated to provide office space for ADOT thereafter.

110.05.2.2 Office Facilities and Equipment

Developer shall comply with the following for the ADOT facilities area.

A. General. Developer shall obtain all facility space, permits, licenses, and approvals, install and pay for all utility services, and operate and maintain the facilities as part of the Work.

B. Code requirements. Developer shall comply with all applicable building and fire code requirements.

C. Access and security. Developer shall provide a separate ADOT entrance(s)/exit(s) to and from the building, secured with an electronic door lock(s) plus a deadbolt lock(s). Developer shall provide security badge access for the entry doors. Developer shall provide locking doors for other areas as designated by ADOT (e.g., server room, document storage, and offices). Developer shall provide software for maintaining access to ADOT office spaces. Developer shall not access the ADOT office space without ADOT’s prior authorization. All ADOT office space must be accessible 24 hours a day, 7 days a week, including holidays.

D. Lighting and electricity. Developer shall provide all interior spaces with overhead lighting complying with OSHA, building, and electrical and energy code requirements for similar office spaces (provide nominal 30-foot candles of light at 30 inches above finish floor). Developer shall provide each office space with at least four duplex receptacles, with minimum circuit capacity of 20 amperes.

E. Flooring. Developer shall provide carpeted flooring with non-static flooring in server room.

F. Window coverings. Developer shall provide blinds (no drapes) for all windows.

G. Power circuits. Developer shall provide dedicated electrical power circuits for copiers and a minimum of six duplex receptacles with three dedicated isolated ground 20-amp circuits terminating in National Electrical Manufacturers Association (NEMA) 5-20R receptacles and one dedicated isolated ground 30-amp circuit terminating in a NEMA 6-30R receptacle for the server room.

H. Network/electrical outlets. Developer shall provide each office and conference room with a minimum of two wall plates (comprising two CAT6 RJ-45 jacks) per room, and one modular furniture plate (comprising two CAT6 RJ-45) jacks per cubicle, as well as outlets at all designated printer, facsimile, and copier locations and any and all shared areas (e.g., workroom, storage room, etc.). All cabling, data jacks, patch panels and patch cords in the server room and the offices, cubicles and conference rooms must all be CAT6. Developer shall install all data/voice outlets near power outlets. All data and voice cabling must use Category 6E unshielded twisted pair (UTP) with plenum rating. Developer shall place a minimum of two duplex NEMA 5-15 or 5-20 outlets within 6 feet of each work surface.

I. Network/data network. Each of the data outlets must support a minimum of a 1000 megabits per second (Mbps) Developer shall provide the cabling infrastructure from the server room to the offices, cubicles and conference rooms. This infrastructure consists of CAT6 permanent building wiring from the server room to the end station. This wiring will be terminated in a CAT6 48 port patch panel and rack mounted in the rack in the server room. There will be a one for one relationship of permanent cabling from the server room to the end station. For example, in a cubicle that has 2 data jacks, there will be two separate CAT6 cables terminated at the cubicle and the terminated at the patch panel. All cabling is to be labeled on each end (source and destination), terminated, tested and certified to support CAT6 test standards. The same is true for the offices and conference rooms. In these cases there will be four separate CAT6 cables from server room to the office (or conference room) each uniquely identified with labeling at both the office and patch panel ends, tested and certified. The labeling shall be clear to understand. Developer shall create, print and post a finished document with each cable ("drop") in the server room. All "drops" on the drawing will have the same labeling identification that is used in the server room (patch panels) and the end station (wall plates). ADOT will be responsible for the procurement, installation, configuration and management of all active network components including the WAN, router, network switches and phones (as needed). ADOT will work with AZNet to design and specify the active network equipment. AZNet is responsible for the procurement, installation and support of the equipment for the life of the project. For this reason the server room must be separate from Developer's network equipment. Developer shall provide patch cables long enough to reach safely from the data network outlets to the designated computer(s) and printer(s). Developer shall install all cable raceways and J hook cable supports in accordance with Building Industry Consulting Services International and National Electrical Code standards. Each location must allow for installation and operation of computer equipment provided by ADOT. Each data jack will have a corresponding patch cable purchased for it, whether installed by the user or not. A 10' patch cable is standard for the office, and a 7' patch cable is standard for the server room (patch to switch from the patch panels). In practical terms this means a minimum of 2 patch cables per data drop.

J. Janitorial and trash services. Developer shall provide daily janitorial service (except Saturdays, Sundays, and holidays) and maintain trash containers and trash pickup service for the building and areas beyond the ADOT office space. Daily janitorial service must include sweeping and mopping floors, cleaning restrooms and break rooms, emptying wastebaskets, weekly dusting, and furnishing of toilet paper, paper towels and/or hand dryer, soap, and other restroom/kitchen supplies. Developer shall obtain and pay for janitorial services for the ADOT office space.

K. Recycling Services. Developer shall provide recycling receptacles for paper, cardboard, plastic bottles, and aluminum cans. Developer shall obtain and pay for weekly recycling services, including recycling pickup service for the ADOT office space.

L. Exterior maintenance. Developer shall maintain the exterior areas of office spaces, including access to parking areas.

M. Accessibility and licensing. All facilities must be in accordance with the access requirements of the Americans with Disabilities Act (ADA) Accessibility Guidelines, as amended (42 USC §§ 12101, et seq.) and the applicable building code(s). Developer shall obtain approval of the Collocated Office Layout Plans from all applicable Governmental Entities.

N. Restrooms, break room/kitchen, and entry space. Developer shall provide access to women's and men's restrooms, individual break room space, and building entry space;

Developer may provide for the sharing of these spaces with Developer's office space/staff. Developer shall provide a 216-square-foot break room/kitchen within the ADOT office space, with a 16 cubic foot refrigerator with freezer compartment, ice machine, sink with hot and cold running water, including waste disposer, and microwave oven. The break room/kitchen must have a storage closet (minimum of 25 square feet) and cabinets with drawers and countertops. If restrooms are not directly accessible from a common building entry/lobby, Developer may provide separate restrooms for the ADOT office space. If it is necessary to locate separate break room and/or restrooms within the ADOT office space, Developer shall increase the ADOT office space allocation to accommodate these spaces.

O. HVAC. Developer shall provide electrical, and heating, ventilation, and air-conditioning (HVAC) systems capable of maintaining temperatures between 65 and 75 degrees Fahrenheit in all spaces, 24 hours a day, 7 days a week, including holidays. The server room must have a dedicated air-conditioning/cooling system capable of maintaining temperatures between 70 and 76 degrees Fahrenheit and 20 to 60 percent relative humidity at all times.

P. Utilities. Developer shall obtain all permits and approvals and provide all installation, maintenance, and utility service costs throughout the Term.

Q. Emergency contacts. Developer shall provide a 24-hour emergency contact telephone number for Developer.

R. Emergency equipment. Developer shall provide emergency equipment, such as first aid kits and defibrillators. Developer shall provide fire extinguishers and smoke detectors in accordance with all Laws and as directed by the applicable Governmental Entity's fire marshal.

S. Insurance. Developer shall obtain and maintain insurance covering the collocated office in accordance with Exhibit 11 of the Agreement.

T. Disposal and removal. Developer shall dispose of and remove all collocated office facilities, including Developer's facilities, and provide any Site restoration Work needed to return the Site to the original condition, and as directed by ADOT.

U. Furniture. Developer shall provide the ADOT office spaces in the collocated office with furniture comparable to ADOT typical office furniture.

110.05.2.3 Offices, Rooms, and Areas

Although actual spaces may vary, the following nominal size requirements apply, and the typical ADOT office space must include the following elements:

A. General. Developer shall wire all offices, cubicles, conference rooms, and work areas for power, telephone, and network connectivity. Developer shall equip the reception area, offices, cubicles, and work areas with lighting, trash receptacles, desks, and chairs.

B. Offices.

1. Developer shall provide one enclosed office room of 12 feet x 14 feet (168 square feet) each. The office must have a small meeting table with six chairs, two extra chairs for visitors, a file cabinet, a bookshelf, and lockable doors. ADOT will provide telephone service for ADOT employees and ADOT-approved contractors only.
2. Developer shall provide five enclosed office rooms of 10 feet x 10 feet (100 square feet) each. All offices must have two extra chairs for visitors, a file cabinet, a bookshelf, and lockable doors.
3. Developer shall provide a 4-feet x 8-feet dry erase board in each office.

C. Cubicles. Developer shall provide 4 total cubicle area spaces (nominally 80 square feet each). Developer may provide power supply as well as data and communication lines to cubicles through power pole drops.

D. Conference room. Developer shall provide one enclosed conference room to seat at least 15 people and accommodate at least 30 people. All conference rooms must have dimmable lighting. Developer shall provide each conference room with a conference room table and chairs. Developer shall also provide ten additional chairs alongside walls. Developer shall provide two 4-feet x 8-feet dry erase boards in each conference room.

E. Reception area. Developer shall provide an approximately 300-square-foot total receptionist space with a waiting area with seating for at least four visitors, arranged with a reception area at a nominal 14 feet x 14 feet (196 square feet) and visitors' waiting area at a nominal 8 feet x 12 feet (96 square feet). Developer and ADOT will jointly determine other furniture.

F. Server room. Developer shall provide one computer server room (100 square feet) that has limited and controlled access and is lockable via security card access. The server room must be accessible via a hallway entry not sharing any walls with the exterior of the building and must have no windows, a non-static floor covering, one dedicated isolated ground 20 Amp circuit near the server rack at a finished floor height of 48", and an additional lockable dedicated isolated ground 20Amp circuit (L5-20R, finished floor height of 18") to support a 2KVA UPS. Developer shall provide the UPS, with the associated L5-20P plug on an 8" power cord ordered from the UPS manufacturer (APC is typical). Developer shall provide and locate all patch panels within the designated server room in the server room rack (Leviton or equivalent). The server room rack, provided by Developer, shall be a two post rack 19" x 7', Chatsworth or equivalent. Developer shall maintain server room temperature with a dedicated air-conditioning/cooling system, as described above. Developer shall provide a 2KVA uninterruptable power supply (UPS) system in the server room capable of providing spike and brown out protection for all Developer and ADOT server room equipment (APC).

G. Parking area. Developer shall provide a parking area for ADOT for at least 10 vehicles. The parking area must be reasonably leveled (all-weather surface and all-weather access).

H. Exterior lighting. Developer shall provide sufficient exterior security lighting that is automatically activated at low light levels to maintain 2-foot candles of lighting within the building and parking areas.

I. Office work space. Work surface area in all office rooms and cubicles must be a minimum of 8 linear feet and 30 inches in depth to allow for the installation of two monitors and still have room for spreading out books, reports, or maps.

110.05.2.4 Office Condition

The ADOT office space must be in good and serviceable condition, at least of the same quality as that of Developer's counterpart office space and available for occupancy as specified in Section GP 110.05.2 of the TPs. Developer and ADOT will participate in a facility condition survey prior to and at the completion of occupancy. ADOT will return possession of Developer-provided ADOT office space to Developer in essentially the same condition as when ADOT occupied the facilities, except for reasonable wear and tear and except for alterations or Loss or damage caused by any member of a Developer-Related Entity.

110.05.2.5 Losses or Damage

In the event of damage, destruction or other Loss, including the result of theft, of or to ADOT office space in the collocated office, related facilities, or fixtures then, except as provided below, Developer shall, at its cost and within ten Business Days after the occurrence of such Loss, repair the items to their original condition or replace them. However, in the case of lost, damaged, or stolen office equipment (e.g., computers, facsimile machines, copy machines, and printers), replacement must occur within two Business Days. Notwithstanding the foregoing, however, if the Loss occurs as a direct result of the willful misconduct of ADOT or its personnel or consultants then Developer shall repair or replace the affected items within the timeframes specified herein, and ADOT will reimburse Developer for the actual reasonable documented costs incurred to repair or replace, except to the extent such costs are covered by insurance actually carried by Developer or deemed to be carried pursuant to Section 13 of the Agreement.

110.05.2.6 Collocated Office Layout Plan

Developer shall prepare a Collocated Office Layout Plan that includes the layout of the offices, cubicles, conference rooms, kitchen/break room, etc. Prior to issuance of NTP 2, Developer shall submit a Collocated Office Layout Plan to ADOT for review and comment.

110.05.3 Field Office Requirements

Developer shall provide and maintain in good operating condition and repair a field office for use by ADOT's field construction staff. The ADOT field office must be adjacent to Developer's field office. The field office must accommodate the anticipated ADOT field construction staffing level of 20 field personnel. Developer shall make the ADOT field office available for occupancy as a condition of issuance of NTP 2. The ADOT field office must be available for ADOT's use until issuance of the Certificate of Project Substantial Completion. ADOT's field office space must be accessible 24 hours a day, 7 days a week, including holidays.

110.05.3.1 Location

Developer shall provide the ADOT field office within 3 miles of Black Canyon City.

110.05.3.2 Field Office Facilities and Equipment

Developer shall comply with the following for the ADOT field office facilities area:

A. General. Developer shall obtain all facility space, permits, licenses, and approvals, install and pay for all utility services, and operate and maintain the facilities as part of the Work.

B. Code requirements. Developer shall comply with all applicable building and fire code requirements.

C. Access and security. Developer shall provide separate buildings or trailers for ADOT staff that includes at least two entrance(s)/exit(s) secured with door lock(s) plus a deadbolt lock(s).

D. Lighting and electricity. Developer shall provide all interior spaces with overhead lighting complying with OSHA, building, and electrical and energy code requirements for similar office spaces (provide nominal 30-foot candles of light at 30 inches above finish floor). Developer shall provide each office space with at least four duplex receptacles, with minimum circuit capacity of 20 amperes.

E. Flooring. Developer shall provide carpeted flooring with non-static flooring in server room.

F. Window coverings. Developer shall provide blinds (no drapes) for all windows.

G. Power circuits. Developer shall provide dedicated electrical power circuits for copiers and a minimum of six duplex receptacles with three dedicated isolated ground 20-amp circuits

terminating in NEMA 5-20R receptacles and one dedicated isolated ground 30-amp circuit terminating in a NEMA 6-30R receptacle for the server room.

H. Network/electrical outlets. Developer shall provide each office and conference room with a minimum of two wall plates (comprising two CAT6 RJ-45 jacksper room, and one modular furniture plate (comprising two CAT6 RJ-45 jacks) per cubicle, as well as outlets at designated printer, facsimile, and copier locations and any and all shared areas (e.g., workroom, storage room, etc.). Developer shall install all data outlets near power outlets. All data cabling must use Category 6E UTP with plenum rating. Developer shall place a minimum of two duplex NEMA 5-15 or 5-20 outlets within 6 feet of each work surface.

I. Network/data network. Each of the data outlets must provide a minimum of a 1000 Mbps switched Ethernet. Developer shall provide the cabling infrastructure from the telecom closet to the offices, cubicles, and conference rooms. This infrastructure consists of CAT6 permanent building wiring from the telecom closet to the end station. This wiring will be terminated in a CAT6 48 port patch panel and rack mounted in the rack in the telecom closet. There will be a one for one relationship of permanent cabling from the telecom closet to the end station. For example, in a cubicle that has two data jacks, there will be two separate CAT6 cables terminated at the cubicle and the terminated at the patch panel. All cabling is to be labeled on each end (source and destination), terminated, tested and certified to support CAT6 test standards. The same is true for the offices and conference rooms. In these cases there will be four separate CAT6 cables from telecom closet to the office (or conference room) each uniquely identified with labeling at both the office and patch panel ends, tested and certified. The labeling shall be clear to understand. Devloper shall create, print, and post a finished document with each cable (“drop”) in the telecom closet. All “drops” on the drawing will have the same labeling identification that is used in the telecom closet (patch panels) and the end station (wall plates). ADOT will be responsible for the procurement, installation, configuration and management of all active network components including the WAN, router, network switches and phones (as needed). ADOT will work with AZNet to design and specify the active network equipment. AZNet is responsible for the procurement, installation and support of the equipment for the life of the project. For this reason the telecom closet must be separate from Developer’s network equipment. Developer shall provide patch cables long enough to reach safely from the data network outlets to the designated computer(s) and printer(s). Developer shall install all cable raceways and J hook cable supports in accordance with Building Industry Consulting Services International and National Electrical Code standards. Each location must allow for installation and operation of computer equipment provided by ADOT. Each data jack must have a corresponding patch cable purchased for it, whether installed by the user or not. A 10’ patch cable is standard for the office, and a 7’ patch cable is standard for the telecom closet (patch to switch from the patch panels). In practical terms this means a minimum of two patch cables per data drop.

J. Janitorial and trash services. Developer shall provide daily janitorial service (except Saturdays, Sundays, and holidays) and maintain trash containers and trash pickup service for the building and areas beyond the ADOT office space. Daily janitorial service must include sweeping and mopping floors, cleaning restrooms and break rooms, emptying wastebaskets, weekly dusting, and furnishing of toilet paper, paper towels and/or hand dryer, soap, and other restroom/kitchen supplies. Developer shall obtain and pay for janitorial services for the ADOT office space.

K. Recycling Services. Developer shall provide recycling receptacles for paper, cardboard, plastic bottles, and aluminum cans. Developer shall obtain and pay for weekly recycling services, including recycling pickup service for the ADOT office space.

L. Exterior maintenance. Developer shall maintain the exterior areas of office spaces, including access to parking areas.

M. Accessibility and licensing. All facilities must be in accordance with the access requirements of the ADA Accessibility Guidelines, as amended (42 USC §§ 12101, et seq.) and the applicable building code(s). Developer shall prepare and obtain approval of all field office layout plans from all applicable Governmental Entities.

N. Restrooms, break room/kitchen, and entry space. Developer shall provide access to women's and men's restrooms, individual break room space, and building entry space; Developer may provide for the sharing of these spaces with Developer's office space/staff. Developer shall provide a 216-square-foot break room/kitchen within the ADOT office space, with a 16 cubic foot refrigerator with freezer compartment; ice machine, sink with hot and cold running water, including waste disposer, and microwave oven. The break room/kitchen must have a storage closet (minimum of 25 square feet) and cabinets with drawers and countertops. If restrooms are not directly accessible from a common building entry/lobby, Developer may provide separate restrooms for the ADOT office space. If it is necessary to locate a separate break room and/or restrooms within the ADOT office space, Developer shall increase the ADOT office space allocation to accommodate these spaces.

O. HVAC. Developer shall provide electrical and HVAC systems capable of maintaining temperatures between 65 and 75 degrees Fahrenheit in all spaces, 24 hours a day, 7 days a week, including holidays. The telecom closet must have dedicated air-conditioning/cooling system capable of maintaining temperatures between 70 and 76 degrees Fahrenheit and 20 to 60 percent relative humidity at all times.

P. Utilities. Developer shall obtain all permits and approvals and provide all installation, maintenance, and utility service costs throughout the Term.

Q. Emergency contacts. Developer shall provide a 24-hour emergency contact telephone number for Developer.

R. Emergency equipment. Developer shall provide emergency equipment such as first aid kits and defibrillators. Developer shall provide fire extinguishers and smoke detectors in accordance with all Laws and as directed by the applicable Governmental Entity's fire marshal.

S. Insurance. Developer shall obtain and maintain insurance covering the field office in accordance with Exhibit 11 of the Agreement.

T. Disposal and removal. Developer shall dispose of and remove all field office facilities, including Developer's facilities, and provide any Site restoration Work needed to return the Site to the original condition, and as directed by ADOT.

U. Furniture. Developer shall provide the ADOT office spaces with furniture comparable to ADOT typical field office furniture.

110.05.3.3 Offices, Rooms, and Areas

Although actual spaces may vary and will depend on Work schedule, geographic locations, and ADOT-assigned staff at each field office, the following nominal size requirements apply. ADOT field office space must include the following elements:

A. General. Developer shall wire all offices, cubicles, conference rooms, and work areas for power and network connectivity. Developer shall equip all offices, cubicles, and work areas with lighting, trash receptacles, desks, and chairs.

B. Offices. Developer shall provide four enclosed office rooms of 10 feet x 10 feet (100 square feet) each. All offices must have a small round meeting table with four chairs, two extra chairs for visitors, a file cabinet, a bookshelf, and lockable doors. Developer shall provide a 4-feet x 8-feet dry erase board in each office.

C. Cubicles. Developer shall provide ten total cubicle area spaces (nominally 80 square feet each). Developer may provide power supply as well as data and communication lines to cubicles through power pole drops.

D. Conference rooms. Developer shall provide one conference room (enclosed) to seat at least 24 people and accommodate at least 50 people. The conference room must have dimmable lighting. Developer shall provide the conference room with a conference table and chairs. Developer shall also provide ten additional chairs alongside walls. Developer shall provide a 4-feet x 8-feet dry erase board in the conference room.

E. Work room. Developer shall provide a workroom (nominally 150 square feet) with 30-inch-high wall-mounted counters (15 lineal feet of counter-top space, 36 inches deep). Developer shall locate the workroom near the center of the field office.

F. Storage and filing. Developer shall provide one lockable space for storage and filing, nominally 10 feet x 10 feet (100 square feet) with shelving and lockable door.

G. Telecom closet. Developer shall provide one computer telecom closet (100 square feet) that has limited and controlled access and is lockable via security card access. The server room must be accessible via hallway entry not sharing any walls with the exterior of the building and must have no windows, a non-static floor covering, one dedicated isolated ground 20 Amp circuit near the server rack at a finished floor height of 48", and an additional lockable dedicated isolated ground 20 Amp circuit (L5-20R, finished floor height of 18") to support a 2KVA UPS. Developer shall provide the UPS, with the associated L5-20P plug on an 8" power cord ordered from the UPS manufacturer (APC is typical) Developer shall provide and locate all patch panels within the designated telecom closet in the telecom closet rack, Leviton or equivalent. The telecom closet rack, provided by the Developer, shall be a two post rack 19" x 7', Chatsworth or equivalent. Developer shall maintain server room temperature with a dedicated air-conditioning/cooling system, as described above. Developer shall provide a 2KVA UPS system in the server room capable of providing spike and brown out protection for all Developer and stakeholder server room equipment (APC).

H. Kitchen/break room. Developer shall provide a kitchen/break room that is approximately 12 feet x 18 feet (216 square feet). Developer shall arrange and furnish the kitchen/break room with office-type appliances as well as kitchen cabinets and drawers.

I. Parking area. Developer shall provide parking area for at least 25 vehicles (20 staff/5 visitors) at the field office. The parking area must be reasonably leveled (all-weather surface and all-weather access). The parking area must include an additional lockable fenced parking area to accommodate ten ADOT vehicles.

J. Exterior lighting. Developer shall provide sufficient exterior security lighting that is automatically activated at low light levels to maintain 2-foot candles of lighting within the building and parking areas.

K. Office work space. Work surface area in all office rooms and cubicles must be a minimum of 8 linear feet and 30 inches in depth to allow for the installation of two monitors and still have room for spreading out books, reports, or maps.

110.05.3.4 Office Condition

The field office must be in good and serviceable condition, at least of the same quality as that of Developer's counterpart field office space and available for occupancy as specified in Section GP 110.05.3 of the TPs. Developer and ADOT will participate in a facility condition survey prior to and at the completion of occupancy. ADOT will return possession of Developer-provided ADOT office space to Developer in essentially the same condition as when ADOT occupied the facilities, except for reasonable wear and tear and except for alterations or Loss or damage caused by any member of a Developer-Related Entity.

110.05.3.5 Losses or Damage

In the event of damage, destruction, or other Loss, including resulting from theft, of or to ADOT field office space, related facilities, or fixtures then, except as provided below, Developer shall, at its cost and within ten Business Days after the occurrence of such Loss, repair those items to their original condition or replace them. However, in the case of lost, damaged, or stolen office equipment (e.g., computers, facsimile machines, copy machines, and printers), replacement must occur within two Business Days. Notwithstanding the foregoing, however, if the Loss occurs as a direct result of the willful misconduct of ADOT or its personnel or consultants, then Developer shall repair or replace the affected items within the timeframes specified herein, and ADOT will reimburse Developer for the actual reasonable documented costs incurred to repair or replace, except to the extent such costs are covered by insurance actually carried by Developer or deemed to be carried pursuant to Section 13 of the Agreement.

110.05.3.6 Field Office Layout Plan

Developer shall prepare a Field Office Layout Plan that includes the layout of the offices, cubicles, conference rooms, kitchen/break room, etc. Prior to issuance of NTP 2, Developer shall submit a Field Office Layout Plan to ADOT for review and comment.

110.05.4 Computer and Equipment Requirements

Developer shall provide network administration, operational support, and day-to-day management of the collocated office and field office networks and data systems. Developer shall provide a Project server that includes daily reliable backups of Project data. All technology-related plans and procurements must take into consideration the information technology (IT) goals for maintaining a secure and reliable computing infrastructure that complies with current and planned operations and business needs. The IT standards used in the collocated offices and field office shall comply with Good Industry Practice.

110.05.4.1 Original Equipment Manufacturers

Developer shall use:

A. Commercial off-the-shelf equipment when available;

B. New and suitable original equipment manufacturers (OEM) hardware components for the purposes specified herein; and

C. Hardware of the OEM's current design and equipped with the current revisions, manuals, and equipment updates at the time of issuance of NTP 1. Hardware must comply with all applicable quality control (QC) standards of the OEM.

Developer shall prepare an Equipment Demobilization Plan that includes Developer's strategy for the methods and processes to discontinue the use of all computer and related equipment, and how Developer shall erase Project-sensitive information from the equipment. At least 30 Business

Days prior to scheduled Project Substantial Completion, Developer shall submit the Equipment Demobilization Plan to ADOT for approval.

All technology-related plans and procurements must take into consideration the IT goals for maintaining a secure and reliable computing infrastructure that complies with current and planned operations and business needs. The IT standards used in the collocated offices and field office must comply with Good Industry Practice.

Developer shall provide, install, and maintain the following for all ADOT office spaces in the collocated office and field office, unless otherwise specified below:

A. Telephone. Developer shall provide at least one touch-tone telephone for each required office area with a unique direct-dial telephone number. Developer shall provide service and Developer shall provide such service using voice over internet protocol (VoIP) or analog means. Each telephone number must have voicemail, conference-call capability, call hold capabilities, and speaker telephone capabilities for the telephones in enclosed offices/rooms.

B. File server. The file server solutions must utilize an industry standard compliant operating system compatible with ADOT server operating systems. At initial installation, the proposed system must operate at no more than 35 percent of capacity (for processor, memory, disk, and input/output performance). The system must continue processing without server failure should any component fail. A minimum of RAID 5 (disk striping with parity) and hot swap disks are required, along with dual controllers/paths to the disk. The file server must also have redundant components such as power, fan, controllers, and network cards.

   The file server must have sufficient main memory, disk capacity, and processing capability to support the collocated office electronic data storage needs and transmission of large numbers of electronic data files. The file server hardware must have expansion capabilities to comply with and support future requirements as determined by ADOT. The file server must initially have a five year warranty with a next Business Day on-site service agreement and then an extended warranty for the remainder of the projected life of the collocated office.

C. Internet. Developer shall provide ADOT with symmetrical business class internet service with a minimum of two public static IP addresses; 50Mbps in the collocated office and 20 Mbps in field office.

D. Wide area network (WAN). Developer shall provide a secure service gateway meeting ADOT specifications to establish an internet based virtual private network (VPN) connection back to ADOT systems.

E. IT equipment. Developer shall provide rack space, cooling, power, and cable management to allow for the installation and operation of additional network equipment supplied by ADOT. Developer shall provide a locking computer cabinet, a minimum of 42 rack units high, in a standard 19-inch equipment rack configuration, for each client party. Developer shall provide 120 volts alternative current (VAC) power for the additional network equipment with a minimum of four power outlets of style NEMA 5-20R for the client's equipment. Developer shall provide cable management systems to support running patch cabling from the floor cabling patch panels to each of the cabinets. Developer shall maintain a secure equipment room with controlled and restricted access for use in operating all the IT. The equipment room must be climate controlled and capable of maintaining an ambient temperature range of 70 to 76 degrees Fahrenheit with a relative humidity between 20 and 60 percent at all times. Developer shall terminate all Category

5e UTP cable in data patch panels in the server room and any additional telecommunications room(s).

F. Wireless local area networks (WLAN). Utilizing the most current industry 802.11 standard, Developer shall provide a WLAN in the collocated office and in the field office facility. Each WLAN must provide a unique service set identification (SSID) and be protected using current WLAN best practices.

G. Conference rooms. Developer shall provide an audio-visual solution to support the collocated office and field office conference rooms, including a projector and conference telephone and integrated audio, video, displays, and control systems. Developer shall provide a conference telephone for each conference room facility.

H. Disaster recovery. Developer shall prepare a Computer Disaster Recovery Plan to identify Project-specific core systems and processes and to determine acceptable levels of disruptive-to-Project operations. The Computer Disaster Recovery Plan must outline the data backup scenario used to ensure proper backup of all Project data. Within 20 Business Days following the issuance of NTP 2, Developer shall submit the Computer Disaster Recovery Plan to ADOT.

I. Non-disruptive operations. During normal business hours, network downtimes must not be due to hardware or software system improvements and/or repairs. Developer shall provide a minimum of one day advance written notice to ADOT for all scheduled routine maintenance. In case scheduling of emergency maintenance (i.e. equipment failure, virus detection, malware, etc.) is not available during non-peak hours, Developer shall notify ADOT immediately. No later than two days after the emergency maintenance, Developer shall prepare an Action Report that includes an explanation of the root cause, the solution employed, and a prevention plan of the cause of the emergency maintenance.

110.05.4.2 Network Administration Plan

Developer shall prepare a Network Administration Plan that describes all computer elements described in Section GP 110.05.4 of the TPs. Prior to issuance of NTP 2, Developer shall submit the Network Administration Plan to ADOT for review and comment.

110.05.4.3 Project Vehicles

Project vehicles used by Developer must comply with all vehicle registrations, load restrictions, and vehicle delineation requirements when used on roads open to the public. Developer's Project vehicles must be equipped with appropriate safety equipment and warning lights according to all Laws.

Developer shall establish adequate parking for Project staff personal vehicles as needed at the collocated office and field office locations. Developer may provide parking specific staging areas away from Work activities within Project ROW that are directly accessible from public roads as approved by ADOT. Developer shall construct parking specific staging areas of a hard surface temporary asphalt pavement and parking stalls defined with pavement markings. Developer shall maintain parking specific staging areas through Project Substantial Completion as required for Work activities.

Developer shall not permit (and shall ensure that there is no) storage of construction vehicles and parking of personal vehicles belonging to Developer staff on public roadway, shoulders, ramps, or private parking lots without the owner's approval. Developer shall not permit parking of personal vehicles belonging to Developer staff in any work zone.

Developer shall not park any Project vehicles or staff vehicles in locations that damage existing or proposed landscaped areas or impair the installation or maintenance of the temporary irrigation

systems to the landscaped areas. In addition, Developer shall not park or store any equipment within the dripline of any tree. The definition of a dripline of a tree is the line created by the tree's outermost branches that form the tree's canopy and refers to the extent of the outer layer of a trees leaves and branches. If Developer damages any irrigation systems or landscaped areas, or parks or stores any equipment within any tree dripline, Developer shall repair or replace the damaged area or system. Repair of any compaction or fluid spill under or associated with any tree's dripline that is a result of equipment or vehicle storage requires that Developer shall bring the impacted area back to its pre-construction soil chemistry and density/compaction through the use of a method that does not harm the tree's root system through removal and replacement of soil for fluid spills, or mechanical tillage or soil injection methods to relieve the compaction; and, prior to commencing any repair or replacement, Developer shall obtain ADOT's approval of any and all such methods. Developer shall replace the trees affected by such action that show any signs of decline or stress during the Work with trees of like kind, size, and character.

Developer's light duty on-road vehicles that are on-site must have the Vehicle Project Logo and Developer's name visibly displayed on both sides of the vehicle. Prior to construction, Developer shall prepare and submit to ADOT for approval in ADOT's good faith discretion a full-size sample Vehicle Project Logo that Developer shall affix to all Developer's Project vehicles.

110.05.5 Construction and Operations and Maintenance Yards

Developer shall be responsible for obtaining all approvals, permits, and Governmental Approvals for obtaining locations for construction and operations and maintenance yards for the Project. Developer shall not locate construction yards within 500 feet of residential areas. See Section 7.5 of the Agreement for use of designated ADOT property.

110.05.6 Submittals

Table 110-8 reflects a nonexclusive list of Submittals identified in Section GP 110.05 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Except for the Vehicle Project Logo, which shall be submitted in both electronic format and hardcopy format, Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-8
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Collocated Office Layout Plan	4	0	1	Prior to issuance of NTP 2	GP 110.05.2.6
Field Office Layout Plan	4	0	1	Prior to issuance of NTP 2	GP 110.05.3.6
Equipment Demobilization Plan	3	0	1	30 Business Days prior to Project Substantial Completion	GP 110.05.4.1
Computer Disaster Recovery Plan	5	0	1	20 Business Days following the issuance of NTP 2	GP 110.05.4.1

Table 110-8 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Action Report	5	0	1	No later than two days after the emergency maintenance	GP 110.05.4.1
Network Administration Plan	4	0	1	Within 30 Business Days following issuance of NTP 1	GP 110.05.4.2
Vehicle Project Logo	2	2	1	Prior to issuance of NTP 2	GP 110.05.4.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.06 Schedule Management

110.06.1 General Requirements

Developer shall perform all Work in compliance with the requirements of Section GP 110.06 of the TPs.

110.06.2 Administrative Requirements

110.06.2.1 Software Requirements

Developer shall prepare the Project Schedule using Oracle's Primavera P6.

110.06.2.2 Schedule Development

The Parties will use the Project Schedule for planning and monitoring the progress of the D&C Work to verify Draw Requests in accordance with Section 15 of the Agreement. The Project Schedule serves as the foundation for the Monthly Progress Schedule. Developer shall coordinate with Governmental Entities when developing and maintaining the Project Schedule and shall make provisions for adjacent projects and Governmental Entities comments. Developer shall ensure that the Project Schedule reflects the following information, including satisfaction of the following requirements:

A. Activity Identification. Developer shall assign consistent descriptions, identification codes, and sort codes to all activities. Sort code schemes (a) are subject to ADOT's prior consent, (b) must group activities using meaningful schemes defined by Developer and ADOT, (c) must designate lead responsibility for each activity, and (d) must clearly identify each Project Schedule Submittal. Resubmissions of Project Schedules must use the same revision number as the original submission individually identified by a sequential appended letter (A, B, etc.), as an indication of a revised version. Developer shall identify performance of Work by Disadvantaged Business Enterprise (DBE) firms as separate critical path method (CPM) activities.

B. Cost Allocation. Developer shall allocate D&C Price and commodity quantities throughout the Project activities in the Project Schedule. Developer shall accurately reflect Developer's cost allocation for each Project activity. Developer shall represent all Work by cost resource-loaded Project activities. Developer shall not artificially inflate, imbalance,

or front-load line items in the Project Schedules. The price of each Project activity must be all-inclusive and include all direct and indirect costs, overhead, risks, and profit.

C. Milestones. Developer shall separately identify each Project milestone, conforming to the scheduling requirements set forth in the Contract Documents.

D. Activity Information. Developer shall divide the Work into activities with appropriate logic ties to show Developer's overall approach to the planning, scheduling, and execution of the Work. Developer shall base duration and logical relationships of the Project activities (or summaries at phase level) on the actual duration and relationships anticipated. Each activity must have a duration not exceeding 20 Business Days.

E. Constraints. Developer shall not use calendar dates or constraints to logically begin or complete any Project activity unless the TPs or other relevant Contract Documents show calendar dates. The Project Schedule must not contain unspecified milestones, constraints, Float suppression techniques, or use of Project activity durations, logic ties, and/or sequences deemed unreasonable by ADOT. Any schedule showing an early completion date must show the time between the scheduled completion date(s) and the applicable Completion Deadline(s) as Float.

F. Float.

1. Float is a jointly owned Project resource and must comply with the requirements in Section 9.8.2 of the Agreement.
2. Developer shall not utilize (1) Float suppression techniques in the Schedule, including interim dates imposed by Developer other than Project milestone(s), or (2) the inclusion of activities or constraints in a path or chain leading to a Project milestone which are unrelated to the Work as stated and specified in the Contract Documents, or (3) activity durations or sequences deemed by ADOT to be unreasonable in whole or in part.
3. Preferential sequencing (i.e., whereby activities that could be performed concurrently and are established in the Project Schedule as sequential simply to consume Float) and/or indicating artificial activity durations (i.e., inflating activities in the schedule to consume Float and influence the Critical Path) are unacceptable. Sequestering of Float is cause for rejection of the Project Schedule Submittal. In the event ADOT identifies Float sequestering, Developer shall revise the schedule appropriately.
4. Developer shall impose, code, and separately identify all time(s) and milestones in all Monthly Progress Schedule Submittals in conformance with the milestone(s) and time(s) set forth in the Contract Documents. Developer shall impose no other date restraints in the schedule, unless Developer provides an explanation of their basis and such explanation is acceptable to ADOT.
5. In the event of delay in Developer performing the Work, Developer shall absorb any related delay, disruption, interference, hindrance, extension, or acceleration costs, however caused, except as otherwise provided in Article 16 of the Agreement. Developer may use Float to absorb Project delays, if any. Developer shall include a description of the cause of delay, the projected amount of Float Developer shall use, and the revised Monthly Progress Schedule showing the use of the Float in the Monthly Progress Report. Developer shall work cooperatively with ADOT, other contractors, and third parties to identify and implement, to the maximum extent possible, no-cost measures to recover all schedule delays, regardless of the cause of the delays. One example of such measures is no-cost re-sequencing of Work activities.

G. Progress. In the Monthly Progress Schedule, Developer shall show actual progress and shall not show calculated progress. Developer shall incorporate logic changes and Work changes into the Monthly Project Schedule. Each Monthly Project Schedule Submittal must define clearly and individually the progression of the Work within the applicable timeframe by using separate Project activities.

H. Resources. Developer shall indicate any resources such as commodities, labor, or equipment quantities with the associated Project activity field. Developer shall base labor loading of activities on total number of workers, and not total number of crews, and shall assign applicable activities for major construction equipment Developer, including Subcontractors, shall use in prosecuting Work. The quantity must represent the estimated effort in-place for the Project activity field.

110.06.2.3 Schedule Submission Process

Developer shall use the schedule submission process outlined in this Section GP 110.06.2.3 of the TPs for the preparation and submittal of all Project Schedules provided by Developer to ADOT for review and comment, unless otherwise specified in the Contract Documents.

For each Project Schedule Submittal, Developer shall provide the following:

A. Electronic version of the schedule in both native (including activity data, logic, and coding) and PDF format on IBM PC compatible electronic media;

B. Schedule Narrative in accordance with Section GP 110.06.2.4 of the TPs;

C. Look-Ahead Schedule in accordance with Section GP 110.06.2.9 of the TPs;

D. Recovery Schedule, as needed, in accordance with Section 9.9 of the Agreement and Section GP 110.06.2.10 of the TPs; and

E. Time Impact Analysis, as needed, in accordance with Section GP 110.06.2.11 of the TPs.

Project Schedules shall be prepared in accordance with the following steps:

A. Developer shall submit a Project Schedule for review and approval by ADOT;

B. ADOT will review the schedule and will return it with comments or no comments. ADOT will not withhold payment in accordance with the requirements of Section GP 110.06.2 of the TPs if ADOT fails to provide a response to the Project Schedule Submittal within the specified time;

C. Developer shall address all ADOT comments and revise the Project Schedule, as necessary; and

D. Developer shall provide a revised schedule within 14 days, if necessary.

ADOT's review of and comment on a Project Schedule does not do the following:

A. Imply or constitute approval of any particular construction methods or relieve Developer of its responsibility to provide sufficient materials, equipment, and labor to complete the Project in accordance with the Contract Documents;

B. Attest to the validity of assumptions, activities, relationships, sequences, resource allocations, or any other aspect of the Project Schedule;

C. Imply Developer is entitled to any Supplemental Agreement extending the Completion Deadline or adjusting the Contract Price;

D. Relieve Developer from compliance with the requirements of the Contract Documents, or result in the approval of any variation from the Contract Documents;

E. Relieve Developer of any failure to include any element of Work required by the Contract Documents; or

F. Result in the approval of any Deviation, exception to or other variation from the Contract Documents.

Failure to include any element of Work required by the Contract Documents in the Project Schedule does not release or relieve Developer from responsibility to perform such Work.

110.06.2.4 Schedule Narrative

At each Project Schedule Submittal, Developer shall prepare and submit a stand-alone Schedule Narrative with sufficient detail to explain the basis of the submitted Project Schedule to ADOT. The Schedule Narrative must describe the activities, including how the activities interrelate. Developer shall ensure that the Schedule Narrative includes the following information:

A. A list of the activities on each Critical Path and a comparison of early dates and late dates for activities designating times;

B. Developer's Site management plan (e.g., lay down, staging, traffic, and parking), the use of construction equipment and resources, basis and assumptions for critical activity durations and logic, compliance with winter weather requirements, any shifts, non-Business Days, and multiple calendars applied to the activities, the construction philosophy supporting the approach to the Work outlined in the submitted Project Schedule, and the reasons for the sequencing of Work, including a description of any limited resources, potential conflicts, and other salient items that might affect the schedule and how Developer shall resolve the items;

C. (i) A recap of progress and days gained or lost versus the previous Progress Schedule, (ii) problems and delays that have been experienced to date, (iii) the party responsible for the problems or delays, (iv) Developer's plan to resolve the problems or bring the delayed activities back on schedule, (v) potential problems that may be encountered during the next period and the proposed solutions (identify all potential problems and explain what action ADOT needs to take and the date by which the action needs to be taken to avoid the problem), (vi) changes in resources to be used on remaining Work, (vii) identification of delays, their extent, and causes, (viii) itemized list of changes in activities and logic ties caused by each Supplemental Agreement, (ix) schedule recovery plans and (x) grouping of related Developer-initiated revisions;

D. The justification for any activity with a proposed duration exceeding 20 Business Days;

E. The justification for any constraints used;

F. Developer's approach used to apply relationships between activities, including a list of activity relationships with lags and the justification for the use of each lag (e.g., all ties are based on physical relationships between Work activities [such as "rebar must be placed before concrete is placed"] or relationships are used to show limited resources [such as "bridge two follows bridge one" because Developer has only one bridge crew]); and

G. Challenges that may arise associated with Critical Path activities.

110.06.2.5 Schedule Deliverable Requirements

Developer shall prepare and maintain the Project Schedule, which consists of the following:

A. Project Baseline Schedule;

B. Monthly Progress Schedule; and

C. Recovery Schedule (as needed).

Developer shall also prepare and maintain the following schedules:

A. Look-Ahead Schedule and

B. As-Built Schedule

110.06.2.6 Project Baseline Schedule

Developer shall use the Preliminary Project Baseline Schedule submitted with the Proposal as a foundation to prepare the Project Baseline Schedule. Issuance of NTP 1 authorizes Developer to prepare the Project Baseline Schedule.

The Project Baseline Schedule must clearly define the prosecution of the Work from issuance of NTP 1 to Final Acceptance by using the separate CPM activities for the following:

A. Design;

B. Project ROW activities (e.g., development of ROW Submittals, review and approval periods);

C. Environmental commitments and mitigation activities;

D. Construction;

E. Testing;

F. Permitting;

G. Submittal preparation, reviews, resubmissions, and concurrence;

H. Material and equipment deliveries;

I. Interfaces with other contractors, Utilities, etc.;

J. Final inspection;

K. Punch List;

L. Milestones;

M. South Segment Substantial Completion;

N. Project Substantial Completion; and

O. Training.

Developer shall detail CPM activities and logic ties in the Project Baseline Schedule as necessary to show Developer's Work sequencing and separately define all requisite ADOT tasks. For each activity in the Project Baseline Schedule, Developer shall indicate the duration, in working days, required to perform the activity and the anticipated beginning and completion date of each activity. The Project Baseline Schedule must indicate the sequence of performing each activity and the logical dependencies and interrelationships among the activities. The Project Baseline Schedule must include a listing of all Submittals as called out in the Contract Documents. Submittal activity durations must include specific durations for reviews and/or concurrence of Developer's Submittals as set forth elsewhere in the Contract Documents.

Prior to issuance of NTP 2, Developer shall submit a Project Baseline Schedule to ADOT for approval in ADOT's good faith discretion. Developer shall use the Project Baseline Schedule as the basis for Monthly Progress Schedule Submittals. The completion and ADOT approval of the Project Baseline Schedule is a condition to issuance of NTP 2 and commencement of any Construction Work.

Developer shall use the Project Baseline Schedule to coordinate all activities on the Project, including those with other entities, such as Subcontractors, Suppliers, Utility Companies, Governmental Entities, and ADOT.

Developer shall develop the work breakdown structure (WBS) with clearly identifiable linkage to Developer's activities and phases represented in the Project Baseline Schedule.

110.06.2.7 Monthly Progress Schedule

Developer shall prepare a Monthly Progress Schedule that updates the Project Baseline Schedule during the D&C Period, commencing after issuance of NTP 2, until the final payment for the D&C Work. The Monthly Progress Schedule must reflect progress up to the Final Acceptance Date, forecast finish for in-progress activities and re-forecast early dates for activities planned in the next update period. The Monthly Progress Schedule must include the following:

A. Actual start and finish dates for completed activities;
B. Actual start dates, actual percentage complete, and remaining duration for activities in progress;
C. All proposed activities, logic, and restraint date revisions required to:
    1. Implement changes in the D&C Work;
    2. Detail all impacts on preexisting activities, sequences and restraint dates;
    3. Reflect Developer's current approach for D&C Work remaining;
    4. Incorporate any delays that are being negotiated between ADOT and Developer; and
    5. Reflect "or equal" or substitution proposals.
D. Planned start and finish dates for future activities; and
E. Progress for the current invoice submittal for Project activities.

If Developer or any of its Subcontractors performs Work out of sequence, Developer shall implement logic changes to allow the out-of-logic sequence D&C Work to proceed. Developer shall exclude any revisions for Developer's convenience when reconciling an extension to a milestone. Developer shall document changes, which Developer shall highlight or otherwise identify, in any Monthly Progress Schedule.

Concurrent with the draft invoice submittal, Developer shall submit the Monthly Progress Schedule to ADOT for approval, in ADOT's good faith discretion, that it meets the requirements of this Section GP 110.06.2.7 of the TPs, and for discussion at the progress meeting, as set forth in Section GP 110.06.2 of the TPs and in Section 15.2.2(b) of the Agreement. Once ADOT accepts the Monthly Progress Schedule, Developer shall use the Monthly Progress Schedule as the basis for the next Monthly Progress Schedule. ADOT's obligation to pay invoices in the absence of an approved Monthly Progress Schedule is limited as set forth in Section 15.2.7 of the Agreement.

110.06.2.8 Monthly Progress Report

Developer shall provide additional, separate, filtered reports of the Project activities and Work elements based on the Monthly Progress Schedule with the Monthly Progress Report, including the following:

A. Description of coordination with Utility Companies and accomplishing Utility Work;
B. Bar chart schedule sorted by elements, indicating the physical status of all activities as of date of the update;
C. Graphical report, which compares Developer's progress to planned progress by elements;

D. Design Document Submittals for the forthcoming period;
E. Tabular report listing all activities with 14 days or less Float;
F. 60-day look ahead report identifying all ADOT and Governmental Approvals required;
G. 180-day look ahead bar chart schedule sorted by WBS and activity early start dates;
H. Critical items graphical report for each Critical Path sorted by activity early start date, including major Work completion, long-term Closures of travel lanes beginning and ending, etc.;
I. Time-scaled Critical Path network plot indicating the status of all activities as of the date of the update;
J. Project ROW acquisition status per parcel;
K. Monthly expenditure projects and cash expenditure curves by WBS;
L. Discussion of actions/corrections to be taken to achieve Project Baseline Schedule milestones;
M. Reporting of Noncompliance Events from the previous month; and
N. Future Projects List.

At the monthly progress meetings, Developer shall submit the Monthly Progress Report to ADOT.

110.06.2.9 Look-Ahead Schedule

The Look-Ahead Schedule is a computer-generated bar chart that indicates the previous week's Work and the Work planned for the next three weeks. Developer shall base the Look-Ahead Schedule on the Project Schedule and provide a greater breakdown of the Project Schedule activities for the purpose of materials inspection and testing. The Look-Ahead Schedule must clearly note and explain any variations from the Project Schedule. Developer shall reference the Project Schedule activity identification numbers and define subsequent specific daily operations for performance of all Work activities scheduled during the four-week period. At least one day prior to the weekly Construction Coordination Meeting, Developer shall submit weekly Look-Ahead Schedules to ADOT.

110.06.2.10 Recovery Schedule

Unless otherwise directed in writing by ADOT, if ADOT's review of the Monthly Progress Schedule indicates a late completion of the Work, or should Critical Path items shown on the Monthly Progress Schedule Submittal slip by 28 or more days beyond any milestone, Developer shall prepare a Recovery Schedule which displays how Developer intends to reschedule those activities to regain compliance with the milestones and the Agreement. Whenever a Recovery Schedule is required, Developer shall provide the following information:

A. Transmittal letter;
B. Time-scaled network diagram;
C. Electronic copy of the file used for the proposed Recovery Schedule; and
D. Narrative describing any proposed changes to the Project Schedule, in detail, with justification for the changes, including the following:
    1. Changes to activity original durations;
    2. Changes to activity relationships and/or schedule logic; and
    3. Cause of schedule slippage and actions taken to recover schedule within the shortest reasonable time (e.g., hiring of additional labor, use of additional construction equipment, and expediting of deliveries);

4. Float consumption;
5. Identification of activities that have been added, deleted, or modified; and/or
6. Changes to the Project Schedule's Critical Path.

Within ten Business Days of receipt of ADOT's written direction or when any Critical Path item slips by 28 days or more, Developer shall submit the Recovery Schedule to ADOT for approval. Developer shall not be required to prepare a Recovery Schedule if Developer requests and demonstrates, in writing, entitlement to an extension of the D&C Period, due to Relief Event Delay(s), and ADOT concurs a Recovery Schedule is not required at that time. If ADOT disputes Developer's entitlement to an extension of the D&C Period, within five Business Days, Developer shall submit a Recovery Schedule that does not include a D&C Period adjustment.

Within five Business Days after any rejection by ADOT of the Recovery Schedule, Developer shall resubmit a revised Recovery Schedule incorporating ADOT's comments. When ADOT accepts Developer's Recovery Schedule, Developer shall, within five Business Days after ADOT's acceptance, incorporate such schedule in the Project Schedule, deliver the same to ADOT, and proceed in accordance with the approved Recovery Schedule.

110.06.2.11 Time Impact Analysis

If Developer submits a Relief Request as set forth in Section 16.1.3(a) of the Agreement indicating that a Relief Event affects a Critical Path of the Project Schedule, after consumption of all available Float, then Developer shall prepare and submit with such Relief Request a Time Impact Analysis. The Time Impact Analysis must identify Controlling Work Items and Critical Path (with activity durations, predecessor and successor activities and resources, including total Float), show the cumulative effect of the Relief Event Delay on the Completion Deadlines and fixed milestone dates, and comply with any other requirements in the Technical Provisions. Developer shall include with the Time Impact Analysis a written report, in a form satisfactory to ADOT, describing the Time Impact Analysis. The revision to the Project Schedule associated with the time extension must not modify the early- and late-start cost curves of the Project Schedule, except with respect to activities that have been affected by the Relief Event that justify the extension. Developer shall reflect in the Time Impact Analysis and written report any rescheduling of activities due to the Relief Event Delay. Each Time Impact Analysis must include a fragnet demonstrating the following information:

A. How Developer proposes to incorporate the Supplemental Agreement;
B. The Relief Event's claimed impact to the Project Schedule;
C. The sequence of new and/or existing activity revisions that are proposed to be added to the Project Schedule that is in effect when the change or delay is encountered; and
D. The proposed method for incorporating the delay and its impact to the Project Schedule

110.06.2.12 As-Built Schedule

Developer shall prepare an As-Built Schedule that includes actual start and actual finish dates for all activities. The As-Built Schedule, once accepted by ADOT, serves as the final update of the Project Schedule. Developer shall include a written certification with the As-Built Schedule Submittal signed by the Project Manager and an officer of Developer in accordance with the following:

"To the best of my knowledge, the enclosed final update of the Project Schedule reflects the actual start and completion dates of the activities for the Project contained herein."

Submittal of the final update of the Project Schedule and the Project Manager's certification is a condition to Final Acceptance in accordance with Section 8.6.5 of the Agreement.

At least 20 Business Days prior to scheduled Final Acceptance, Developer shall submit the As-Built Schedule to ADOT.

110.06.3 Submittals

Table 110-9 reflects a nonexclusive list of Submittals identified in Section GP 110.06 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-9
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Schedule Narrative	3	0	1	At each Project Schedule Submittal	GP 110.06.2.4
Project Baseline Schedule	2	0	1	Prior to issuance of NTP 2	GP 110.06.2.6
Monthly Progress Schedule	2	0	1	First Friday of every month	GP 110.06.2.7
Monthly Progress Report	2	0	1	First Friday of every month	GP 110.06.2.8
Look-Ahead Schedule	5	0	1	One day prior to the weekly Construction Coordination Meeting	GP 110.06.2.9
Recovery Schedule	2	0	1	Within 10 Business Days of receipt of ADOT written direction or when any Critical Path item slips by 28 Days or more	GP 110.06.2.10
Time Impact Analysis	5	0	1	With each Relief Request	GP 110.06.2.11
As-Built Schedule	5	0	1	At least 20 Business Days prior to scheduled Final Acceptance	GP 110.06.2.12

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.07 Quality Management

110.07.1 General Requirements

Developer shall perform all Work in compliance with the requirements of Section GP 110.07 of the TPs.

110.07.2 Administrative Requirements

110.07.2.1 Quality Management Plan

Developer shall prepare a comprehensive QMP that is consistent with and expands upon the preliminary QMP submitted with the Proposal.

Developer shall prepare, implement, and update the QMP throughout the Term. Developer shall maintain the QMP current at all times.

The QMP must consist of four volumes, as follows:

A. Volume 1: Quality Management Plan (QMP) General Requirements (Section GP 110.07.2.1.1 of the TPs);
B. Volume 2: Professional Services Quality Management Plan (PSQMP) (Section GP 110.07.2.1.2 of the TPs);
C. Volume 3: Construction Quality Management Plan (CQMP) (Section GP 110.07.2.1.3 of the TPs); and
D. Volume 4: Operations and Maintenance Quality Management Plan (OMQMP) (Section GP 110.07.2.1.4 of the TPs).

The QMP must contain a complete detailed description of all quality policies, procedures, processes, and systems that Developer shall implement throughout its organization. The quality policies, procedures, systems and objectives must demonstrate the commitment of Developer's senior management to the implementation and continuous improvement of the QMP and overarching quality practices and principals.

The quality policies, procedures, processes, and systems must ensure the Work complies with the requirements of the Contract Documents and results in Quality Records that provide documented evidence. The approach must promote operational consistency, encourage process ownership, promote thorough documentation, and allow for efficient audit and verification by ADOT.

The QMP must address the performance of all Work by Developer and Subcontractors of all tiers and must contain detailed procedures for Developer's QA and quality control QC activities for Professional Services, and Developer's quality control QC activities for all other Work. Developer's quality process must address planned and systematic testing, inspection and audits undertaken by ADOT for construction and by Developer's quality staff for Professional Services and the O&M Work. Developer shall conduct all quality activities, performance confirmation, and coordination among disciplines, in accordance with the QMP and the requirements of the Contract Documents.

Regarding quality systems, quality plans and quality audits, the QMP must comply with International Standards Organization (ISO) 9001:2015 or most current version at the time of the Proposal submittal, as updated by the ISO. Subject to any definition(s) or modification(s) elsewhere in the Contract Documents, quality terminology has the meanings in ISO 9001. Terms used in ISO 9001 must include the following meanings:

A. Organization: Developer's organization, including any Affiliates and Subcontractors;
B. Customers: the users of the roadways, ADOT, and stakeholders; and
C. Product: the Work.

Developer shall prepare Results of Internal Audits that includes the findings and documentation of the quality program audit specified in the respective volumes of the QMP. Within five Business

Days of their completion, Developer shall submit all Results of Internal Audits to ADOT for review and comment.

Developer shall immediately notify ADOT of Nonconforming Work. Upon resolution of Nonconforming Work, Developer shall submit to ADOT for review and comment a report that documents the Nonconforming Work, resolution, and action plan to prevent future similar incidences.

Developer shall ensure that all plans and components of the QMP remain valid and updated in accordance with Section GP 110.04 of the TPs. Developer shall revise the QMP when ADOT or its own quality management organization detects quality policies, procedures, processes, systems, or objectives that produce Work that is not in conformance with the Contract Documents, or that produce Work that does not meet the quality levels identified in the QMP.

110.07.2.1.1 Quality Management Plan – General Requirements

Developer shall prepare the QMP General Requirements in accordance with the requirements in this Section GP 110.07.2.1.1 of the TPs. This volume must include procedures for interdisciplinary quality reviews and coordination. Prior to issuance of NTP 2, Developer shall submit the QMP General Requirements to ADOT for approval in ADOT's good faith discretion.

The QMP General Requirements must include:

A. The organizational chart that identifies all quality management personnel, and their roles, authorities, and line reporting relationships;

B. Resumes for all quality management personnel, including information on certifications held;

C. Description of the roles and responsibilities of all quality management personnel and those who have the authority to stop Work;

D. Procedures for ensuring independence of quality staff and procedures for assuring their authority to effect changes in the event of Developer's failure to comply with the Contract Documents; and

E. Identification of the testing organization, including information on the organization's capability to provide the specific services required for the Work.

110.07.2.1.2 Professional Services Quality Management Plan

Developer shall prepare a Professional Services Quality Management Plan (PSQMP) that describes Developer's policies, procedures, and staffing to manage quality for Professional Services in accordance with the requirements of this Section GP 110.07.2.1.2 of the TPs and requires that an internal process for continuous Professional Service quality documentation is in place and functioning properly, while always accommodating ADOT's Oversight activities. Prior to issuance of NTP 2, Developer shall submit the PSQMP to ADOT for approval in ADOT's good faith discretion.

110.07.2.1.2.1 PSQMP General Requirements

The PSQMP must address the following general requirements:

A. Discuss the scope, Developer management support, and internal process for implementing and managing change to the PSQMP;

B. Discuss the structure, responsibilities, and hierarchy of the design quality organization;

C. Discuss the requirements of the release for construction (RFC) process, including how document history will be reflected, and how Developer shall distribute and track documents, including the following:

1. Define internal procedures to assure that all documents ultimately released for construction have been subject to the appropriate checks and balances, regardless of their source or medium;
2. Define the potential RFC Submittal sources and mediums, and define how the process may change as portions of the Project transition from design to construction; and
3. Define how Developer shall track RFC Submittal status and how Developer shall make documents available for use by all Project Parties.

D. Discuss methodology for assuring design consistency between multiple designers and design firms, and for assuring compatibility between technical disciplines, including the following:

1. Define the design QC and QA procedures that will apply to Professional Services work products;
2. Define procedures to assure that Developer shall organize work products by discipline and sub-discipline, as appropriate (such as engineering - structural, utilities, and Project ROW). These procedures must specify measures to ensure that the specification and inclusion in the Professional Services work product of appropriate quality requirements; and
3. Define measures that will control deviations from such requirements.

E. Discuss design production responsibilities, reviews, data control, data validation, and PSQMP training. Define the specific QC and quality review procedures, including all required forms and checklists, for preparing, and checking all Professional Services work products;

F. Define the details of the design check process and discuss how, in addition to final Design Documents, the process also applies to calculations and other material intended to support the final design. Developer shall clearly identify the designer and checker on the face of all final Design Documents. Include specific procedures for checking the Professional Services work product and identify any computer programs and methods Developer shall use for such purposes. Include procedures for meeting documentation requirements of the Contract Documents;

G. Discuss how Developer shall achieve design standardization and coordination throughout the entire Project across multiple Project Segments. Define method for coordinating Professional Services performed by different individuals or firms working in the same area, in adjacent areas, or on related tasks to ensure that conflicts, omissions, or misalignments do not occur between drawings or between the drawings and the specifications or other applicable deliverables;

H. Discuss how Developer's design quality organization will assure that constructability and maintenance considerations are incorporated into Design Reviews;

I. Define how the design process will assure that any RFC Submittals clearly and completely define the acceptance criteria that ADOT will utilize during construction;

J. Discuss the design checking, back checking, internal auditing, and independent review requirements for Professional Services. Provide procedures and schedules for the performance of audits of Developer's QC procedures under the PSQMP. Provide a

summary of the documentation that is to comprise the Professional Services Quality Records, and the procedures to make such Quality Records immediately available to ADOT for review. Provide a summary of anticipated Professional Services audit documentation to be submitted to ADOT, and the procedures to make sure that Developer shall submit the Results of Internal Audits for Professional Services to ADOT for review and comment;

K. Discuss Developer post design services process, staff, authority, scope, documentation, and product review process. Define the interface between design and construction personnel and related processes. Identify the role of the design team during construction;

L. Discuss the change process (including how those performing Professional Services are to address Directive Letter), the related document control interface, and the construction documentation interface. This discussion must include defining how documents produced after the initial design phase will be subject to appropriate internal design checks and balances before release for construction; and

M. Discuss the responsibilities, activities, and source of information associated with the as-built process.

110.07.2.1.2.2 Personnel and Staffing

110.07.2.1.2.2.1 Personnel Performing Professional Services Quality Control

Developer shall ensure that the training and experience of personnel performing Professional Services QC is commensurate with the scope, complexity, and nature of the Professional Services Work products. Qualifications must include appropriate experience, certifications, training, and licensure.

Developer shall ensure that Developer personnel performing the QC check of Professional Services Work products are not directly involved with the original development of the item, Element, or phase subject to QC check.

The number of personnel performing Professional Services QC must reflect the volume of QC activities necessary for the Work in progress.

110.07.2.1.2.2.2 Professional Services Quality Assurance Staff

Developer shall provide a QA staff under the direction of the Professional Services Quality Manager (PSQM) to perform oversight and review of all Professional Services performed by any member of Developer's group.

The QA staff must have an understanding of the various aspects of Professional Services undertaken by Developer. The training and experience of the QA staff must be commensurate with the scope, complexity, and nature of the QA that Developer shall perform. Qualifications must include appropriate experience, certifications, and training.

The QA staff must not have direct involvement with the original development of the item, element or phase subject to QA check.

The size of the Professional Services QA staff must reflect the volume of QA activities necessary for the Work in progress and Developer shall maintain such staff in accordance with the approved PSQMP.

Developer shall update the Professional Services QA staffing requirements as necessary throughout the Term to reflect changes in the actual Project Schedule and specific Professional Services elements. Developer shall ensure that adequate Professional Services QA staff are available and that PSQMP activities are performed in a manner consistent with the Project

Schedule and in a manner that enables Developer to timely achieve the Project Substantial Completion Deadline and Final Acceptance Deadline.

110.07.2.1.3 Construction Quality Management Plan

Developer shall prepare a CQMP that describes its objectives, policies, procedures, processes, and staffing to manage construction quality in accordance with the requirements of this Section GP 110.07.2.1.3 of the TPs and the Contract Documents.

Developer shall define processes and procedures for quality control to achieve compliance with the Contract Documents.

Developer shall construct the Work in accordance with the RFC Submittal, and other formally released for construction documents as defined in Section GP 110.10.2.6 of the TPs. Developer's CQMP must contain detailed procedures for Developer's Construction QC activities. The CQMP must be consistent with the applicable procedures contained in the ADOT *Materials Quality Assurance Program*, ADOT *Materials Testing Manual*, ADOT *Materials Practice and Procedure Directives Manual*, and Federal, AASHTO or ASTM specifications or test designations. The quality process must also allow for acceptance sampling, testing, and inspection activities by ADOT.

Developer shall ensure that personnel with appropriate training and qualifications for each appropriate item of Work (items produced on and off the Site) perform inspections, reviews, and testing using appropriate equipment that is accurately calibrated and maintained in good operating condition in accordance with the ADOT *Materials Quality Assurance Program, Section VI, "Laboratory Qualifications"*.

Prior to issuance of NTP 2, Developer shall submit the CQMP to ADOT for approval in ADOT's good faith discretion.

110.07.2.1.3.1 CQMP General Requirements

The CQMP must assure that construction quality requirements are explicitly defined or described, measurable, and understood by both production and quality organization personnel, and that internal process for continuous construction quality documentation is in place and functioning properly, while always accommodating the ADOT's Oversight and acceptance activities. The CQMP must describe and include at least the following general requirements:

A. Discuss the CQMP production and updating process: Clearly define the authority and responsibility for the administration of the CQMP;

B. Discuss the structure, responsibilities, and hierarchy of the construction quality organization. Discuss the roles and responsibilities of Developer management, quality control, and ADOT. Clearly define the distinction between the various components of the quality program. Discuss the interface between Developer's quality activities and ADOT's Oversight and acceptance;

C. Discuss the construction QC organization and staffing plan;

D. Developer shall (a) show the period of time that the quality control staff members must be present on the Site, and (b) state the required minimum knowledge, technical skills, and experience level of the personnel related to the various quality control functions, such as grading, drainage, structures, and electrical inspections, that will occur with respect to the Construction Work.

E. Discuss the document control standards, the platform for data systems, document identification standards, and processes for logging and distributing controlled

documents. Discuss the requirements and methods for controlling documents and discuss the document control system accessibility by quality organization personnel;

F. Discuss the RFC process. Define the requirements related to the different types of Construction Documents that can be used in the field for construction, and discuss the procedures and processes in place to assure that only RFC Submittals are distributed for such use;

G. Discuss methods to assure that Developer produces documented instructions, procedures, mix designs, and appropriate drawings to prescribe all activities undertaken by or on behalf of Developer affecting the quality of the Work Such instructions, procedures, mix designs and drawings must include quantitative and qualitative criteria to be used to determine compliance;

H. Define measures to ensure that purchased materials, equipment, and services conform to the Contract Documents, Governmental Approvals, applicable Laws, rules, and the Design Documents. These measures must be consistent with Good Industry Practice and must include provisions for source evaluation and selection, objective evidence of quality furnished by Subcontractors and Suppliers, inspection at the manufacture or vendor source, and examination of products upon delivery;

I. Define procedures for processing a Request for Information (RFI) to resolve discrepancies and/or questions in the Plans and specifications, so that Developer's design engineers document all changes and approvals. Discuss the change management and RFI process as it relates to construction and the quality organization. Discuss the interface between design and construction quality personnel and define the procedures that assure that change of any type is not implemented outside of the RFC process;

J. Describe the testing required to demonstrate compliance. The CQMP must require the documentation and evaluation of test results to ensure that test requirements have been satisfied. The CQMP must also demonstrate how the quality control tracks its sampling and testing frequencies to ensure compliance with the Contract Documents, and how that information will be transmitted to ADOT, in a manner acceptable to ADOT, at least daily;

K. Discuss the use of pre-construction coordination meetings. Identify the items that will require a pre-activity meeting and define what a typical agenda includes, who will typically participate in the meeting, and generally how such meetings will be used to improve the quality of the product being constructed;

L. Define how Developer shall address Nonconforming Work and how Developer shall comply with the requirements of Section 8.7 of the Agreement. Discuss how Developer shall identify, detect, inspect for, classify, resolve, and document Nonconforming Work, and who shall be involved in the different steps in the process;

M. Discuss the role of Developer's quality program as it relates to implementation of the Environmental Management Plan;

N. Discuss Developer's role as it relates to traffic control activities such as monitoring, maintenance, and reporting;

O. Discuss how Developer accommodates inspections, sampling and tests by third parties when applicable;

P. Define the required weekly quality control reports as outlined in Section 106.04(C)(6) of the ADOT Standard Specifications;

Q. Define the materials information management software and end user computer devices that Developer shall utilize for collecting, organizing, processing, retrieving, and reporting test data. Discuss how Developer shall capture data and export information to ADOT in an electronic format acceptable to ADOT;

R. Address specific items, or components of items, that are to be accepted based on certification. Define how material certificates are to be collected or received, how they are to be checked in the field by QC staff, how they are to be matched up and assigned to specific quantities of received material, how they are to be stored and organized to facilitate future audits, what system is to be used for tracking certificates and who is to be responsible for managing the program;

S. Define the internal review process for all Portland cement concrete and asphaltic concrete mix designs;

T. Discuss the methods and procedures to be utilized by Developer to obtain active participation of the production workforce in QC operations to achieve a high-quality Project;

U. Discuss procedures to ensure there is adequate quantity of material available for ADOT acceptance sampling and testing;

V. Discuss procedures to ensure the achievement and maintenance of the education, training, and certification of QC personnel. Discuss procedures to make an electronic log available to ADOT that contains personnel certification status and expiration dates;

W. Define procedures to ensure that QC personnel are present during the performance of Work. Developer shall identify and communicate inspection or hold points to the Construction Quality Manager (CQM), and ADOT and develop procedures to proceed beyond inspection or hold points;

X. Discuss procedures for identification and control of materials, equipment, and elements of the Work. These procedures must be consistent with current industry standards to ensure the maintenance of the identification of the item by appropriate means, either on the item or on records traceable to the item, as necessary, throughout fabrication, erection, installation and use of the item;

Y. Define procedures to indicate, by the use of markings, such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items of the Work;

Z. Include procedures to control the handling, storage, shipping, cleaning, and preservation of materials and equipment to prevent damage or deterioration;

AA. Discuss procedures to ensure the prompt identification and correction of those conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations, and other Nonconforming Work. The procedures must ensure that Developer determines the cause of the condition and takes corrective action to preclude repetition. Developer shall document and report in writing to ADOT and to appropriate levels of Developer's management (a) the identification of the significant condition adverse to quality, (b) the cause of the condition, and (c) the corrective action;

BB. Define procedures for ensuring compliance with Buy America requirements of 23 CFR 635.410, including tracking quantities and dollars of domestic and foreign steel. Developer shall make this information available to ADOT at least monthly;

CC. Define procedures for quality control in the CQMP with respect to checking the accuracy and adequacy of construction stakes, lines, and grades established by Developer;

DD. Provide a summary of the documentation that comprises the construction Quality Records, and define the procedures to make sure Quality Records are immediately available to ADOT for review; and

EE. Provide a summary of anticipated construction audit documentation subject to submission to ADOT, and the procedures to make sure submission to ADOT of all Results of Internal Audits for construction occurs within the timeline required in Section GP 110.07.3 of the TPs.

110.07.2.1.3.2 Recording, Record Keeping and Documentation

Developer shall prepare, develop and maintain Quality Records, which shall consist of all documentation and other support material of any type, in any medium, demonstrating compliance with the requirements of Section GP 110.07 of the TPs. The Quality Records must include:

A. Electronic daily log of the performance of all inspections for either or both Developer and Subcontractor operations in a format acceptable to ADOT;

B. Daily inspection reports that (i) identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed, and (ii) are signed by the responsible technician and supervisor; and

C. Laboratory and field test results.

Developer shall load all Quality Records to the EDMS immediately upon their creation or modification. Quality Records must be accessible at all times for inspection, review, and verification by ADOT upon request. The intention of this electronic reporting is to allow Developer and ADOT to make timely and accurate decisions on workmanship and material quality issues. In addition, Developer shall submit copies of Quality Records to ADOT upon request.

Acceptance of materials by "Certificate of Compliance" or "Certificate of Analysis" must comply with or exceed the requirements of Subsection 106.05 of the ADOT Standard Specifications, Section 1000 of the ADOT *Materials Testing Manual*, and applicable ADOT *Materials Policy and Procedure Directives*.

110.07.2.1.4 Operations and Maintenance Quality Management Plan

Developer shall prepare a comprehensive OMQMP that must fully incorporate the requirements of the Work during the O&M Period, with the primary function of establishing Developer's self-monitoring process and monitoring the performance of the O&M Work, while always accommodating ADOT's Oversight activities. The OMQMP must be consistent with the design and construction quality requirements set forth in this Section GP 110.07.2.1.4 of the TPs. At a minimum, the OMQMP must specify:

A. Detailed system for validating the information, accuracy, and results of the OMQMP;

B. Procedures to validate the data, times, dates, calculations and other information that are the basis of Noncompliance Events during the O&M Period;

C. Methods and procedures that clearly define the distinction/authority/responsibility for the administration of the OMQMP;

D. The name of each individual whom Developer, Suppliers, and Subcontractors designates on each crew to be responsible for performing field inspections of the crew's O&M Work and for preparing a QC report to document the inspections whenever performed;

E. An O&M quality organization and staffing plan. The plan must show the period of time that the quality staff member must be present on the Site, must include resumes of the Key

Personnel, and must state the experience/knowledge/skill levels of the quality support staff;

F. Procedures for inspecting, checking, and documenting the O&M Work. Developer shall perform inspections, examinations, and measurements for each instance of the O&M Work to assure quality;

G. Procedures to ensure that all activities affecting the quality of the O&M Work are accomplished under controlled conditions using appropriate equipment for the task being performed;

H. Measures to ensure that purchased materials, equipment, and services conform to the Contract Documents, Governmental Approvals, applicable Laws, and the Design Documents. These measures must be consistent with current industry standards and must include provisions for source evaluation and selection, objective evidence of quality furnished by Subcontractors and Suppliers, inspection at the manufacture or vendor source, and examination of products upon delivery;

I. Procedures to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of Inspections, and tests performed upon individual items of the Work;

J. Procedures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and defective equipment, deviations and other Nonconforming Work are promptly identified and corrected. The procedures must ensure that the cause of the condition is determined, and corrective action taken to preclude repetition. To ensure corrective action is promptly taken, Developer shall document and report to ADOT in writing and to appropriate levels of Developer's management the identification of the significant condition adverse to quality, the cause of the condition and the corrective action taken;

K. A summary of the documentation that will comprise the O&M Work Quality Records, and the procedures to make such Quality Records immediately available to ADOT for review;

L. A summary of anticipated O&M Work audit documentation to be submitted to ADOT, and the procedures to make sure all Results of Internal Audits for O&M Work are submitted to ADOT within the timeline required in Section GP 110.07.2.1.4 of the TPs; and

M. Procedures to document Noncompliance Events during the O&M Period.

With the OMMP, Developer shall submit the OMQMP to ADOT for approval in ADOT's good faith discretion.

110.07.3 Submittals

Table 110-10 reflects a nonexclusive list of Submittals identified in Section GP 110.07 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-10 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Quality Management Plan General Requirements	2	0	1	Prior to issuance of NTP 2	GP 110.07.2.1
Quality Records	5	0	1	Upon request	GP 110.07.2.1
Results of Internal Audits	4	0	1	Within 5 Business Days of their completion	GP 110.07.2.1
Reports on Non-Conforming Work	4	0	1	Upon issuance and resolution of the non-conformance	GP 110.07.2.1
Professional Services Quality Management Plan (PSQMP)	2	0	1	Prior to issuance of NTP 2	GP 110.07.2.1.2
Construction Quality Management Plan (CQMP)	2	0	1	Prior to issuance of NTP 2	GP 110.07.2.1.3
Operations and Maintenance Quality Management Plan (OMQMP)	2	0	1	With the OMMP: prior to Project Substantial Completion	GP 110.07.2.1.4
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(b) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

110.08 Human Resource Management

110.08.1 General Requirements

Developer shall perform all Work in compliance with the requirements of Section GP 110.08 of the TPs.

Developer acknowledges and agrees as follows: All personnel performing Work on the Project must have the experience, skill, and knowledge to safely and efficiently perform the Work assigned to them; all personnel performing Work on the Project must also have required professional licenses and certifications; and except as otherwise noted below for Key Personnel such licenses and certifications must be acquired prior to the individual starting work on the Project. Developer shall ensure that all such personnel satisfy the applicable requirements set forth in this Section GP 110.08 of the TPs.

110.08.2 Key Personnel

The following provides a brief job description and requirements of the Key Personnel and other important personnel assigned to the Project. Developer acknowledges and agrees that all Key Personnel are required to be and shall ensure that they are on-Site as set forth below. The number of years of relevant experience listed for each Key Personnel position represents a target for evaluating any proposed replacement Key Personnel and is not a mandatory, minimum requirement for the position.

Replacement and/or staffing of all Key Personnel positions listed below must follow the processes described in Section 11.6 of the Agreement.

Developer shall appoint the Key Personnel for the Project as follows:

A. Project Manager
B. Construction Manager
C. Design Manager
D. Maintenance of Traffic Manager
E. Quality Manager
F. Safety Manager
G. Public Relations Manager
H. DBE/ OJT Outreach and Compliance Manager

110.08.2.1 Project Manager

The Project Manager is responsible for the overall design, construction, quality, and contract administration for the design, construction, operations, and maintenance of the Project. This individual must be an employee of (i) Developer or (ii) an Equity Member that must hold at least a 1/3 beneficial interest in Developer and must be on-Site full time for the duration of the D&C Period. The individual's relevant experience includes the following:

A. 18 years on complex highway infrastructure projects.
B. 10 years managing the design and construction of major interstate or highway systems.
C. 5 years of major design-build, design-build-maintain, or design-build-operate-maintain, project management of interstate or highway systems.

110.08.2.2 Construction Manager

The assignment of the Construction Manager to the Project must be on a full time basis for the duration of the D&C Period. The individual must be an employee of (i) Developer or (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, and must be on-Site full time during the Construction Work. The individual's relevant experience includes the following:

A. 12 years on complex highway infrastructure projects.
B. 8 years managing the construction of major interstate or highway systems.
C. 5 years of major design-build, design-build-maintain, or design-build-operate-maintain construction management of major interstate or highway systems.

110.08.2.3 Design Manager

The Design Manager is responsible for coordinating the individual design disciplines and is responsible for ensuring completion of the overall Project design and ensuring the satisfaction of the design criteria and design requirements. This individual must be an employee of (i) Developer, (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, or (iii) the Lead Engineering Firm, and must be under the direct supervision of the Project Manager. This individual must be on-Site full-time until completion of the Design Work and until the Construction Work of the Project is at least 70% complete, and thereafter must be available on-call as needed until Project Substantial Completion. This individual is responsible for design quality management and must have primary responsibility for Design Work. This individual must be a registered Professional Engineer in the State by the time of Contract award. The individual's relevant experience includes the following:

A. 15 years on complex highway infrastructure projects.
B. 10 years managing the design of major interstate or highway systems.
C. 5 years of major design-build design management of major interstate or highway systems.

110.08.2.4 Maintenance of Traffic Manager

The assignment of the MOT Manager to the Project must be on a full time basis for the duration of the D&C Period. This individual will oversee MOT functions during construction. This individual is responsible for evaluating Developer's sequencing, designs, traffic plans, staffing, safety, and other functions that relate to MOT during construction. This individual must be at the Site or on-call during any Construction Work that requires Closure of one of more lanes of travel. This individual must be a registered Professional Engineer and a Professional Traffic Operations Engineer in the State by the time of Contract award. The individual's relevant experience includes the following:

A. 15 years of experience on complex highway infrastructure projects.
B. 10 years managing the design of MOT solutions.
C. 5 years of major design-build, design-build-maintain, or design-build-operate-maintain project experience.

110.08.2.5 Quality Manager

The Quality Manager is responsible for establishing and supervising Developer's quality management program for the design and construction of the Project. This individual must be under the direct supervision of an executive officer of Developer above the level of, and under a line of authority independent of, the Project Manager. This individual must be available on-call as and when necessary to properly supervise Developer's quality management program through Final Acceptance. This individual's assignment must not include any other duties or responsibilities on the Project through Final Acceptance. This individual must have the independent authority to stop any and/or all Design Work or Construction Work. This individual must be a registered Professional Engineer by the time of Contract award. The individual's relevant experience includes the following:

A. 15 years on complex highway infrastructure projects.
B. 5 years coordinating and managing quality programs on major interstate or highway projects.
C. 5 years of major design-build, design-build-maintain, or design-build-operate-maintain management of major interstate or highway systems.

110.08.2.6 Safety Manager

The Safety Manager is responsible for establishing and supervising Developer's safety program and for implementing and coordinating the Transportation Management Plan (TMP) per 23 CFR 630.1012. This individual shall work directly for the Developer and must report directly to the Project Manager. The assignment of this individual to the Project must be on a full time basis. This individual must be on-Site during Construction Work. This individual must be familiar with Federal Highway Administration (FHWA) work zone safety regulations and must have at least 10 years of experience working in roadway work zone safety and OSHA Regulations. The individual's relevant experience includes the following:

A. 15 years on complex highway infrastructure projects.
B. 5 years coordinating safety programs on major interstate or highway projects.

C. 5 years of major design-build, design-build-maintain, or design-build-operate-maintain construction management of major interstate or highway systems.

110.08.2.7 Public Relations Manager

The Public Relations Manager is responsible for supporting ADOT's effort to involve the community in the Project and must oversee public communications, which entails notifying the public of such critical matters as traffic delays, detours, planned Closures, construction progress, and other relevant information to keep the public fully apprised of how the Project impacts the community. This individual can be an employee of Developer or must have a contractual relationship with Developer. This individual must report to the Project Manager. This individual must be available as needed during the D&C Period of the Project. The individual's relevant experience includes the following:

A. 10 years working on communications or community relations programs.

B. 5 years coordinating public outreach programs on major interstate or highway projects.

C. 5 years of community relations experience on major design-build, design-build-maintain, or design-build-operate-maintain construction projects along major interstate or highway systems.

110.08.2.8 DBE/OJT Outreach and Compliance Manager

The DBE/OJT Outreach and Compliance Manager is responsible for DBE/OJT, equal employment opportunity (EEO), and small business recruitment, outreach, management, monitoring, oversight, and reporting. This individual must be available as needed during the D&C Period of the Project. This individual must coordinate with ADOT's General Engineering Consultant DBE/OJT Compliance Specialist, Project Federal Compliance Committee, and ADOT's Business Engagement & Compliance Office to help ensure Project goals are met. The individual's relevant experience includes the following:

A. Must have strong knowledge and understanding of the federal DBE, OJT, and EEO program requirements.

B. 5 years of experience managing DBE, OJT or EEO programs.

110.08.3 Other Personnel

Qualifications of certain staff termed Other Personnel are subject to the review and approval of ADOT prior to start of their corresponding item of Work. Developer acknowledges and agrees that all Other Personnel are required to be and shall ensure that they are collocated at the Project as set forth below. The number of years of relevant experience listed for each Other Personnel position represents a target goal and is not a mandatory, minimum requirement for the position.

110.08.3.1 Professional Services Quality Manager

Developer shall designate a PSQM for the Project. The PSQM must report directly to the Quality Manager and Developer shall ensure that the PSQM is responsible for overall management of the PSQMP, including implementing and managing staff for QA/QC functions. The PSQM is responsible for implementing quality planning, overseeing the Professional Services review, auditing, and coordinating with ADOT Professional Services oversight review. Without limiting the foregoing, the PSQM must review and certify Shop Drawings and Working Drawings in accordance with Section GP 110.10.2.7.1 of the TPs and must certify that the Record Drawings comply with the QMP. The assignment of the PSQM to the Project must not include any other role, duties, or responsibilities. The PSQM and CQM must be different people. The PSQM must be a registered Professional Engineer by the time of the associated Work. The individual's

relevant experience includes 10 years in design quality management and/or Professional Services quality management of major interstate or highway projects.

110.08.3.2 Construction Quality Manager

Developer shall designate a CQM for the Project. The CQM must report directly to the Quality Manager and Developer shall ensure that the CQM is responsible for overall management of the CQMP. The CQM is responsible for implementing, monitoring, and adjusting the processes to make certain that acceptable quality is achieved and maintained and for implementing quality planning and coordinating with ADOT. This individual must be available as needed during Construction Work and must not have any other role, duties, or responsibilities. The CQM has the authority to stop any Construction Work that does not comply with the standards, specifications, or criteria established for the Project. The PSQM and CQM must be different people. The individual's relevant experience includes 10 years in the construction quality management of major interstate or highway projects.

110.08.3.3 Construction Quality Control Staff

The members of Developer's construction work force are also members of Developer's construction QC staff as each is responsible for the quality of the Work. Developer's QC staff is responsible for ensuring the quality of the workmanship, and ensuring that materials meet the required specifications. Personnel responsible for performing QC must be knowledgeable and receive training to perform their QC duties.

110.08.3.4 O&M Manager

The O&M Manager is responsible for performance and quality management of all O&M Work and for working with the Project Manager to integrate operations and maintenance planning and considerations into design and construction decisions. This individual must be an employee of (i) Developer, (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, or (iii) the Lead O&M Firm and must be available during the O&M Period as set forth in Section 10.1.4 of the Agreement. This individual must serve as the point of contact during the O&M Period. The individual's relevant experience includes the following:

A. 10 years of experience operating and/or maintaining complex highway infrastructure projects.

B. 5 years coordinating operations and/or maintenance programs on major interstate or highway projects.

110.08.3.5 Survey Manager

Developer shall designate a Survey Manager for the Project. The Survey Manager must be the point of contact for all survey Work and must be responsible for all survey Work, including directing and reviewing Subcontractor survey Work. The Survey Manager must be familiar with ADOT procedures and standards pertaining to ROW, design, and construction surveying. The Survey Manager must be a registered land surveyor in the State by the start of the associated Work. The individual's relevant experience includes the following:

A. 10 years of experience with ROW, design, and construction surveys.

B. 10 years of registration as a Land Surveyor.

110.08.3.6 Geotechnical Manager

Developer shall designate a Geotechnical Manager for the Project. The Geotechnical Manager must be the point of contact for all geotechnical Work and must be responsible for all geotechnical Work, including directing and reviewing Subcontractor geotechnical Work. The Geotechnical

Manager must be familiar with ADOT guidelines, procedures, and standards pertaining to geotechnical investigation, analysis, and design. The Geotechnical Manager must be a registered Professional Engineer by the start of the associated Work. The individual's relevant experience includes 15 years of experience in matters relating to geotechnical subsurface exploration, geotechnical site characterization, analysis, design, and construction of bridge foundations, retaining walls and sound walls, drainage structures, roadway embankments and roadway pavements, and excavation and fill slopes in soil and rock.

110.08.3.7 Rock Engineer/Blasting Professional

Developer shall designate a Rock Engineer/Blasting Professional for the Project, if warranted by Developer's design. The Rock Engineer/Blasting Professional must be the point of contact regarding all blasting Work. The Rock Engineer/Blasting Professional must be responsible for ensuring that all blasting Work is in accordance with the Contract Documents. The Rock Engineer/Blasting Professional must be a registered Professional Engineer by the start of the associated Work. The individual's relevant experience includes 10 years of practical applied experience in geological engineering with an emphasis on blasting for rock excavation, including designing and construction engineering of rock blasting and stabilization of roadway cut slopes, blasting techniques for roadway cut slope excavation, blast monitoring, control procedures for vibration, air-blast and fly rock, and rock fall protection measures.

110.08.3.8 Blasting Supervisors

Developer shall designate Blasting Supervisors for the Project, if warranted by Developer's design. The Blasting Supervisors must be responsible for activities of the blasting crews, make decisions on the allocation of drilling and blasting personnel, drilling and blasting equipment, drilling and blasting methods, and be responsible for the procurement, storage, handling and use of explosives, blasting materials and agents, and supplies. The individual's relevant experience includes 10 years of experience in the loading and firing of charges for rock excavation for heavy civil construction.

110.08.3.9 Blasters in Charge

Developer shall designate Blasters in Charge for the Project, if warranted by Developer's design. The Blasters in Charge must have all necessary licenses and permits required by ADOT, the State, and other Governmental Entities having jurisdiction by the start of the associated Work. The Blaster in Charge must directly supervise the activities of the blasting crew(s) in the course of laying-out, drilling, loading and firing of charges for a particular blast. The Blasting Supervisor may or may not also serve as a Blaster in Charge. The individual's relevant experience includes 7 years of experience in supervising the loading and firing of charges for rock excavation.

110.08.3.10 Environmental Compliance Manager

The Environmental Compliance Manager is responsible for coordinating the environmental permitting requirements for Developer and ensuring that issues are resolved before Construction Work begins. This individual must be an employee of (i) Developer, (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, or (iii) the Lead Engineering Firm, or must have a direct contractual relationship with Developer. This individual must report to the Construction Manager. This individual must be available as needed during the D&C Period of the Project. The individual's relevant experience includes the following:

A. 10 years on complex highway infrastructure projects.
B. 5 years managing environmental compliance activities and permitting for major interstate or highway projects.

110.08.3.11 Utility Adjustment Coordinator

Developer shall designate a Utility Adjustment Coordinator for the Project. The Utility Adjustment Coordinator is responsible for coordinating the Utility Adjustment and relocation requirements for Developer and leading the efforts to resolve any utility conflicts that may arise during construction. This individual must report to the Construction Manager. This individual must be available as needed during the D&C Period of the Project.

110.08.3.12 Hazardous Materials Manager

Developer shall designate a Hazardous Materials Manager for the Project. The Hazardous Materials Manager must provide expertise in the safe handling of Hazardous Materials required to perform the Work or discovered or impacted during the Term. The Hazardous Materials Manager must schedule and/or conduct Hazardous Materials training for Developer's employees, verify all necessary certifications prior to and required for any handling of Hazardous Materials, and maintain records of all Incidents involving Hazardous Materials and notify the Environmental Compliance Manager, ADOT, and appropriate Governmental Entities in writing of any such Incidents.

The Hazardous Materials Manager must be a qualified professional with 40-hour HAZWOPER certification. In addition, the Hazardous Material Manager must have at least 5 years of experience in similar projects in developing remedial action plans or equivalent reports necessary and acceptable to ADOT in Hazardous Material investigation, discovery, and remediation efforts.

110.08.3.13 Principal Investigator

Developer shall designate a Principal Investigator for the Project. The Principal Investigator must demonstrate the ability to comply with Arizona State Museum (ASM) standards as a principal investigator and demonstrate experience in producing reports and curating materials and documents to meet ASM and State Historic Preservation Office (SHPO) standards. The Principal Investigator must possess a valid State Antiquities Act Permit and demonstrate an understanding of Section 106 of the *National Historic Preservation Act* process and familiarity with cultural resources policies, procedures, and goals, through published reports and/or past performance.

110.08.3.14 Qualified Biologist

Developer shall designate a Qualified Biologist for the Project. The Qualified Biologist must demonstrate:

A. A bachelor’s degree with an emphasis in biology, ecology, natural resource management, or related science.
B. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society.
C. Previous experience with applying the terms and conditions of a Biological Opinion.
D. The appropriate permit and/or training for conducting focused or protocol surveys for listed species of concern to the Project.
E. Previous experience in writing biological review, survey, and monitoring documents.
F. Previous experience in general federal threatened and endangered species habitat evaluations.
G. Previous experience in federal, State and tribal sensitive species habitat evaluations and surveys.
H. Previous experience in surveying for native plants and noxious weeds of central Arizona.
I. Previous experience in handling reptiles

110.08.3.15 Erosion Control Coordinator

Developer shall designate an Erosion Control Coordinator (ECC) for the Project. The ECC must be responsible for implementing, monitoring, and revising the approved Stormwater Pollution Prevention Plan (SWPPP) throughout the D&C Period, for making the required inspections, and for implementing any other permit requirements stipulated in the Arizona Pollutant Discharge Elimination System (AZPDES) general permit.

The ECC must be capable of identifying existing and predictable effects of Developer's operations and must have complete authority to direct Developer's personnel and equipment to implement the requirements described herein, including prompt placement of corrective measures to minimize or eliminate pollution and damage to downstream watercourses. The ECC must also be familiar with procedures and practices identified in the SWPPP and must ensure that emergency procedures are up to date and available at the Site.

The ECC must at all times be aware of Developer's work activities, schedule, and effect of the Work on the environment, and must, at any time, be accessible to direct Developer's personnel to replace or repair erosion control measures as necessary. The ECC must be present at the Site on a full-time basis for the duration of the D&C Period. Developer shall provide ADOT with a phone number through which ADOT may contact the ECC at any time, 24 hours a day, 7 days a week, including holidays. The ECC must be present at the jobsite within 24 hours of the placing of such call.

The ECC must also be aware of and comply with all requirements of the AZPDES general permit to address discharges at the Site associated with Developer's activities other than construction, including staging areas, and other potential pollutant and material storage and borrow areas.

The ECC must have successfully completed the mandatory two-day (16 hour) "Erosion Control Coordinator" training class provided by the Associated General Contractors (Arizona Chapter); telephone (602) 252-3926. ADOT will not accept other substitute training. The ECC must maintain the training class certification and must not let it expire.

In addition, the ECC must have documented experience equal to a minimum of 1 year (and, to clarify, this is a mandatory minimum and not merely a target) from either of the following two categories:

A. Experience in the implementation of SWPPPs. The ECC's experience must demonstrate full-time responsibility for directly supervising construction personnel in the installation, monitoring, and maintenance of control measures.

B. Experience in stabilization of disturbed areas in environments similar to those on the Project. Experience in re-vegetation or restoration of disturbed areas. The ECC's experience must demonstrate full-time responsibility for directly supervising personnel in stabilization of disturbed areas.

In addition to the general ECC requirements, maintenance of one of the following is required for the duration of the Work.

A. Registration in the State as a Landscape Architect, with a minimum of 1 year of experience (and, to clarify, this is a mandatory minimum and not merely a target) in the fields of erosion control and sediment transport.

B. Registration as a Professional Engineer with a minimum of 1 year of experience (and, to clarify, this is a mandatory minimum and not merely a target) in the fields of erosion control and sediment transport.

C. Certification by the EnviroCert International, Inc. as a Certified Professional in Erosion and Sediment Control.

110.08.3.16 Hydraulics and Hydrology Engineer

Developer shall designate a Hydraulics and Hydrology Engineer for the Project. The Hydraulics and Hydrology Engineer must report directly to the Design Manager. Developer shall ensure that the Hydraulics and Hydrology Engineer is responsible for all matters regarding hydraulics for the Project. The Hydraulics and Hydrology Engineer must be a registered Professional Engineer by the start of the associated Work. The individual's relevant experience includes 5 years of experience with hydraulics design for complex highway infrastructure projects.

110.08.3.17 ITS Design Manager

Developer shall designate an intelligent transportation system (ITS) Design Manager for the Project. The ITS Design Manager must report directly to the Design Manager. Developer shall ensure that the ITS Design Manager is responsible for all matters regarding ITS elements for the Project. The ITS Design Manager must be familiar with the overall functionality of the ADOT Freeway Management Systems (FMS), its field elements and their technologies, and the connectivity between the field elements and their users. The ITS Design Manager must be a registered Professional Engineer by the start of the associated Work. The individual's relevant experience includes a minimum of 10 years of experience in leading ITS design.

110.08.3.18 ITS Construction Manager

Developer shall designate an ITS Construction Manager for the Project. The ITS Construction Manager must report directly to the Construction Manager. Developer shall ensure that the ITS Construction Manager is responsible for the construction, installation, and systems acceptance testing for the entire ITS system. The ITS Construction Manager must be familiar with the overall functionality of the ADOT FMS, its field elements and their technologies, and the connectivity between the field elements and their users. The individual's relevant experience includes the following;

A. 10 years of experience in leading ITS construction, installation, and system acceptance testing.

B. 50 miles of previous fiber optic cable installation experience.

110.08.3.19 Maintenance Coordinator

Developer shall designate a Maintenance Coordinator for the Project. The Maintenance Coordinator must report directly to the Construction Manager. The Maintenance Coordinator is responsible for adhering to and administrating the requirements of the Contract Documents as it relates to Maintenance During Construction. The Maintenance Coordinator is responsible for having the ability to authorize and respond to unscheduled maintenance requirements as they occur. These requirements may occur 24 hours a day, 7 days a week as deemed necessary by the occurrence. The Maintenance Coordinator may designate other individuals to respond to after-hours maintenance requirements, however, it is the Maintenance Coordinator's responsibility to ensure all Maintenance During Construction requirements are addressed in the allowed time frame.

110.09 Safety Management

110.09.1 General Requirements

Developer shall perform all Work in compliance with the requirements of Section GP 110.09 of the TPs.

Developer shall have sole responsibility for safety on the Site until Project Substantial Completion, except that with respect to the South Segment, such responsibility for safety shall cease upon Developer achieving South Segment Substantial Completion (if applicable). Developer also shall have sole responsibility for safety of workers and the public with respect to on-Site activities of any Developer-Related Entity from Project Substantial Completion until Final Acceptance. Developer shall ensure that all Developer employees and Subcontractors comply with the Safety Management Plan, applicable Laws, and associated elements of Developer's injury and illness prevention program.

Developer shall comply with OSHA Regulations, including 29 CFR, Part 1926, and 29 CFR, Part 1910, as well as all applicable standards of the U.S. Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), and the U.S. Mine Safety and Health Administration (MSHA). Developer shall maintain a copy of the specified OSHA Standards on the Site at all times.

110.09.2 Administrative Requirements

110.09.2.1 Safety Management Plan

Developer shall develop, implement, and maintain a comprehensive written Safety Management Plan that describes the policies, plans, training programs, Project controls and reporting, Incident response plans, and enforcement for the safety of personnel involved in the Project and the general public affected by the Project during the D&C Period. The OMSMP, which is a supplement to the Safety Management Plan, shall be prepared in accordance with Section OMR 400.2.1.2 of the TPs.

The Safety Management Plan must be Project-specific and must include Work to be performed by Subcontractors. The Safety Management Plan must include a hazard assessment describing the hazards likely to be encountered on the Project during the D&C Work and must identify the sections of the plan that will be used to manage those hazards.

Developer's Safety Management Plan must:

A. Be consistent with the Project insurance requirements;
B. Clearly establish the safety organization described in Section GP 110.09.2.1.1 of the TPs;
C. Describe the process of conducting safety orientation for all employees;
D. Describe Developer's alcohol and drug free workplace policy;
E. Describe employee training requirements;
F. Describe safety inspection procedures;
G. Describe procedures and policies for working in active traffic locations;
H. Describe Incident reporting procedures including near-miss Incidents;
I. Describe Developer's hazard communication program;
J. Describe Developer's management and auditing of the Safety Management Plan;
K. Describe personal protective equipment (PPE) requirements and policy;
L. Describe safety procedures for Developer's employees working around and handling Hazardous Materials;
M. Describe the availability of first-aid, medical, and emergency equipment and services at the Site, including arrangements for emergency transportation;
N. Describe security procedures to prevent theft, vandalism, and other losses at the Site;
O. Describe procedures to discourage unauthorized access to the Project or to specific hazard areas;

P. Describe the process for submittal of *OSHA Forms for Recording Work-Related Injuries and Illnesses* to ADOT; and

Q. Describe strategies and measures to mitigate the effects of a Pandemic on performance of Work and protect the health and safety of workers.

Prior to issuance of NTP 2, Developer shall submit the Safety Management Plan (other than the OMSMP) to ADOT for approval in ADOT's good faith discretion.

110.09.2.1.1 Safety Organization

The Safety Management Plan must clearly establish the specific chain of command and specify the lines of authority, responsibility, and communication with regard to safety compliance activities. The Safety Management Plan must identify full-time dedicated safety professionals or managers covering all production shifts. The Safety Management Plan (other than the OMSMP) must delineate administrative responsibilities for implementing the Project safety program. The Safety Management Plan must describe the process of including representatives from Developer and all Subcontractors, as well as ADOT personnel working on the Project.

The Safety Management Plan must specify which on-Site personnel have the authority to stop on-Site activities when unanticipated and/or uncontrolled hazards are recognized and the plan must specify those personnel with the authority to restart Site activities after achieving control of the previously unrecognized hazards. The Project Manager must be responsible for the overall health and safety performance. The Safety Management Plan must specifically define the safety responsibilities of each level of supervision.

110.09.2.1.2 Process of Employee Safety Orientation

The Safety Management Plan must describe the safety orientation process, including the following:

A. The extent and nature of the Project;

B. Any hazards that can typically be expected during the course of the Construction Work that are specific to the job assignment;

C. Conducting and using a job hazard analysis;

D. Required Work practices, job conduct, and injury-reporting procedures;

E. Acquainting the employee with special Construction Work and safety requirements at the Site; and

F. Emergency response procedures

110.09.2.1.3 Employee Training Requirements

Developer shall establish a safety-training program that includes requirements for general and Project-specific training. Developer shall train all levels of staff.

Developer shall conduct, at a minimum, weekly safety meetings that are relevant to the specific types of Work at the Site, which comply with applicable Laws. Developer shall prepare documentation of meeting content and employee attendance.

110.09.2.1.4 Personal Protective Equipment Requirements and Policy

The Safety Management Plan must define specific personal protective equipment (PPE) requirements for all employees for each task. At a minimum, Developer shall provide a consistent type of high-visibility safety vest (ANSI 107-2004 Class 2 daytime, Class 3 nighttime) that all personnel must wear, as well as an ANSI-approved hard hat, safety glasses with side shields, and work boots, specific for the performance of the relevant job.

Developer shall ensure that all vendors and visitors wear hard hats, as well as other required PPE, while on the Site. Developer shall ensure that anyone not complying with these requirements does not to enter the Site or is required to leave the Site. Developer shall document all such Incidents. Developer's job hazard analysis must include all required PPE for the specific task.

110.09.2.1.5 Alcohol and Drug Free Workplace Policy

Developer shall provide a policy for promoting a safe, alcohol-free, and drug-free workplace. The policy must be consistent, fair, manageable, and subject to audit. The policy must provide for disciplinary action or termination for an employee reporting for work under the influence of alcohol or a prohibited substance or in possession of a prohibited substance. The policy must require drug testing after an incident at the Site or at any pre-job site to satisfy Project insurance requirements.

110.09.2.1.6 Safety Inspection Procedures

The Safety Management Plan must describe safety inspection procedures of Work areas, materials, and equipment to ensure compliance with the safety management program. Developer shall schedule, conduct, and document safety inspections in all Work areas to identify and reduce physical and/or environmental hazards that might contribute to injuries or illnesses.

110.09.2.1.7 Emergency Procedures

As it may pertain to Developer staff and Site procedures, Developer shall develop an Emergency action plan for the Project that specifies the procedures for each identified potential Emergency, notification requirements, and training, and identify those individuals responsible for implementing the plan, upon activation of the plan. The potential for an Emergency (fire, explosion, chemical release, etc.) exists at all construction areas, including Temporary Construction Easements and Developer's Temporary Work Areas. The Emergency action plan must identify the various response activities necessary to minimize the dangers and confusion associated with an Emergency. The Emergency action plan must address fire, explosions, Hazardous Materials, natural disasters, and civil disruptions.

110.09.2.1.8 Accident and Incident Response Procedures

The Safety Management Plan must include processes to investigate and report accidents (both third party and jobsite), Incidents and near-miss accidents and Incidents that (a) arise out of or are connected with performance of the Work, whether on or adjacent to the Site, (b) involve damage or destruction to Project elements within the scope of Maintenance During Construction or the O&M Work, or (c) cause death or bodily injury to any employee or invitee, or damage to the property, of Developer or its Subcontractors. The Safety Management Plan also must include processes to retain safety records.

Developer shall provide verbal notification to ADOT of all accidents and Incidents. Developer shall provide a written report to ADOT of all such accidents, Incidents and near-miss accidents and Incidents. Developer shall verbally notify ADOT within 1 hour from time of occurrence (or Developer's discovery of the occurrence), and include date and time, location, brief description, extent of property damage, and extent of injuries. When such occurrences take place, Developer shall promptly initiate an investigation and notify appropriate individuals (ADOT, etc.). Developer's written report must conform to the requirements in Section GP 110.09.2.1.12.2 of the TPs.

Developer shall maintain a 24-hour-per-day, 7-day-per-week Emergency contact telephone number with a responsible individual in charge, empowered to take any necessary actions on behalf of Developer.

110.09.2.1.9 Job Hazard Analysis and Communications

Developer shall provide policy and procedures for job hazard analysis and communication of that analysis to forepersons and workers as the day's work and tasks are outlined. All employees involved with the task must discuss the hazards anticipated, equipment needed to work safely, and PPE to be provided and worn. The communications may include on-site gatherings where performance of the task is to occur. Developer shall give employees an opportunity to provide input regarding task steps, hazards identified, and appropriate control measures. Developer shall document all job hazard analysis training.

110.09.2.1.10 Materials Safety Procedures and Communication Policy

Developer shall ensure that the Safety Management Plan describes safety procedures and communication policy for Developer's employees working around and handling Hazardous Materials.

Developer shall provide employees with information and training regarding any Hazardous Materials to which they may be exposed. Additionally, Developer shall ensure that there is no delivery, storage or use of Hazardous Materials at or to the Site, unless they are properly labeled, tagged, or marked and the safety data sheets are readily available.

110.09.2.1.11 Site Security, Temporary Fencing, and Steel Plating

Developer shall ensure that the Safety Management Plan describes safety procedures for Site security to discourage unauthorized access to the Project or to specific hazard areas during the D&C Period. The Safety Management Plan must include providing 72-inch temporary chain link fencing, or ADOT approved equal, around all major structure construction areas (i.e., bridges, pump houses, drop structures, retaining walls, etc.) and around any unattended excavation deeper than 4 feet, with slopes steeper than 1:2 (V:H). Temporary fencing must completely enclose the referenced construction activity and must be secured after normal working hours to prevent unauthorized access. The Safety Management Plan must describe the controls that will be implemented at each construction entrance such as gates, guards, or signs.

Developer shall limit open utility trenches to 50 feet in length, except for cast-in-place pipe installations during non-working hours. Developer shall cover all open trenches where accessible to traffic with steel plates. Developer shall prepare an Open Trench Safety and Security Plan for all trenches greater than 50 feet in length that describes and details how Developer intends to construct the trench and to make it safe and secure for workers and the general public. Not later than ten Business Days before excavating a trench greater than 50 feet in length, Developer shall submit the Open Trench Safety and Security Plan to ADOT for review and comment.

110.09.2.1.12 Managing and Auditing of Safety Management

The Safety Management Plan must describe the audit process for safety management. The Safety Management Plan must describe frequency and scope of audit, how to conduct the audit, how communication of the results of the audit is to occur, and how to track audit findings and corrective actions.

110.09.2.1.12.1 Safety Performance Analysis

Developer shall complete a detailed analysis of safety performance each quarter. Developer shall conduct the safety performance analysis to document that Developer and its Subcontractors are

performing Work in a safe way and in compliance with the Safety Management Plan and applicable Laws. The analysis must define, and measure specific proactive program elements designed to prevent incidents, such as employee training and orientations, toolbox meetings, audits and inspections, immediately dangerous to life and health interventions, etc. Developer shall document the measures to verify proactive efforts relative to safety performance results. Developer shall prepare a Safety Performance Analysis Report that includes the analysis and results as described in this Section GP 110.09.2.1.12.1 of the TPs. Each quarter by the 20th of the month after the quarter ends, Developer shall submit a Safety Performance Analysis Report to ADOT.

If the safety performance analysis reveals an error or deficiency, Developer shall take immediate measures to correct the observed error and immediately prepare a Safety Corrective Measure(s) that includes a description of all measures to correct the safety error or deficiency. Developer shall immediately submit the Safety Corrective Measure(s) to ADOT.

110.09.2.1.12.2 Safety Results, Statistics, and Reports

Developer shall prepare and submit to ADOT reports per the following schedule:

A. Quarterly Safety & Claims Report, by the 20th of the month after the quarter ends. The Quarterly Safety & Claims Report is in addition to the Safety Performance Analysis Report described in Section 110.09.2.1.12.1 of the TPs, and must include:
    1. Summary report for all OSHA recordable injuries, first aid cases, and reported near misses including the date of occurrence, type of injury, OSHA reporting classification and claim status (open/closed);
    2. Incident rate calculation for all OSHA recordable incidents for the Project since inception and OSHA recordable rate calculation for incidents for the previous month. Incident rate calculations must include all Project incidents, with a separate calculation for direct labor such as self-perform work and management of the Project, and for each subcontractor who has an OSHA recordable incident on the Project. (Recordable incidents x 200,000 / man-hours);
    3. Report detailing, corrective actions taken to prevent reoccurrence of similar incidents for Developer and all Subcontractors; and
    4. Property damage and public liability incidents occurring in the previous month including date of incident, description of incident, photos, DPS DR# or other law enforcement agency record number, and corrective actions taken.
    5. Summary of all Incidents, accidents and near-miss Incidents and accidents that Developer is obligated to investigate and report pursuant to the Safety Management Plan, including: type of occurrence, date, time and location of the occurrence, brief description of the occurrence, extent of property damage, extent of injuries and deaths,, photos, DPS DR# or other law enforcement agency record number, and status of corrective actions and plans;
    6. Summary of all third party claims made against ADOT or any Developer-Related Entity for death, bodily injury or property damage, including: date of loss, brief description of the allegation, status of the claim, if the claim has been accepted by Developer or applicable insurers, and the date closed;
    7. Summary of all claims tendered by the State, including: State claim number, date of loss, brief description of the allegation, status of the claim, if the claim has been accepted, and the date closed; and

8. Summary of safety audits performed in the preceding quarter, including: date of audit, description of findings, and status of corrective actions.

110.09.2.1.12.3 Periodic Updates to Safety Management Plan

Developer shall update the Safety Management Plan yearly throughout the Term to incorporate corrective action recommendations and other minor clarifications. At a minimum, every year or as Work scope changes the workplace environment, a major regulation change requirement occurs, or at the request of ADOT, Developer shall review and update the Safety Management Plan for compliance with regulations, policies, and procedures.

110.09.2.2 Audits/Inspections

ADOT reserves the right to perform audits and inspections to confirm that Developer is complying with health and safety rules and procedures. ADOT has the right to have a qualified safety representative perform audits and/or inspections on a periodic basis.

110.09.2.3 Noncompliance with the Safety Program

ADOT, through ADOT designated personnel, has the authority to stop any activity that constitutes or ADOT perceives to present a threat of imminent danger. If any conditions or activities may present an imminent danger that could result in serious injury, death, or extensive property damage, Developer shall stop the affected portion of the Work immediately and shall not recommence until it corrects the practices or conditions to the satisfaction of ADOT.

Developer shall discipline and/or dismiss employees who violate established safety rules and regulations. This includes immediate termination for serious violations, repeated violations, or the refusal to follow health and safety rules. Developer shall be solely responsible for all cost or schedule impacts, in the event any Governmental Entity stops or shuts down the Construction Work or any portion thereof because of an unsafe condition.

110.09.3 Submittals

Table 110-11 reflects a nonexclusive list of Submittals identified in Section GP 110.09 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-11
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Safety Management Plan	2	0	1	Prior to issuance of NTP 2	GP 110.09.2.1
Open Trench Safety and Security Plan	3	0	1	Not later than 10 Business Days before excavating trenches greater than 50 feet in length	GP 110.09.2.1.11
Safety Performance Analysis Report	5	0	1	Each quarter by the 15th of the month after the quarter ends	GP 110.09.2.1.12 .1

Table 110-11 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Safety Corrective Measures, as needed	5	0	1	Immediately	GP 110.09.2.1.12 .1
Quarterly Safety & Claims Report	5	0	1	Each quarter by the 20th of the month after the quarter ends	GP 110.09.2.1.12 .2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.10 Submittal Review Management

110.10.1 General Requirements

Developer shall perform all Work in compliance with the requirements of Section GP 110.10 of the TPs. Section GP 110.10 of the TPs includes requirements related to Submittals and the Submittal review process for all Submittals required by the TPs. Developer shall be responsible for obtaining all required approvals from the applicable Governmental Entities and Utility Companies.

110.10.2 Administrative Requirements

110.10.2.1 General

Developer shall provide Submittal packages via ADOT's project management information system in accordance with the Contract Documents and the PMP along with all supporting information necessary for ADOT, Governmental Entities, and Utility Companies to conduct a review and to ensure that the design is progressing appropriately. Submittal packages must include the following:

A. Administrative documents (PMP, other plans, etc.);
B. Design Documents; and
C. Construction Documents.

110.10.2.2 Submittal Format

Submittal packages must have a unique alphanumeric identifier that remains with the package and identifies each Submittal stage (e.g., Initial Design Submittal, Final Design Submittal, RFC Submittal, etc.). The alphanumeric identifier must remain constant and track the design package through the life of the Project.

Except for the Shop Drawings and Working Drawings, which shall be submitted in both electronic format and hardcopy format, Developer shall submit all Submittal documents in electronic format as specified in Table 110-12.

Table 110-12 Submittal Format			
Submittal Stage/Deliverable	Hardcopy	Electronic	
	Paper	Native	PDF
Administrative Documents (e.g., PMP, Project Schedule)		X	X
Specifications, Technical Reports, Calculations, Modeling, Input and Output Files, etc.		X	X
Initial Design Submittal		X	X
Final Design Submittal		X	X
RFC Submittal		X	X
Final Design Documents Submittal		X	X
Shop Drawings and Working Drawings	X		X
Request for Information			X
Design Changes			X
Record Drawings		X	X
Other Governmental Entities, Utility Companies, and railroad Submittals*			X
Note: * Developer shall determine the additional format requirements required by the applicable Governmental Entity and/or Utility Company.			

110.10.2.3 CAD Requirements

Developer shall utilize Bentley CONNECT Edition software and all CAD files shall utilize ADOT seed files. Annotation scaling shall be used. Developer shall prepare all drawings, Plans, and exhibits in accordance with the ADOT *2015 ADOT Drafting Guides for Use in Office and Field* (Drafting Guide) and the Computer Aided Design (CAD) Requirements included on azdot.gov/business/engineering-and-construction/computer-aided-design-and-drafting-cadd, unless otherwise modified by the TPs.

Developer shall provide to ADOT the CAD Base Files for all design disciplines, and the corresponding kmz file (s) for the project, every 90 days through Project Substantial Completion. These CAD and kmz submittals are informational, independent of any files that must be included in Design Submittals, and are not subject to ADOT Review and Comment.

110.10.2.4 Format

Developer shall prepare all Plans on sheets 22 inches in height and 34 inches in length with 1-1/4-inch margins on the left and right sides, and 3/4-inch margins on the top and bottom, unless otherwise noted in the Contract Documents. A blank space, 4 inches wide by 3 inches high, must appear inside the margin in the lower right hand corner. Developer shall prepare all Plans in such a manner that ADOT and others can make clear and legible copies of them. Developer shall prepare exhibits on 8.5 inch x 11 inch, 11 inch x 17 inch, 22 inch x 34 inch, or 36 inch x 72 inch sized sheets, as appropriate.

Developer shall prepare all documents, reports, and calculations on 8.5 inch x 11 inch sheets, unless otherwise noted in the Contract Documents.

Developer may use roll plots for specific deliverables as noted in the Contract Documents. Developer shall not use roll plots for RFC documents or Plans. Roll plots must be 36 inches in height and 72 inches in length, with 1-1/4 inch margins on the left and right sides, and 3/4 inch margins on the top and bottom.

Developer shall utilize or integrate with ADOT's project management information system for electronic submittal to ADOT of all data and documents throughout the D&C Period. If Developer chooses to integrate with ADOT's project management information system, Developer shall use data systems, standards and procedures compatible with those employed by ADOT and implement any new operating practices required as a result of ADOT's amendments to any such systems, standards and procedures. Web services application programming interface for real time integration using industry-standard protocols and event driven integrations triggered through structured workflows provide options to integrate with ADOT's project management information system. Developer shall obtain all software, licenses, training, and support to integrate or use ADOT's project management information system throughout the D&C Period.

Developer shall use ADOT-provided electronic forms and process, where applicable. Developer shall submit, as identified in the Contract Documents, electronic Submittals compatible with existing ADOT program systems and/or software. Systems and software in current use by ADOT include the following:

A. Microsoft Windows 10 (operating system);
B. Google Office Suite with Gmail, Google Sheets, and Google Docs;
C. Microsoft Word 2010;
D. Microsoft Excel 2010;
E. Docusign for the Enterprise
F. BentleyCONNECT Edition software:
    1. OpenBridge Designer v10.08.00.17
    2. ProStructures v10.03.00.58
    3. OpenRoads Designer (ORD) v10.07.03.18
    4. MicroStation CONNECT v10.13.01.01 Update 13
    5. OpenRoads SignCAD v10.00.00.12
    6. OpenCities Map v10.04.00.42
G. Oracle Primavera P6.

Developer shall submit electronic files to ADOT as identified in the Contract Documents electronically through ADOT's project management information system. Developer shall include a transmittal letter with Developer's electronic signature with all electronic Submittals. Developer shall submit Plans in half-size (11 inch x 17 inch) PDFs.

110.10.2.4.1 Existing Ground Model

Developer shall create an integrated-model of the existing condition to create a terrain model (TM) using Bentley's ORD software. The existing ground model must include existing ground surface features utilizing data from field surveys, and existing plans data collection including currently available existing ground surface data. Developer shall verify the TM for accuracy through field procedures of locating well-defined and random check points (not included in the creation of the TM surface) systematically dispersed throughout the Site and compared to the TM.

Developer shall comply with the requirements in the following manuals available from ADOT at azdot.gov/business/engineering-and-construction/engineering-survey in creating DTMs:

A. *Manual for Field Surveys*;

B. *Location Survey P-codes for Bentley InRoads*; and

C. *General Specifications for Photogrammetric Mapping*.

Developer shall include the existing ground model in both DTM and LandXML format with the 3D Models.

110.10.2.4.2 ORD Files

Developer shall prepare and submit ORD Files utilized in the development of the design model. Developer shall submit these files at the same time as Plan submittals. Developer shall follow the OpenRoads file naming system described in NewCADDProjects.pdf document available here: azdot.gov/business/engineering-and-construction/cadd, within the Help.zip file.

110.10.2.4.3 3D Models

Developer shall prepare 3D Models using ORD that contain representations of physical objects in 3D (x, y, and z) as surfaces or solids. 3D Models must include existing conditions model(s), proposed design model(s), existing and proposed subsurface features model, and construction model(s).

The existing condition 3D Model(s) must contain existing ground surface and other subsurface elements including drainage structures, utilities and zones of protection, and bridge and wall foundations, shown on the Plans or the existing ground surface data (TM).

Design and construction 3D Models must incorporate proposed 3D key design features for the following elements of Work:

A. Roadway (including, but not necessarily limited to, intersections, turnouts, driveways, curb and gutter, barrier, sidewalks, guardrail, and pads);

B. Drainage (including pipes, culverts, catch basins, inlets, headwalls, manholes, and junction structures);

C. Structures (including sufficient detail to show top of deck surface, structure type, bottom of beam surface, pier locations, abutment locations, wall locations, foundations, and clearances);

D. ITS (including, but not necessarily limited to, closed circuit television (CCTV) camera poles, dynamic message sign (DMS) structures, cabinets, and foundation locations);

E. Signing (including overhead signs, structures and foundations); and

F. Lighting (including pole, mast arms, luminaires and foundation locations);

Developer shall submit the 3D Model(s) to ADOT for review and comment with the initial, final and RFC roadway Plan submittals. After that, Developer shall update and submit the 3D Model to ADOT for review and comment every 90 Days through Project Substantial Completion.

110.10.2.5 Design Review Process

Developer shall not be relieved of its responsibility for the satisfactory completion of the Work in accordance with the Contract Documents by ADOT's participation in Design Reviews. ADOT may require resubmittal of any Design Documents and/or Construction Documents, as it deems appropriate. ADOT will have the right to refuse and reject any Submittal that does not comply with the Contract Documents, including QA/QC requirements. Upon the rejection of any Submittal, Developer shall notify all recipients to remove all copies from circulation. Developer shall

redistribute the replacement Submittal to ADOT and other appropriate Governmental Entities, as authorized by ADOT.

ADOT will provide review comments to Developer numbered in a manner corresponding to the drawing or report page in question. Developer shall provide space after each comment for a brief response by Developer. The comments on the Submittals received from parties other than ADOT may not follow the above-described ADOT comment format. In addition, Developer might receive separate comment packages from each party that reviews a Submittal. With the PSQMP, Developer shall prepare and submit a Comment Resolution Form to ADOT. Developer shall compile all Submittal review comments on a Comment Resolution Form. The Comment Resolution Form is a living document in which Developer shall incorporate all comments and resulting resolutions for the Submittal package for the duration of the Submittal. Developer shall include previous Submittal comments, if applicable, and Comment Resolution Form(s) with each subsequent Submittal identified with an alphanumeric tracking number corresponding to the package submission in accordance with Section GP 110.10.2.2 of the TPs. With the subsequent Submittal, Developer shall prepare and submit written Review Comment Responses to ADOT.

Developer shall schedule a comment resolution meeting (CRM) to address unresolved comments and must attend the CRM. Developer may request ADOT to waive a CRM. ADOT may waive a CRM at its sole discretion. The purpose of the CRM is to discuss Developer's responses to ADOT's review comments, determine which of ADOT's review comments Developer shall incorporate into the Work, and discuss and resolve outstanding comments. More than one CRM per Submittal might be necessary to discuss all review comments provided to Developer. Within five Business Days of the CRM, Developer shall prepare and submit CRM Notes to ADOT. The Project Manager, Design Manager, Engineer(s) of Record, and all Developer staff requested by ADOT must attend the CRM. The Parties will escalate review comments not resolved after the first complete CRM to the CRM comment resolution board consisting of ADOT, Project Manager, and Design Manager. The Parties will use the Project's partnering process in accordance with Section 24.1 of the Agreement to address review comments not resolved at the CRM comment resolution board.

Developer shall address all Initial Design Submittal comments in the Final Design Submittal prior to submitting the RFC Submittal. Developer acknowledges and agrees that ADOT may require resubmittal of the Final Design Submittal, RFC Submittal, or other design Submittals. Developer shall resubmit the Final Design Submittal as many times as necessary to obtain ADOT's approval of the Final Design Submittal. Developer shall not be entitled to an increase in the Contract Price, adjustment of a Completion Deadline, or any other Claim due to required resubmittals.

110.10.2.5.1 Over-the-Shoulder Reviews

Over-the-shoulder reviews are informal examinations by ADOT of Design Documents during the Project design process. Such reviews are not considered formal reviews as specified in Section GP 110.10.2.5 of the TPs. Over-the-shoulder reviews are mainly intended to assess whether the requirements and design criteria of the Contract Documents are being followed and whether PSQMP activities are being undertaken in accordance with the QMP.

The intent of these reviews is to check for concept, level of detail, design criteria, and patent flaws. Comments made by ADOT are nonbinding and are not eligible as the basis for any Claim. Developer shall conform to the requirements of the Contract Documents. These reviews might not routinely include detailed calculation or drawing reviews, although ADOT will have the right to perform detailed reviews of any item at any time. If mutually agreed upon between the Parties for specific review items, the over-the-shoulder review can consist of an exchange of electronic files between Developer's designer and ADOT.

The QMP must define the frequency, timing, content, and format of the over-the-shoulder reviews. Developer shall schedule over-the-shoulder reviews with ADOT during the course of the development of each design package. The over-the-shoulder reviews are not critical activity points that restrict the progress of design. They are simply reviews of the design as it progresses and opportunities for ADOT to provide comments and feedback on the design.

If there are to be over-the-shoulder reviews, ADOT will conduct them, as appropriate, in either Developer's office or at ADOT's offices or the Collocated Office, and in the presence of Developer's personnel with the intent to minimize disruption of ongoing Design Work. Formal assembly and submittal of drawings or other documents may not be required. The review may be of progress prints, computer images, draft documents, working calculations, draft specifications or reports, or other Design Documents.

ADOT will have no obligation to conduct over-the-shoulder reviews.

110.10.2.5.2 Segment Limits Map and Design Submittal Schedule

Developer shall prepare a Segment Limits Map and Design Submittal Schedule for the development, scheduling, and characterization of Developer's design. The intent of the Segment Limits Map and Design Submittal Schedule is to enable adequate planning by ADOT of and/or with respect to its review resources.

Developer shall prepare a Segment Limits Map that identifies how Developer intends to divide the Project into design segments for the intent of submitting design Submittal packages to ADOT. ADOT will not accept or review a single design package for the entire Project, with the exception of the Final Design Documents Submittal. Subject to prior approval by ADOT, Developer may modify the Segment Limits Map as the design effort progresses. Segment Limits Map must include stations and mileposts of:

A. Beginning of Project;

B. End of Project;

C. Existing bridge crossings with Structures Identification Numbers;

D. Proposed bridge crossings with Structures Identification Numbers;

E. Construction segment delineation;

F. Lead design firm delineation; and

G. Other project specific landmarks, including all mileposts.

Developer shall prepare a Design Submittal Schedule that identifies all design Submittal packages up to and including RFC Submittal for each design segment Developer intends to submit to ADOT. The Design Submittal Schedule must identify individual Submittal packages for each bridge and wall structure. Developer shall identify preceding elements, such as reports that Developer shall submit prior to Plans, in the Design Submittal Schedule.

Prior to issuance of NTP 2, Developer shall submit the Segment Limits Map and Design Submittal Schedule to ADOT for approval in ADOT's good faith discretion.

Developer shall incorporate in the Project Schedule the review periods for each Submittal package that Developer shall submit as identified in the Segment Limits Map. ADOT will not guarantee any specific review period for Governmental Entities and Utility Companies. Each Governmental Entity and Utility Company, at its discretion, establishes the review period for each review to be performed by such Governmental Entity or Utility Company, after a Submittal package has been provided to the Governmental Entity or Utility Company.

110.10.2.5.3 Submittal Review Periods

Developer shall coordinate with other Governmental Entities and Utility Companies to determine those entities' submittal review requirements.

Developer acknowledges and agrees that Submittals at all Submittal stages require the review period duration applicable for that category of Submittal as reflected in Table 110-13. Review times are applicable only for the submission of complete and comprehensive documents that ADOT deems acceptable for review.

Table 110-13
Submittal Review Periods

Category	Submittal To	Review Period (Business Days)
	Professional Services	
A	ADOT	10[2]
B	ADOT (Design Variances)	20
C	ADOT (Design Exceptions and Change of Access)	20[1]
D	Other Governmental Entities and Utility Companies	Varies[1]
	Construction	
E	Design Changes	10[1]
F	Record Drawings	20[1]

Notes:
1. Developer shall coordinate with other Governmental Entities and Utility Companies to determine the entities' submittal requirements.
2. 20 during O&M Period, per Section OMR 400.1.2 of the TPs.

A maximum of 10 Submittals per technical discipline may be submitted and pending for review by ADOT at any given time. Technical disciplines for the purpose of maximum review Submittals include:

A. Land Surveying;
B. Geotechnical/Earthwork;
C. Pavement;
D. Environmental;
E. Public Information;
F. Utilities;
G. Roadway;
H. Drainage;
I. Aesthetics and Landscaping;
J. Structures

K. Hydraulics;

L. Traffic;

M. Maintenance of Traffic; and

N. Intelligent Transportation Systems.

Developer may request authorization from ADOT for the right to make Submittals in excess of the stipulated maximum number stated in this Section GP 110.10.2.5.3 of the TPs. ADOT will have the right to withhold authorization if ADOT deems the request unreasonable or if ADOT personnel cannot accommodate the additional reviews.

110.10.2.6 Design Requirements

Developer shall prepare all Design Documents by or under the supervision of a Professional Engineer of the applicable discipline. All RFC Submittals and Final Design Submittals must be stamped, signed, and dated by the responsible Professional Engineer.

Except as otherwise specified in the Contract Documents or approved by ADOT, Developer shall develop formal Submittals of Design Documents following the steps described in this Section GP 110.10.2.6 of the TPs. The primary design Submittal package stages are:

A. Geometric Drawings;

B. Initial Design Submittal;

C. Final Design Submittal;

D. RFC Submittal; and

E. Final Design Documents Submittal.

Notwithstanding the foregoing, Developer may request the right to propose to eliminate a design package step identified herein, as reflected by Developer's proposed Project Baseline Schedule. ADOT, in its sole discretion, will have the right to withhold approval of such request.

Developer shall coordinate with other Governmental Entities and Utility Companies to determine those entities' submittal requirements and make appropriate Submittals, providing concurrent copies of any such submittals and respective correspondence to ADOT. Developer shall immediately notify ADOT of any additional Governmental Entity's or Utility Company's requirements. Developer shall be responsible for all costs and schedule impacts for all Governmental Entities' and Utility Company's requirements.

110.10.2.6.1 Plans

Developer shall prepare Plans that include design drawings specific for the Project that show the location, character, dimensions, and details of the Construction Work that Developer shall perform. Developer shall prepare all Plans in accordance with Good Industry Practice and the Contract Documents. Developer shall detail all non-ADOT standards drawings/details on Plans. All Plans must include the Project ROW and Temporary Construction Easements (TCE).

110.10.2.6.2 Specifications

As part of the Initial Design Submittal, Developer shall include a list of Standard Specifications that are intended to be included, along with any draft Special Provisions and Item Specifications that are required.

As part of the Final and RFC Design Submittals, Developer shall include all Standard Specifications, Special Provisions and Item Specifications that are required.

110.10.2.6.3 Geometric Drawing

Developer shall prepare a Geometric Drawing that includes the following:

A. Typical cross sections of the proposed roadways;

B. Plan view at a scale to show basic striping, topographic features, curve data, changes in alignment (i.e., beginning of curve, end of curve, point on compound curve, angle points, etc.), dimensions, etc.;

C. Profiles and superelevation diagrams that identifies grades, vertical curves, changes in profile (i.e. begin vertical curve, end vertical curve, point of intersections, point of tangency, vertical curve lengths, stopping sight distances, grade breaks, etc.);

D. Identification of structural and drainage facilities; and

E. Identification of any Developer-proposed Design Exceptions or Design Variances.

Prior to submittal of any other design package, Developer shall submit the Geometric Drawing to ADOT.

110.10.2.6.4 Initial Design Submittal

To supplement or augment Developer's design schematic included in the Proposal and when the design for a given Element or segment is approximately 60 percent complete, Developer shall prepare and submit an Initial Design Submittal to ADOT for review and comment. The Initial Design Submittal must include Plans, specifications, calculations, and other pertinent data needed to verify the design, as applicable.

110.10.2.6.5 Final Design Submittal

When the design for a given Element or area is approximately 95 percent complete, Developer shall prepare and submit a Final Design Submittal to ADOT for review and comment. Each Final Design Submittal must include Plans, specifications, technical memoranda, reports, studies, calculations, and other pertinent data, as applicable. The Final Design Submittal must also include a Comment Resolution Form showing how the Final Design Submittal addresses the review comments generated during the previous Submittal reviews.

110.10.2.6.6 RFC Submittal

When the design for a given Element or area is 100 percent complete and all previous comments have been addressed and appropriately incorporated, Developer shall prepare and submit the RFC Submittal to ADOT for review and comment. The RFC Submittal must include Plans, specifications, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable with the RFC Submittal. The RFC Submittal must also include a Comment Resolution Form showing how the RFC Submittal has addressed the review comments generated during previous submittal reviews. The Engineer of Record (by discipline) must sign and seal the RFC Submittal prior to construction of the relevant Project component.

110.10.2.6.7 Final Design Documents Submittal

Developer shall combine the RFC Submittals for the entire Project upon completion of all Design Work into a Final Design Documents Submittal package. The purpose of the Final Design Documents Submittal is to create a single package of the final Design Documents for the entire Project, for ADOT record-keeping purposes. Developer shall organize the RFC Submittals for individual Work items, components, elements, or phases such that assembly of the Final Design Documents Submittal is in a manner similar to the standard construction documents typically provided to ADOT for conventional project bidding.

Within 20 Business Days after the submittal of the last RFC Submittal to ADOT, Developer shall submit the Final Design Documents Submittal to ADOT. Developer acknowledges and agrees that ADOT may require resubmittal of the Final Design Documents Submittal or other design submittals if the submittal is found to be incomplete.

If the Developer receives a Certificate of South Segment Project Substantial Completion, then Developer shall deliver to ADOT the Final Design Documents Submittal for the South Segment within the time set forth in Section 8.6.2(d) of the Agreement.

110.10.2.7 Construction Requirements

110.10.2.7.1 Shop Drawings and Working Drawings

Developer shall prepare Shop Drawings and Working Drawings necessary to construct the Project. Shop Drawings and Working Drawings must include drawings on 11 inch x 17 inch sized sheets and calculations and certifications on 8.5 inch x 11 inch sized sheets, must describe the methods of construction proposed, and must adequately define and control the Work. At least ten Business Days prior to implementation, Developer shall submit to ADOT Shop Drawings and Working Drawings that the Design Manager has approved and the PSQM has reviewed and certified.

110.10.2.7.2 Request for Information

Design issues may arise in ongoing Work reflected in RFC Submittals. Developer may utilize the RFI process as a communication tool between design and construction. Developer or ADOT may initiate RFIs. Developer-initiated RFIs must reflect the following: the general nature, location, and description of the issue; Developer's proposed mitigation with supporting documentation of the issue; and the CQM's approval of such mitigation. ADOT will provide Developer an RFI for issues identified by ADOT. ADOT will submit ADOT-initiated RFIs to Developer for incorporation into the RFI process. Developer shall submit RFIs to the Design Manager, Construction Manager, or Project Manager, as appropriate, to obtain the proposed mitigation with supporting documentation. Developer shall submit any proposed mitigation to ADOT for approval prior to implementation.

When an issue or change arises, including those identified by ADOT-initiated RFIs, Developer shall place the RFI in an RFI Log to track all open issues. Every week, Developer shall submit the updated RFI Log to ADOT. No later than one Business Day prior to implementation of the associated RFI Work, Developer shall submit to ADOT the final ADOT-approved RFIs. Developer shall provide an independent and unique numbering system for Developer-initiated RFIs, different from ADOT-initiated RFIs or those of any other Governmental Entity. Within five Business Days of receipt of the ADOT-initiated RFIs, Developer shall submit a response to ADOT-initiated RFIs to ADOT.

Neither Party shall use the RFI process to modify RFC Submittals except for the adding of approved TCEs to the RFC Submittals. Any changes in design must be in accordance with Section 110.10.2.7.3 of the TPs.

110.10.2.7.3 Design Changes

During Construction Work, adjustments to the design might be required to fit field conditions thus requiring a Design Change. The Engineer of Record for the design at the time of the Design Change must provide written approval for any Design Change that occurs during construction, or Design Changes that occur to Design Documents, unless otherwise specifically authorized in writing by ADOT. All Design Changes must undergo the same QMP checks, reviews, and certifications and are subject to the same review process beginning at Final Design Submittal, as

the original design. Design Changes must include plan sheets, specifications, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable per the deliverable content required by the level of the submittal.

Design Change documentation must include confirmation that:

A. The Design Change has been designed in accordance with the requirements of the Contract Documents, applicable Laws, and Governmental Approvals;

B. The Design Change has been checked in accordance with Developer's PSQMP;

C. The Design Change has been prepared consistently with other elements of the original design;

D. The Design Change complies with the design certification requirements as set forth in the QMP; and

E. All ADOT comments have been resolved.

Developer shall request and schedule an interim and final Design Review(s) for all Design Changes made during construction or to the Final Design Documents Submittal. Developer shall document all changes made through the Design Change process in the Record Drawings in accordance with Section GP 110.10.2.7.4 of the TPs.

110.10.2.7.4 Record Drawings

Developer shall prepare Record Drawings, including final CAD files, in accordance with the ADOT *Record Drawing Guidelines*. As a condition of Final Acceptance in accordance with Section 8.6.5 of the Agreement, Developer shall submit Record Drawings as a composite set of plans for the Project and the As-Built Schedule as set forth in Section GP 110.06.2.12 of the TPs to ADOT for review and comment. The PSQM must certify that the Record Drawings comply with the QMP.

110.10.3 Submittals

Table 110-14 reflects a nonexclusive list of Submittals identified in Section GP 110.10 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Except for the Shop Drawings and Working Drawings, which shall be submitted in both electronic format and hardcopy format, Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-14
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
3D Models	4	0	1	With the initial, final and RFC roadway Plan submittals, then every 90 Days through Project Substantial Completion	GP 110.10.2.4.3
Comment Resolution Form	5	0	1	With the PSQMP	GP 110.10.2.5

Table 110-14 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Review Comment Responses	5	0	1	With the subsequent Submittal	GP 110.10.2.5
CRM Notes	5	0	1	Within five Business Days of the CRM	GP 110.10.2.5
Segment Limits Map	2	0	1	Prior to issuance of NTP 2	GP 110.10.2.5.2
Design Submittal Schedule	2	0	1	Prior to issuance of NTP 2	GP 110.10.2.5.2
Geometric Drawing	5	0	1	Prior to submittal of any other design package	GP 110.10.2.6.3
Initial Design Submittal	4	0	1	When the design for a given element or segment is approximately 60 percent complete	GP 110.10.2.6.4
Final Design Submittal	4	0	1	When the design for a given element or area is approximately 95 percent complete	GP 110.10.2.6.5
RFC Submittal	4	0	1	When the design for a given element or area is 100 percent complete and all previous comments have been addressed and appropriately incorporated	GP 110.10.2.6.6
Final Design Documents Submittal	4	0	1	20 Business Days after the submittal of final RFC Submittal to ADOT	GP 110.10.2.6.7
Shop Drawings and Working Drawings	5	1	1	10 Business Days prior to implementation	GP 110.10.2.7.1
RFI Log	5	0	1	Every week	GP 110.10.2.7.2
RFI	4	0	1	No later than one Business Day prior to implementation of the associated RFI Work	GP 110.10.2.7.2
Response to ADOT-initiated RFIs	4	0	1	Within five Business Days of receipt of the ADOT-initiated RFIs	GP 110.10.2.7.2
Design Changes	4	0	1	Varies	GP 110.10.2.7.3

Table 110-14 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Record Drawings	4	0	1	As a condition of Final Acceptance in accordance with Section 8.6.5 of the Agreement	GP 110.10.2.7.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.11 Documentation of the Site

Developer shall perform all Work in compliance with the requirements of this Section GP 110.11 of the TPs. Developer shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks. Developer shall not move land monuments and property marks unless and until directed by ADOT. Developer shall protect existing fences, pole lines, signs, buildings and structures that are to remain in place from injury or damage.

110.11.1 Existing Conditions Site Documentation

Developer shall prepare an Existing Conditions Site Documentation that identifies and documents the existing conditions within the Site, including videotaping the whole Project. Developer shall investigate, videotape, and photograph existing Elements in the Project ROW that are planned to remain in place to determine its condition, size, material, location, and other pertinent information. Developer shall videotape the interior of all drainage facilities to remain within the Project ROW. The Existing Conditions Site Documentation must include adjacent roadways, drainage facilities including pump stations, channels and flowing waterways, fences, walls, houses, buildings, wells, sensitive habitats, landscaping and irrigation systems, and areas where activities will be performed by Developer or Subcontractors. Developer shall include in the Existing Conditions Site Documentation all facilities and Utilities that might be impacted by the Work including downstream drainage facilities, adjacent roadway conditions, and sensitive habitats. The videotape must show details of the condition of all properties and structures, pavement conditions of crossroads, and proposed and potential haul routes. Developer shall schedule field meetings with ADOT to observe and participate in the Existing Conditions Site Documentation. If Developer is unable to obtain site documentation of a specific element, ADOT shall observe such element and Developer shall obtain ADOT concurrence prior to submission of the Existing Conditions Site Documentation submittal. These requirements and this submittal do not supersede the requirements in other sections of the Contract Documents that require specific inspections, assessments, and site documentation.

Prior to issuance of NTP 2, Developer shall submit the Existing Conditions Site Documentation to ADOT for review and comment.

110.11.2 Site Documentation

At commencement of construction, and every month following through Final Acceptance, Developer shall photograph and videotape construction activities covering the following:

A. All structures and properties;

B. The Construction Work reflecting the activities underway during the month; and

C. Any accidents, unusual conditions, and complaints.

Developer shall prepare the Site Documentation so that it includes video footage and digitally produced photographs. Developer shall organize all such photographs and video footage according to activity and date. Aerial photography and video must be at consistent interval and spatial orientation from month to month. Developer shall obtain all necessary permission from property owners to enter their property for any Site Documentation of the Site.

110.11.3 Submittals

Table 110-15 reflects a nonexclusive list of Submittals identified in Section GP 110.11 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 110-15
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Existing Conditions Site Documentation	4	0	1	Prior to NTP 2	GP 110.11.1
Site Documentation	4	0	1	Monthly, or upon ADOT's request	GP 110.11.2

*Levels of Review

1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

110.12 Maintenance During Construction

Developer shall perform Maintenance During Construction of all facilities in the Project ROW as specified in this Section GP 110.12 of the TPs.

Respecting the Existing Improvements, Maintenance During Construction consists of:

A. Maintenance of drainage features, except those in the northbound Project ROW outside of Developer's planned work zones between Black Canyon City and Sunset Point;

B. Graffiti removal, including removal of graffiti from all surfaces within the Project ROW, except for graffiti:

   i. existing as of the Effective Date unless added by Supplemental Agreement; or

   ii. located in the northbound Project ROW outside of Developer's planned work zones between Black Canyon City and Sunset Point.

C. Repair and replacement of guardrails, concrete barriers, glare screens, crash attenuators and fences as necessary to rectify damage or destruction occurring during the D&C Period, including repair or replacement as necessary due to Incidents, except those in the northbound Project ROW outside of Developer's planned work zones between Black Canyon City and Sunset Point; and

D. Repair of damage to any Existing Improvements attributable to (i) a Developer Act or (ii) a collision involving a vehicle owned, leased or operated by a Developer-Related Entity when used in furtherance of the Work.

Respecting the improvements Developer constructs for the Project, Maintenance During Construction consists of:

A. Maintenance of drainage features;

B. Repair and replacement of all such improvements, whether temporary or permanent, as necessary to rectify damage or destruction, including repair and replacement as necessary due to Incidents;

C. Graffiti removal, including removal of graffiti from all surfaces of such improvements, whether temporary or permanent; and

D. Landscape maintenance.

Prior to NTP 2, Developer shall satisfy itself of the preconstruction condition of the existing lighting system, FMS, and drainage system. Developer shall schedule field meetings with ADOT to review and document the preconstruction condition of the lighting system, FMS, and drainage system in a manner acceptable to ADOT. Developer shall document in writing and bring to the attention of ADOT any deficiencies.

Except as provided above for roadway sweeping, Developer shall perform Maintenance During Construction from issuance of NTP 2 through Project Substantial Completion or through South Segment Substantial Completion for the South Segment in accordance with the applicable Performance Requirements and repair response times and frequencies set forth in TP Attachment 500-1. For Elements not covered in TP Attachment 500-1, Developer shall perform in accordance with the ADOT Standard Specifications, provided that, absent a Supplemental Agreement, Developer shall have no obligation to improve the condition of any Element subject to Maintenance During Construction above the condition indicated in the Existing Conditions Site Documentation.

ADOT may direct Developer to perform additional Maintenance During Construction in accordance with Section 8.11.2 of the Agreement.

110.13 General Construction

110.13.1 Inspection of Work

All materials and each part or detail of the Construction Work must be subject to inspection by ADOT. Developer shall allow ADOT access to all parts of the Construction Work and Developer shall furnish ADOT with such information and assistance as is required to make a complete and detailed inspection.

ADOT's failure to immediately discover any defective Work or materials does not in any way prevent later rejection by ADOT when such defect is discovered.

Certain Governmental Entities or Utility Companies might have the right to inspect the Work. Such inspection shall not make such Governmental Entity or Utility Company a party to the Agreement.

110.13.2 Developer Quality Control Laboratories

All field and laboratory sampling and testing by Developer shall be performed by a laboratory or laboratories approved by ADOT. The requirements for approval of laboratories are specified in the "System for the Evaluation of Testing Laboratories" directive. Approved laboratories, and the test methods for which they are approved to perform, are listed in the "ADOT Accredited Laboratories" directory. Approved test methods listed in the "ADOT Accredited Laboratories"

directory do not include field sampling and testing procedures. When field sampling and testing procedures are performed, the appropriate valid ATTI or ACI certification(s) are required. The "System for the Evaluation of Testing Laboratories" directive and the "ADOT Accredited Laboratories" directory may be obtained on ADOT's website.

110.13.3 Certificates

Developer shall provide Certificates of Compliance and/or Certificates of Analysis in accordance with Section 106.05 of the ADOT Standard Specifications.

110.13.4 Plant Access

Developer shall ensure that ADOT has full entry at all times to such parts of the plants, factories, and facilities as may be involved in the manufacture or production of the materials furnished for the Project or for temporary works or falseworks related to the Construction Work. Developer shall ensure the provision of adequate safety measures.

110.13.5 Sampling Device

Developer shall ensure that all secondary crushers and screening plants used in producing material are equipped with a mechanical sampling device or devices that either are operable from the ground or accessible to the operator on a platform.

Developer shall ensure that the construction and operation of these devices move at a constant rate across the full width of material and collect a representative sample of the falling column of material from the discharge belt or chute while the plant is in operation. Substantial construction of the sampling devices must be such that one can take a sample weighing up to 100 pounds.

The sampling devices must be equipped with necessary attachments to convey the samples to the ground so that they can be safely and conveniently collected.

Developer shall maintain or ensure maintenance of the sampling devices in a satisfactory working condition so that ADOT may take samples at any time, as required or otherwise desired by ADOT.

110.13.6 Ice for Field Testing

Developer shall make commercial ice available to ADOT on Site for field-testing purposes.

110.13.7 Approved Products List

Use of products must be in accordance with Section 106.14 of the ADOT Standard Specifications. Developer shall only use products listed on the Approved Products List.

110.13.8 Use of Prohibited Products

So long as section 889 of the National Defense Authorization Act of 2019 (H.R. 5515 at pp. 282-284; Pub. L. 115-232) or any comparable statute is effective, and as promulgated at 2 C.F.R. §200.216, Developer shall not commit any of the following actions:

A. Deliver, install, or include any Prohibited Product under this contract;
B. Propose to deliver, install, or include any Prohibited Product under this contract; or
C. Enter into a new contract to procure or obtain any Prohibited Product.

For the purpose of this Section, "Prohibited Product" means any telecommunication or video surveillance equipment, systems, or services produced or provided by:

(1) Huawei Technologies Company
(2) ZTE Corporation

(3) Hytera Communications Corporation

(4) Hangzhou Hikivision Digital Technology Company

(5) Dahua Technology Company

(6) Any subsidiary or affiliate of the entities mentioned in this Section

(7) Any entity that the U.S. Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country (i.e. the People's Republic of China).

Developer shall identify the known subsidiaries and affiliates of the aforementioned from the following Website: https://umd.service-now.com/itsupport?id=kb_article_view&sysparm_article=KB0014132&sys_kb_id=28015b70dbe0e3849382f1a51d96193f.The burden of proof for the origin or place of production of telecommunications or video surveillance equipment, systems, or services is the responsibility of Developer.

Prior to the use of any telecommunication or video surveillance equipment, systems, or services with respect to the Project, Developer shall furnish a certification to ADOT stating that the telecommunication or video surveillance equipment, systems, or services are not Prohibited Products.

For additional information, see 2 C.F.R. §§200.216 and 200.471.

110.13.9 Protection and Restoration of Property and Landscape

Developer shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks until ADOT has witnessed or otherwise referenced their location. Land monuments and property marks shall not be moved by Developer until directed by ADOT.

Developer shall not dump materials removed during construction operations such as trees, stumps, building materials, irrigation and drainage structures, broken concrete and other similar materials on either private or public property unless Developer has obtained written permission from the owner or Governmental Entity with jurisdiction over the land. Written permission is not required, however, when materials are disposed of at an operating, public dumping ground.

Under no circumstances shall the disposal of debris from construction operations create a blemish on the landscape. Material which is to be stockpiled or disposed of off-site shall not encroach on running or intermittent streams, or other waters of the U.S. unless Developer has obtained the appropriate permits in accordance with applicable state and federal regulations.

110.13.10 Statistical Acceptance

ADOT will apply Section 109.11 Subsection (A) and (B) of the ADOT Standard Specifications.

End of Section

SECTION B
DESIGN REQUIREMENTS (DR)

TABLE OF CONTENTS

DR 400 DESIGN REQUIREMENTS

The following list of references in intended only to assist Developer in identifying the relevant references (manuals, guidelines, regulations, design codes, design standards, and design specifications). Developer is responsible for determining if other relevant references are also applicable.

Table 400-1 lists the standards in no order of precedence; however, in the event of a conflict between ADOT standards or requirements and other standards and requirements, the ADOT standard or requirement, as applicable, shall prevail.

Table 400-1
Standards

No.	Agency	Title
1	ADOT	Current Roadway Design Standards and Memorandums
2	ADOT	Roadway Design Guidelines
4	ADOT	Drafting Guidelines for Use in Office and Field, 2015
5	ADOT	Dictionary for Standardized Work Tasks, FY 2019
7	ADOT	ADOT Standard Specifications
8	ADOT	Construction Standard Drawings (C-standards), 2012 with current amendments
9	ADOT	Construction Manual, 2015
10	ADOT	Manual for Field Surveys, 2010
11	ADOT	Geotechnical Project Development Manual (GPDM)
12	ADOT	Materials Testing Manual
13	ADOT	Materials Practice and Procedure Directives (PPD) Manual
14	ADOT	Pavement Design Manual, 2017
15	ADOT	Pavement Design Report Standard Items
16	ADOT	Bridge Group Structure Detail Drawings
17	ADOT	Bridge Group Bridge Design Guidelines
18	ADOT	Bridge Group Bridge Practice Guidelines
19	ADOT	Noise Abatement Requirements, 2017
20	ADOT	Bridge Hydraulics Guidelines
21	ADOT	Highway Drainage Design Manual, Hydrology
22	ADOT	Highway Drainage Design Manual, Hydraulics

Table 400-1 Standards		
23	ADOT	Pipe Selection Guidelines and Procedures, 1996
24	ADOT	Drainage Memorandum, Drainage Design, n-Values for Pavement Drainage Analysis, 2011
25	ADOT	Highway Drainage Design Manual – Hydraulics, 2015
26	ADOT	Drainage Memorandum, HEC-22,
27	ADOT	Approved Products List
28	ADOT	Channel Lining Design Guidelines, 1989
29	ADOT	Guideline for Accommodating Utilities on Highway Rights-of-Way
30	ADOT	Utility Coordination Guide for Design Consultants
31	ADOT	Utility Report Template
32	ADOT	Regional Freeway System Landscape Value Analysis Report
33	ADOT	Manual of Approved Signs
34	ADOT	Traffic Signals and Lighting Standard Drawings, 2010, with current revisions and amendments
35	ADOT	Signing and Marking Standard Drawings, 2014, with current revisions and amendments
36	ADOT	Arizona Supplement to the MUTCD, 2009 with revisions
37	ADOT	Traffic Control Design Guidelines, 2011
38	ADOT	Traffic Design CADD Standards Manual, 2014 and later revisions
39	ADOT	Implementation Guidelines for Work Zone Safety & Mobility, 2009
40	ADOT	Traffic Guidelines and Processes
41	ADOT	Highways Divisions Policy and Implementation Memorandum 95-02
42	ADOT	Intelligent Transportation System Design Guide
43	ADOT	ITS Standard Drawings
44	ADOT	FMS Communication Master Plan
45	ADOT	Erosion and Pollution Control Manual, 2012
46	ADOT	Erosion/Sediment & Water Quality Protection BMP Details or Stored Specification
47	ADOT	Post-Construction Best Management Practices Manual for Water Quality
48	ADOT	SWPPP Template

Table 400-1 Standards		
49	ADOT	ADOT DS-1: Development of Drilled Shaft Axial Resistance Charts for Use by Bridge Engineers Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
50	ADOT	ADOT DS-2: Interim Guidance – Design of Drilled Shafts in Gravels and Gravelly Soils Exhibiting Drained Behavior, Memorandum, 2010
51	ADOT	ADOT DS-3: Analysis of Drilled Shafts Subjected to Lateral Loads Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
52	ADOT	ADOT SF-1: Development of Factored Bearing Resistance Chart by a Geotechnical Engineer for Use by a Bridge Engineer to Size Spread Footings on Soils Based on Service and Strength Limit States Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2008 (Revision 1)
53	ADOT	ADOT SF-2: Limiting Eccentricity Criteria for Spread Footings based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010 DRAFT
54	ADOT	ADOT SF-3: Resistance Factors for the Estimation of Factored Sliding and Bearing Resistance for Spread Footings of Gravity and Semi-gravity Walls based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
55	ADOT	Pavement Design Manual, Roadway Engineering Group, Pavement Design Section, Phoenix, Arizona, September 2017.
56	ADOT	Final Design Concept Report – I-17, Anthem Way Traffic Interchange to Jct. SR 69 (Cordes Junction)
57	ADOT	I-17, Anthem Way to Jct. SR 69 - Environmental Commitments 017 MA 229 H6800 01L, STP-017-A(ARV)S
58	ADOT	Encroachment Permit (azdot.gov/business/permits/encroachment-permits)
59	ADOT	Design Exception and Design Variance Process Guide
60	ADOT	Load Rating Guide
61	ADOT	Statewide Dynamic Message Sign Master Plan
62	ADOT	Right of Way Procedures Manual
63	Arizona State Board of Technical Registration	Arizona Boundary Survey Minimum Standards
64	Federal	National Environmental Policy Act, 1969
65	Federal	Council of Environmental Quality EQ Regulations for Implementing the Procedural Provisions of NEPA
66	Federal	Clean Air Act, 1970
67	Federal	Flood Plain Management
68	Federal	Fish and Wildlife Coordination Act
69	Federal	National Historic Preservation Act (NHPA)
70	Federal	Section 106 of the NHPA

Table 400-1 Standards		
71	Federal	Resource Conservation and Recovery Act
72	Federal	Comprehensive Environmental Response, Compensation and Liability Act, 1980
73	Federal	Superfund Amendments and Reauthorization Act
74	Federal	Section 401 Clean Water Act (Certification), 1977
75	Federal	Section 402 Clean Water Act (NPDES), 1977
76	Federal	Section 404 Clean Water Act (Permits for Dredge or Fill Material), 1977
77	Federal	Endangered Species Act, 1973
78	Federal	Invasive Species
79	Federal	Environmental Justice
80	Federal	Proposed Right-of-Way Guidelines
81	State	Water Quality Law
82	State	Hazardous Waste Management Act
83	State	Underground Storage Tank Act, 1986
84	FHWA	Environmental Impact and Related Procedures
85	FHWA	Procedures for Abatement of Highway Traffic Noise and Construction Noise
86	FHWA	Section 4(f) of the Department of Transportation Act
87	FHWA	Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods, NHI Training Course No. 132014, Publication No. FHWA-NHI-10-016, 2010
88	FHWA	Geotechnical Engineering Circular No. 11, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, NHI Courses No. 132042 and 132043, Publication No. FHWA-NHI-10-025, Volumes I and II, 2009
89	FHWA	Geotechnical Engineering Circular No. 7, Soil Nail Walls, Report No. FHWA-IF-03-017, 2003
90	FHWA	Geotechnical Engineering Circular No.5, Geotechnical Site Characterization, NHI Course No. 132031, FHWA- NHI-16-072, 2017.
91	FHWA	Rockfall Catchment Area Design Guide: Final Report, Report No. SPR-3(032)
92	FHWA	Rock Slopes - Reference Manual, Training Course in Geotechnical and Foundation Engineering, NHI Course No. 13235 – Module 5, Publication No. FHWA-HI-99-007, 1998
93	FHWA	Soil Slope and Embankment Design and Construction - Reference Manual, NHI Course No. 132033, Publication No. FHWA-NHI-05-123, 2005
94	FHWA	Application of Geophysical Methods to Highway Related Problems, Publication No. FHWA-IF-04-021, 2004.

Table 400-1 Standards		
95	FHWA	Hydraulic Design of Highway Culverts, Hydraulic Design Series No. 5
96	FHWA	Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Design Series No. 14
97	FHWA	Design of Roadside Channels with Flexible Linings, Hydraulic Design Series No. 15
98	FHWA	Evaluating Scour at Bridges, Hydraulic Engineering Circular No. 18
99	FHWA	Design of Bridge Deck Drainage, Hydraulic Engineering Circular No. 21
100	FHWA	Bridge Scour and Stream Instability Countermeasures, Hydraulic Engineering Circular No. 23
101	FHWA	Evaluating Scour at Bridges, Hydraulic Engineering Circular No. 18
102	FHWA	Manual on Uniform Traffic Control Devices (MUTCD)
103	FHWA	Road Safety Audit Guidelines
104	FHWA	Hydraulic Engineering Circular, Design of Riprap Revetment
105	FHWA	Drainage of Roadside Channels with Flexible Linings, Hydraulic Engineering Circular No. 15
106	American Association of State Highway and Transportation Officials (AASHTO)	Load and Resistance Factor Design (LFRD) Bridge Design Specifications, 2012, 6th Edition [for geotechnical only]
107	AASHTO	A Policy on Geometric Design of Highways and Streets
108	AASHTO	Roadside Design Guide
109	AASHTO	A Policy on Design Standards – Interstate System
110	AASHTO	LRFD Bridge Design Specifications
111	AASHTO	LRFD Bridge Construction Specifications
112	AASHTO	Construction Handbook for Bridge Temporary Works
113	AASHTO	Guide Specifications – Thermal Effects in Concrete Bridge Superstructures
114	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals
115	AASHTO	Manual on Subsurface Investigations
116	AASHTO/American Welding Society (AWS)	D1.5 Bridge Welding Code
117	AASHTO	Guide Design Specifications for Bridge Temporary Works
118	AASHTO	Manual for Bridge Evaluation
119	AASHTO	Guide Specifications for Design and Construction of Segmental Concrete Bridges

Table 400-1 Standards		
120	AASHTO	Guide Specifications for Structural Design of Sound Barriers
121	AASHTO	Guide Specifications for LRFD Seismic Bridge Design
122	AASHTO	Book of AASHTO Testing Standards
123	AASHTO	Guide for Design of Pavement Structures, 1993
124	AASHTO	Construction Stormwater Field Guide
125	AASHTO	Highway Drainage Guidelines, Volume III (Federal Funds)
126	AASHTO	Roadway Lighting Design Guide, 2005
127	AASHTO	A Guide for Transportation Landscape and Environmental Design, 1991
128	IES	Illuminating Engineering Society Standards
129	ASTM	Specifications C136
130	ASTM	Book of American Society for Testing and Materials
131	AWS	American Welding Society (AWS) 1.1 Welding Code
132	Transportation Research Board (TRB)	Landslides, Investigation and Mitigation, Special Report 247, TRB, National Research Council, 1996.
133	Strategic Highway Research Program	Distress Identification Manual for Long-Term Pavement Performance Project
134	USACE	Hydraulic Engineering Center-Hydraulic Modeling System
135	USACE	River Analysis System
136	Varies	Utility Company Standards
137	ANSI	American Standard for Nursery Stock, ANSI Z60.1
138	Arizona Nursery Association	Container Grown Tree Guide

End of Section

DR 408 THIRD-PARTY AGREEMENTS

Reserved.

End of Section

DR 410 LAND SURVEYING

410.1 GENERAL REQUIREMENTS

Developer shall perform all land surveying Design Work in compliance with the requirements of Section DR 410 of the TPs. Developer shall ensure that the performance of all land surveying Design Work under the supervision of the Survey Manager. The Survey Manager must certify all survey data provided by Developer to ADOT.

410.2 ADMINISTRATIVE REQUIREMENTS

410.2.1 Standards

Developer shall perform all land surveying Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

All mapping created for the Project, whether by aerial photogrammetry or LIDAR scanning must adhere to the accuracy standards contained in the ADOT *General Specifications for Aerial Mapping*. Photogrammetric mapping must comply with ADOT *Intermodal Transportation Division Engineering Technical Group Engineering Survey Section General Specifications for Photogrammetric Mapping*.

410.2.2 Survey Data Provided to Developer

The existing survey and mapping data that ADOT provides to Developer is contained in the RIDs. Developer shall review existing survey and mapping data and determine the requirements for updating or extending the survey and mapping data. Developer shall be responsible for the precision, accuracy, and comprehensiveness of all survey and mapping data. Developer shall verify all survey control information contained in the *Results of Survey*, included in the RIDs, and shall immediately and in any event prior to proceeding with any land surveying Work notify ADOT of any discrepancies. Developer shall be responsible for all surveys necessary to perform the Work.

410.3 DESIGN REQUIREMENTS

410.3.1 Units of Measure

Developer acknowledges and agrees as follows:

A. The unit of linear measurement is international feet;

B. Linear measurements and station/offsets must be expressed to two places to the right of the decimal point;

C. Coordinates must be expressed to three places to the right of the decimal point;

D. Angular measurement units must be in degrees, minutes, and seconds expressed to the nearest second; and

E. Directional units must be in bearings expressed in degrees, minutes, and seconds expressed to the nearest second.

410.3.2 Survey Control

Developer shall establish Project survey control by utilizing those primary horizontal control points depicted on the *Results of Survey*, included in the RIDs. Developer shall establish secondary survey control points throughout the Project alignment at intervals not to exceed 2,500 feet. These points must include horizontal and vertical data sufficient to control construction. These survey control points and benchmarks must be shown on the Plans and expressed in northing, easting, elevation, station, and offset.

410.3.2.1 Survey Control Datum

Developer shall base the horizontal coordinate system on North American Datum (NAD) 1983 (HARN 92), Arizona State Plane Coordinate System, Central Zone. Developer shall achieve the Project survey control system by applying the grid adjustment factor of 1.00016. Developer shall base the vertical control on North American Vertical Datum (NAVD) 1988, originating and terminating at a First Order Bench Mark.

410.3.2.2 Survey Control Adjustments and Accuracy

Developer shall ensure that survey control accuracy is as follows:

A. Horizontal control accuracy must be in accordance with the Arizona State Board of Technical Registration *Arizona Boundary Survey Minimum Standards*.

B. Vertical control accuracy must not be less than Second Order, Class 2 or 0.035 X square root of miles in accordance with the ADOT *Intermodal Transportation Division Engineering Technical Group Engineering Survey Section Manual for Field Surveys.*

C. Angular accuracy must not be less than three seconds per station in accordance with the ADOT *Intermodal Transportation Division Engineering Technical Group Engineering Survey Section Manual for Field Surveys*.

After achieving these accuracy levels, Developer shall apply a least squares adjustment to the horizontal control. Developer shall also proportionately apply vertical control errors to established elevations.

410.3.3 Design Survey Records and Reports

Developer shall maintain neat, accurate, and complete documentation in connection with all land surveying Design Work. This documentation must include all calculations, mapping, staking notes, and field crew daily diaries. Developer shall compile and prepare a formal Design Survey Report that includes all those items specified in the ADOT *Intermodal Transportation Division Engineering Technical Group Engineering Survey Section Manual for Field Surveys*, as well as the following:

A. All survey calculations related to control survey and design survey data;

B. Documentation of the information and rationale used to perform the land surveying Work;

C. Field notes;

D. Data collection downloads;

E. Research information, including deeds, title reports, assessors' data, plats, records of surveys, etc.;

F. Maps; and

G. CAD files.

Developer shall ensure that the Survey Manager seals the Design Survey Report. Prior to the Initial Design Submittal for each Project Segment, Developer shall submit the Design Survey Report to ADOT.

410.4 SUBMITTALS

Table 410-1 reflects a nonexclusive list of Submittals identified in Section DR 410 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum

and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 410-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Design Survey Report	5	0	1	Prior to the Initial Design Submittal for each Project Segment	DR 410.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 416 GEOTECHNICAL

416.1 GENERAL REQUIREMENTS

Developer shall perform all geotechnical Design Work in compliance with the requirements of Section DR 416 of the TPs.

416.2 ADMINISTRATIVE REQUIREMENTS

416.2.1 Standards

Developer shall perform all geotechnical Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

416.2.2 Existing Geotechnical Information

The RIDs provide geotechnical reports prepared by ADOT and additional geotechnical information available from other sources.

The geotechnical information provided in the RIDs does not meet the level of final investigations required by the minimum requirements for investigations as contained in ADOT *Geotechnical Project Development Manual* included in the RIDs, and AASHTO *LRFD (Load and Resistance Factor Design) Bridge Design Specifications, 2012, 6th Edition*. Developer shall perform its own complete and thorough investigation and analysis to design and construct the Project. Developer shall determine the need for additional geotechnical data and testing in accordance with the applicable standards and Good Industry Practice, shall perform geotechnical investigations to obtain any additional data required, and shall perform tests, analyses, and calculations to develop independent geotechnical recommendations for the Project to support its design.

Developer shall use the geotechnical information from its own geotechnical investigations or other approved sources, and at its option and risk (except ADOT-retained risk under the Agreement respecting Differing Site Conditions) may use any supplemental information provided by ADOT.

416.2.3 Software Requirements

Developer may use the software programs set forth below in this Section DR 416.2.3 of the TPs for geotechnical Work. In the event that Developer proposes to use any software other than that listed and as part of the Basis of Design Report in accordance with Section GP 110.01.1.2 of the TPs, Developer shall submit proposed Geotechnical Software (including input and output files for verification data) to ADOT for approval.

Acceptable Geotechnical Software for Design Work includes: ALLPILE, APILE, CBEAR, EMBANK, Shoring Suite, Driven, FoSSA, GeoStudio, gINT, GSTABL, Goldnail, GRL WEAP, GROUP, LPILE Plus, MSEW, ReSSA, RetainPro, RockPack, RocFall Version 4.0 or 5.0, Settle3D, Shaft 2012, Slide, Snail, SNAILZWin, TZPile, UNISETTLE, PCSTABL, XSTABL, CRSP Version 4.0 or 5.0 (CRSP 3D Version must not be used), and Strain Wedge Model.

416.2.4 Equipment Requirements

Developer shall test for energy and efficiency, within the last 12 months prior to use, all standard penetration test (SPT) hammers proposed for use in connection with the geotechnical investigation. Developer shall report the energy efficiency ratio in the boring logs and drilling records. Developer shall provide calibration records to ADOT at least ten days prior to drilling. Developer shall consider geotechnical data obtained using uncalibrated hammers as informational only and shall not use the data for final design.

416.3 DESIGN REQUIREMENTS

Developer shall conduct field explorations and subgrade testing necessary for the Design Work in accordance with the requirements of the applicable standards listed in Table 400-1.

416.3.1 Subsurface Geotechnical Investigation by Developer

Developer shall furnish subsurface geotechnical investigations, testing, research, and analysis as necessary to design the roadway, pavement, foundations, structures, embankments, excavations, slopes, and other facilities for the Project. The subsurface investigation must include soil borings, test pits, rock coring, geophysical surveys, and other field-testing deemed necessary by Developer. Table 416-1 lists minimum exploration requirements:

Table 416-1
Minimum Exploration Requirements

Feature	Minimum Boring Spacing	Minimum Boring Depth
Bridge	Per AASHTO (2012) & ADOT GPDM	
Retaining Walls	Per AASHTO (2012) & ADOT GPDM	
Noise Walls	One per 500 LF of wall	25 feet
Mainline & Ramp Pavement	Per AASHTO (2012) & ADOT GPDM	
Crossroad Pavement	Per Local Jurisdiction	
Cuts/Fills	Per ADOT GPDM	
Infiltration/Percolation Tests	Per Section DR 445 of the TPs	
Drainage Facilities	As required by Drainage Engineer of Record	

Developer shall prepare and submit a Boring and Access Plan to ADOT for approval that outlines the geotechnical investigation program. The Boring and Access Plan must include a listing of exploration points with planned depths and include a site plan showing exploratory locations and routes planned to access the locations. Basic field exploration, sample handling (including sampling frequency and methods), and laboratory testing procedures shall be outlined in the Boring and Access Plan. The Boring and Access Plan must include locations of existing utilities to ensure there are no conflicts with the proposed boring locations.

Developer shall furnish the geotechnical exploration under and in accordance with the Project SWPPP, ADOT encroachment permit(s) with a geotechnical SWPPP (if required), and/or other permits or entry agreements, as required. Developer shall not permit the performance of geotechnical investigation until Developer obtains all required environmental clearances and permits.

Developer shall notify ADOT in advance of all field-work associated with the geotechnical investigation for informational purposes, coordinating clearances and permits, and to allow review and approval of any traffic control activities required to safely complete the field work as described in Section DR 462 of the TPs.

All geotechnical field investigation must be compliant with Arizona Department of Water Resources drilling regulations for borings which encounter groundwater. Developer shall employ field investigation measures that avoid groundwater contamination and pollutant discharge and shall perform all geotechnical investigation and associated mitigation and/or restoration in accordance with Sections DR 420 and CR 420 of the TPs.

416.3.2 Geotechnical Engineering Reports

Developer shall prepare an initial Geotechnical Engineering Report and final Geotechnical Engineering Report documenting the conditions, and results of the geotechnical investigations and analyses, including all assumptions. The Geotechnical Engineering Reports must include a description of the geologic profile and geotechnical properties of the materials that will control performance of the facility for each of the Project features and must include the following:

A. Cover page, signed and sealed by the responsible Professional Engineer.

B. Table of contents.

C. Description of the study area and existing site conditions, including vicinity map.

D. Description of the geology and topography of the study area, including geologic units and sequence underlying the site, soil and rock types, and drainage characteristics.

E. Description of the groundwater conditions beneath the site.

F. Description of the field investigations and laboratory testing used to characterize subsurface conditions. Field investigations must include field logging techniques, descriptions of the soil/rock types, penetration test results, hammer efficiency for each boring, in situ test results, geophysical survey methods and results, soil sample recovery, and recovery, rock quality designation and discontinuity orientation and spacing for rock cores. Laboratory test results must include classification and engineering properties for all major soil and rock strata in the study area.

G. A discussion of geological and geotechnical conditions, geotechnical profile, and results with reference to specific locations on the Project.

H. Discussion of geologic hazards with reference to specific locations on the Project.

I. Geotechnical recommendations for the following:

1. Structures, including foundation type studies, resistances, lateral earth pressures, and related design parameters for bridges, culverts, retaining walls, noise walls, sign supports and standards, and lighting standards.
2. Roadway embankments, including material types and suitability, foundation and subgrade conditions and improvements, settlement impacts and remediation, and evaluation of borrow areas.
3. Roadway excavations, including material types and suitability for use in embankments.
4. Temporary and permanent cut and fill slopes, including slope stability analyses for embankment fill slopes and cut slopes, rock cut slope designs, rockfall containment, and slope stabilization designs.
5. Evaluation of identified landslides on the Project, including evaluation of monitoring instrumentation data, stability analyses of landslide features, and recommendations for supplemental instrumentation and monitoring; Developer shall ensure the performance of such evaluations.
6. Stability analyses for temporary excavations and/or structures; Developer shall ensure the performance of such analyses, as appropriate, to demonstrate acceptable stability.
7. Global and/or external stability analyses for retaining and noise walls; Developer shall ensure the conduct of such analyses. Developer shall coordinate with proprietary wall designers/manufacturers, as necessary.
8. Impacts of compressible, hydro-collapsible, and/or expansive soils, if present, and proposed mitigations.
9. Scour and stream bank erosion protection.

10. Erosion abatement design for permanent cut and fill slopes.
11. Corrosion potential of soils on construction materials.
12. Impacts on, and from, groundwater, including necessary remedial actions.
13. Construction and inspection considerations.
14. Specification requirements and special provisions related to geotechnical recommendations.
15. Details, methods and objectives of any instrumentation plan.
16. Suitability of materials (borrow, aggregates, riprap, etc.) that can be obtained from Project excavations, including source, quality, and availability.

J. Appendix, including the following:

1. Plan view locations of field sampling/testing (e.g., borings, test pits, test trenches, surface samples, in situ tests, geologic mapping, and geophysical surveys).
2. Copies of the final boring logs and field/laboratory test data used for the analysis and design.
3. Other field-test data (e.g., geophysical surveys, pressure-meter tests, infiltration/percolation tests, etc.).
4. Summary of laboratory testing methods and tabulated results.
5. Copies of geotechnical calculations used for analysis and design, background information, published verification or hand-calculated verification, and other pertinent data on computer programs or spreadsheets.
6. Copy of the SPT hammer(s) energy calibrations.
7. Photographs of all rock cores with proper identification labels.
8. Instrumentation Plan.

At the same time as the Initial Design Submittal of the associated design, Developer shall submit the initial Geotechnical Engineering Report to ADOT. At the same time as Final Design Submittal of the associated design, Developer shall submit the final Geotechnical Engineering Report to ADOT for review and comment. The final Geotechnical Engineering Report must be signed and sealed by the responsible Professional Engineer and include the Comment Resolution Form showing how the Final Design Submittal addressed ADOT's review comments on the Initial Design Submittal.

Developer shall prepare Geotechnical Supplements to incorporate changes made during the development of the Work and shall incorporate any such Geotechnical Supplements into the final Geotechnical Engineering Report(s). At the same time as subsequent Submittal of the associated design, Developer shall submit Geotechnical Supplements to ADOT for review and comment.

Developer shall prepare an As-Built Geotechnical Engineering Report that compiles all final Geotechnical Engineering Reports and Geotechnical Supplements into one report. As part of the Record Drawings submitted to ADOT, Developer shall submit to ADOT for review and comment the As-Built Geotechnical Engineering Report.

416.3.3 Geotechnical Analyses and Design

416.3.3.1 Shallow Foundations

Developer shall design and construct, shallow foundations in accordance with the AASHTO *LRFD Bridge Design Specifications (2012),* the ADOT *Geotechnical Project Development Manual* and applicable ADOT memoranda.

416.3.3.2 Deep Foundations

Developer shall design and construct, deep foundations in accordance with the AASHTO *LRFD Bridge Design Specifications (2012)*, the ADOT *Geotechnical Project Development Manual* and applicable ADOT memoranda.

416.3.3.3 Retaining Walls

Developer shall design and construct, retaining walls in accordance with the AASHTO *LRFD Bridge Design Specifications (2012)*, the ADOT *Geotechnical Project Development Manual* and applicable ADOT memoranda, and the requirements of Section DR 455.3.3 of the TPs. Developer shall ensure the performance of global stability of the retaining wall systems to demonstrate acceptable stability in accordance with the AASHTO *LRFD Bridge Design Specifications (2012)*.

416.3.3.4 Rock Cut Slopes

Developer shall design rock cut slopes as required by the Project geometry and in accordance with the slope rounding details provided in TP Attachment 450-3. Design of rock cut slopes must demonstrate an adequate factor of safety for each slope design based on rock mass conditions, kinematic stability analysis and global slope stability analysis for the slopes in accordance with the applicable industry standards and methods listed in Section DR 400 of the TPs.

Developer shall perform computer simulation rockfall modeling for the design of all rock slope configurations not addressed in the Applicable Standards. Developer shall use Version 4.0 or 5.0 of the CRSP program, or Version 4.0 or 5.0 of the RocFall program for modeling purposes. Developer shall design rockfall containment facilities and catchments to provide a minimum 95 percent rockfall retention rate in the containment ditch. Additionally, Developer's rockfall modelling shall achieve a percentage as close as possible to the goal of 100 percent of the retained rockfall not intruding into travel lanes in accordance with the Applicable Standards listed in Section DR 400 of the TPs. Developer shall field verify the input parameters to the computer simulation rockfall modeling. The Developer's rockfall containment facility design may incorporate a positive impervious barrier into the rockfall containment facility to stop potential rollout of rockfall debris from the ditch into the paved shoulder and travel lanes. Developer shall design rockfall containment facilities that are accessible and maintainable by heavy equipment with a minimum access width of 12 feet.

Developer's design shall address the existing cut slope adjacent to the I-17 NB entrance ramp at Coldwater Road and the I-17 NB mainline between I-17 approximate Stations 2293 and 2308, right of centerline. This existing cut slope exhibits effects of severe ongoing erosion and localized instability. Developer shall investigate the cut slope, evaluate the slope stability, and design erosion mitigation and slope stabilization for the cut slope. Developer's evaluation shall consider alternatives such retaining walls and slope erosion protection systems. In no event may the design solution entail encroachment onto the Agua Fria National Monument. ADOT acknowledges that due to this limitation erosion protection adjacent to the Monument may be restricted to only a partial solution.

416.3.3.5 Instrumentation Plan

Developer shall prepare an Instrumentation Plan for all geotechnical Work that requires monitoring in accordance with the applicable standards listed in Section DR 400 of the TPs. The Instrumentation Plan must include proposed types of instruments, locations, depths, installation details, manufacturers' information, monitoring frequency, and reporting. As part of the Initial Geotechnical Engineering Report(s), Developer shall submit the Instrumentation Plan to ADOT for review and comment.

The Instrumentation Plan must incorporate the existing system of six ADOT slope inclinometers located in the Project corridor. Developer shall protect in place and maintain the existing inclinometers. The Instrumentation Plan must include a recommended minimum monitoring frequency for the existing inclinometers during construction of the Project. The monitoring frequency must be at least quarterly.

416.3.3.6 Tolerable Deformations

Developer shall design the Project in accordance with the following deformation criteria:

A. Highway bridge substructures:

1. Maximum total settlement of one inch after bridge superstructure has been constructed; and
2. Maximum differential settlement of 3/4 inch after Developer constructs the bridge superstructure.

B. Retaining walls and miscellaneous structures:

Maximum total and differential settlements and lateral movements (including settlement and lateral movements attributable to stresses imposed by embankments) must result in no distress to the structures and visual treatments of walls, including cracking and spalling of concrete, tilting of MSE wall panels, and separation or crushing at joints. Placement tolerances for MSE walls must comply with TP Attachment 455-1.

C. Embankments and subgrade

Developer shall address settlement of embankment (total and differential settlements) so that the settlement does not negatively affect the functionalities and performance of facilities, immediately on top or adjacent to the embankment, and service life of these facilities in accordance with the Contract Documents.

416.4 SUBMITTALS

Table 416-2 reflects a nonexclusive list of Submittals identified in Section DR 416 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section 110.10.2.2 of the TPs:

Table 416-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Geotechnical Software	3	0	1	As part of the Basis of Design Report	DR 416.2.3
Boring and Access Plan	3	0	1	Prior to execution of the geotechnical investigation	DR 416.3.1
Encroachment Permits for use on ADOT ROW	3	0	1	Prior to execution of the geotechnical investigation	DR 416.3.1
Initial Geotechnical Engineering Report	5	0	1	At the same time as Initial Design Submittal of the associated design	DR 416.3.2

Table 416-2 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Final Geotechnical Engineering Report	4	0	1	At the same time as Final Design Submittal of the associated design	DR 416.3.2
Geotechnical Supplement	4	0	1	At the same time as subsequent Submittal of the associated design	DR 416.3.2
As-Built Geotechnical Engineering Report	4	0	1	As part of the Record Drawing Submittal	DR 416.3.2
Instrumentation Plan	4	0	1	As part of the Geotechnical Engineering Report(s)	DR 416.3.3.5
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(b) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

End of Section

DR 417 EARTHWORK

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End of Section

DR 419 PAVEMENT

419.1 GENERAL REQUIREMENTS

Developer shall perform all pavement Design Work in accordance with the requirements of Section DR 419 of the TPs.

419.2 ADMINISTRATIVE REQUIREMENTS

419.2.1 Standards

Developer shall perform all pavement Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

419.3 DESIGN REQUIREMENTS

419.3.1 Pavement Design

A Preliminary Pavement Design Summary (PDS) and Materials Design Memorandum have been prepared for ADOT roadways on the Project and are included in the RIDs. These documents include preliminary recommended pavement structural sections and materials specifications to be used on the Project.

Developer shall follow the ADOT *Pavement Design Manual (2017)* for pavement design.

Developer shall utilize the traffic data presented in Table 419-1.

Table 419-1
Traffic Data for Pavement Design

Segment	2019 Two Way AADT	2040 Two Way AADT	K%	D%	T%	Single T%	Combo T%
Anthem Way to New River Road	48,435	68,209	10	51	10	4	6
New River Road to Coldwater Road	45,544	54,180	11	53	15	5	10
Coldwater Road to Sunset Point	34,863	55,722	7	56	13	4	9

Developer shall develop design and construction control R-values for pavement design in accordance with the standards noted herein. The construction control R-value must not be less than the design R-value.

419.3.2 Related Pavement Materials Specifications

Unless otherwise specified herein, pavement materials must comply with the requirements of the documents noted below. The items below are in no order of precedence; however, in the event of a conflict between standards or requirements, the more stringent standard or requirement, as applicable, shall prevail.

A. ADOT Standard Specifications; and

B. ADOT *Roadway Group Pavement Design Report Standard Items* (refer to https://apps.azdot.gov/files/Pavement_Design/Report_Standard_Items/Standard_Items_Linked_Index.pdf).

419.3.3 Pavement Type Selection

Pavement types must be as follows:

A. Mainline Lanes. Design of general purpose lanes pavements shall use the lane distribution factors for new construction, widening and reconstruction as specified in the ADOT Pavement Design Manual (2017) Table A-2, without counting Flex Lanes in the general purpose lane count. The lane distribution factor for design of Flex Lanes pavements shall be a minimum of 70 percent. Developer shall design pavement for existing shoulders which shall become mainline general purpose lanes through widening using the design traffic, design method and design parameters used for the new mainline general purpose lanes and the lane distribution factors as specified in this section. For sections of I-17 widened to the median side, the existing shoulder pavement must be removed and replaced with the new pavement structural section. For sections of I-17 widened to the outside, the existing shoulder pavement may be rehabilitated with the widening to meet this requirement. Existing general purpose lanes which will remain do not require rehabilitation.

B. Shoulders. Pavement for the shoulders of all roadways must be at a minimum the same pavement structural section (pavement components, materials and component thicknesses) as the adjacent mainline general purpose lanes and Flex Lanes pavement.

C. Ramp Pavements. Pavement for ramps must be at a minimum the same pavement structural section (pavement components, materials, and component thicknesses) across any ramp cross section including shoulders.

D. Gores. Developer shall design and construct gores with the same pavement structural section (pavement components, materials and component thicknesses) as the adjacent ramp pavement.

E. Subgrade Treatments and Improvements. Developer shall improve the existing subgrade when the top three feet of finished subgrade does not meet the Subgrade Acceptance Chart provided in Developer's initial and final Materials Design Report (MDR). Additional subgrade treatments or improvements might be required depending on the outcome of Developer's geotechnical investigation and, in such event, Developer shall provide such additional treatments and/or improvements.

F. Crossroads; Minimum Structural Section. Crossroads must have a minimum pavement structural section equal to or greater than the existing crossroad pavement structural section, including both pavement and base material components, types and thicknesses.

G. DMS Maintenance Pad. DMS maintenance pads must have a minimum pavement structural section of 4" AC on 5" AB.

H. Emergency Vehicle Crossovers. Reconstruction of the crossovers must consist of 6" asphaltic concrete millings in accordance with Section CR 419.3.8 of the TPs.

419.3.4 Asphaltic Rubber-Asphaltic Concrete Friction Course

Developer shall remove and replace existing AR-ACFC without damaging the existing pavement. Developer shall remove and replace existing AR-ACFC on I-17 throughout the limits of roadway improvements. Developer shall remove and replace existing AR-ACFC to the back of paved gore on service interchange ramps not impacted by construction. Developer shall remove and replace existing AR-ACFC throughout the limits of improvements on service interchange ramps being converted to parallel entrances and exits. Developer shall also extend the AR-ACFC removal and replacement limits to include any portion of a roadway that has been subject to eradication of permanent or temporary pavement markings.

Unless otherwise specified herein, the new asphaltic rubber - asphaltic concrete friction course (AR-ACFC) shall be 0.5 inches thick as specified below and in accordance with Section 414 of the ADOT Standard Specifications.

419.3.4.1 General Placement Limits & Requirements

Developer shall show the location of the AR-ACFC limits on the Plans, the limits of which are subject to approval by ADOT.

419.3.4.2 Mainline I-17 and Flex Lanes

AR-ACFC placement along the mainline and Flex Lanes must extend the full width of the roadway including shoulders.

419.3.4.3 Bridges

AR-ACFC must not be used on bridge decks and bridge approach slabs for new bridges, existing bridges that currently do not have an overlay and Bumbled Bee TI OP NB.

Existing bridges to be widened that currently have an asphalt overlay shall have the overlay removed and a new one inch AR-ACFC overlay shall be placed full width of the bridge.

419.3.4.4 Service Interchange Ramps

AR-ACFC placement along service interchange ramps must extend the full width of the ramp including shoulders. AR-ACFC must not be placed on concrete gores.

419.3.5 Pavement Design Summary

Developer shall use the geotechnical information from its own geotechnical investigations or other approved sources, and at its option and risk (except ADOT-retained risk under the Agreement respecting Differing Site Conditions) may use any supplemental information provided by ADOT, to prepare an initial and final PDS. Coordination with ADOT in developing recommendations is required. Developer shall obtain ADOT's approval of the Developer's final PDS prior to beginning construction of the applicable Elements.

The initial and final PDS must include the appropriate report sections described in the ADOT Pavement Design Manual and the following:

A. A summary of the existing pavement history and components;
B. A full description of the planned improvements;
C. A discussion of the design traffic loadings used for determination of pavement structural sections;
D. A full description of the design parameters used for the determination of pavement structural sections; and
E. Recommended pavement structural sections.

At the same time as Initial Design Submittal of the pavement structural section Plans, Developer shall submit the initial PDS to ADOT for review and comment. At the same time as Final Design Submittal of the pavement structural section Plans, Developer shall submit the final PDS that addresses ADOT's comments to ADOT for review and comment.

419.3.6 Materials Design Report

Developer shall prepare and submit to ADOT for review and comment an initial MDR and a final MDR. Coordination with ADOT in developing recommendations is required. Developer shall obtain ADOT's approval of the final MDR prior to beginning construction of the applicable Elements. The initial MDR and final MDR must include the appropriate report sections described in the ADOT Pavement Design Manual and the following:

A. Required pavement structural sections;

B. Vicinity map;
C. Typical sections;
D. Pavement structural sections;
E. Joint and interface details;
F. Subgrade acceptance chart;
G. Subgrade, subbases, and bases standard report items;
H. Surface treatments and pavements standard report items;
I. Materials sources standard report items;
J. Geotechnical information standard report items: ground compaction, earthwork factors and slopes, water, pH and resistivity, borrow requirements, etc.; and
K. Other standard report items as required by the proposed pavement design.

At the same time as Initial Design Submittal of the pavement structural section Plans, Developer shall submit an initial MDR to ADOT. At the same time as Final Design Submittal of the pavement structural section Plans, Developer shall prepare and submit a final MDR that addresses ADOT's comments to ADOT for review and comment.

419.4 SUBMITTALS

Table 419-2 reflects a nonexclusive list of Submittals identified in Section DR 419 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 419-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Initial Pavement Design Summary	4	0	1	At the same time as Initial Design Submittal of the pavement structural section Plans	DR 419.3.5
Final Pavement Design Summary	4	0	1	At the same time as Final Design Submittal of the pavement structural section Plans	DR 419.3.5
Initial Materials Design Report	4	0	1	At the same time as Initial Design Submittal of the pavement structural section Plans	DR 419.3.6
Final Materials Design Report	4	0	1	At the same time as Final Design Submittal of the pavement structural section Plans	DR 419.3.6

Table 419-2 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(b) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

End of Section

DR 420 ENVIRONMENTAL

420.1 GENERAL REQUIREMENTS

Developer shall perform all Design Work in compliance with the requirements of Section DR 420 of the TPs.

420.2 ADMINISTRATIVE REQUIREMENTS

420.2.1 Standards

Developer shall perform all Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

420.2.2 Environmental Management Program

Developer shall develop, operate, and maintain an Environmental Management Program for the Work that complies with all applicable Law (including Environmental Law), Project commitments, and Governmental Approvals issued thereunder, whether obtained by ADOT, a Utility Company, or Developer. The Environmental Management Program must obligate Developer to and Developer shall:

A. Protect the environment and document the measures taken during the performance of the Work to avoid and minimize impacts on the environment from the design, construction, operation and maintenance activities of the Project;

B. Effectively demonstrate in detail Developer's knowledge of all applicable environmental Governmental Approvals, environmental issues, and environmental commitments and any applicable Environmental Laws;

C. Provide concise, consistent environmental monitoring and reporting activities throughout the Term, applicable to the environmental activities being performed;

D. Describe the processes that are followed during the course of the Work to comply with those Environmental Approvals, environmental issues, environmental commitments, and Environmental Law, as well as the documentation required to verify and validate environmental compliance;

E. Describe the documentation required to verify and validate compliance of the Environmental Management Program with all applicable Environmental Laws, Environmental Approvals, and Contract Documents;

F. Establish a goal of zero environmental violations during the performance of all Work, and provide processes for rectifying such violations in an appropriate and timely way;

G. Provide design certifications with Initial Design Submittals and Final Design Submittals for roadway, drainage, and bridges, and any other Elements that might have direct implications for environmental considerations, indicating that an environmental review of the design package has been completed and that the design does not change any conditions of the original NEPA Approval; and

H. Provide qualified staff for each of the environmental disciplines.

420.2.3 Environmental Management Plan

Developer shall prepare an Environmental Management Plan (EMP) that describes Developer's approach to implementing the environmental commitments. The EMP must include, at a minimum, the following elements:

A. Developer's environmental personnel and training;

B. Developer's environmental commitments, including the Project Environmental Commitment Requirements;

C. Environmental monitoring plan that indicates times, locations, and other primary monitoring parameters;

D. Weekly environmental monitoring report content;

E. Monthly report content that combines the weekly report forms into a document that summarizes the month's environmental monitoring activities;

F. Documentation confirming that Developer has provided each Subcontractor, including its agents associated with the design, construction, operations, and maintenance of the Project with a copy of all permits issued by Governmental Entities for the Project;

G. Environmental notification contact list;

H. Pre-construction survey plan for sensitive species, including Sonoran desert tortoises, native plants, and nesting birds.

I. Schedule of EMP activities;

J. Spill containment and countermeasure plan describing Developer's plans to prevent, contain, clean up, remove, dispose of, and mitigate all Developer Releases of Hazardous Materials associated with the Project. The spill containment and countermeasure plan must be in accordance with the July 2002 United States Environmental Protection Agency (EPA) update. The spill containment and countermeasure plan must include a notification list for containing and reporting;

K. Plan for verifying that Project personnel entering the Site have completed the Project-specific environmental awareness training;

L. Hazardous Materials Management Plan, including procedure for discovery of unanticipated hazardous waste or contaminated materials;

M. Unanticipated archeological discovery plan;

N. Noise analysis and mitigation plan;

O. Pre- and post-construction surveys for structures located within one-half mile of the area of blasting and/or heavy ripping in the event any blasting and/or heavy ripping is planned for construction purposes;

P. Air quality management plan;

Q. Lead-Based Paint and Asbestos Abatement Plan, which at a minimum must be consistent with applicable Project Environmental Commitment Requirements;

R. Sedimentation and erosion control plan; and

S. The environmental communications protocol.

Developer shall submit the EMP to ADOT for approval in ADOT's good faith discretion, and obtain such approval, prior to issuance of NTP 2. Developer shall not perform any Construction Work prior to ADOT's approval of the EMP. Developer shall review, revise, and update the EMP annually to reflect the Project's current state and to incorporate any changes attributable to revisions of State or Federal guidelines or Environmental Laws. Developer shall prepare interim EMP revisions, in the form of addenda, if revisions to the EMP are necessary or appropriate before the annual update.

420.2.3.1 Environmental Communications Protocol

The EMP must provide for the development, documentation, and implementation of an environmental communications protocol (ECP). The ECP must describe the process that Developer shall use for compliance and non-compliance reporting, unanticipated archaeological

or Hazardous Material discoveries, personnel's roles, procedures for internal and external communications, and communications with ADOT. The ECP must be consistent with Developer's Public Involvement Plan and the EMP. The ECP must include organizational charts that identify the Environmental Compliance Manager (ECM) and other personnel who are assisting the ECM to ensure compliance with all permit conditions, performance standards, and environmental commitments.

420.2.3.1.1 Internal Communications

For internal communications procedures, Developer shall ensure that the EMP:

A. Describes Developer's organizational hierarchy and identify compliance roles and internal reporting responsibilities;

B. Includes the independent authority of the ECM to stop Work to prevent a violation from occurring;

C. Includes a clear discussion regarding which Key Personnel, in addition to the ECM, have the authority to stop Work to prevent a violation from occurring; and

D. Describes the process for identifying and reacting to Noncompliance Events.

420.2.3.1.2 External Communications

For external communications procedures, Developer shall ensure that the EMP describes the procedures Developer shall follow in documenting and handling all external communications received by Developer, including the role of ADOT in such procedures. External communications may originate from Native American tribes, local jurisdictions, regulatory and land managing agencies, and the public. Issues may range from public complaints to violation notices from regulatory agencies. Where appropriate, such communication procedures must be consistent with the EMP. ADOT will remain the main point of contact (unless Developer is otherwise directed by ADOT) with the public and for environmental and permit coordination with Native American tribes, local jurisdictions, and agencies. ADOT will lead all communication related to cultural resources and the Section 106 of the *National Historic Preservation Act* process. Developer shall be responsible for external notification and reporting requirements associated with the permits Developer obtains and that list Developer as the permittee.

420.2.3.1.3 ADOT Communications

For communications with ADOT, Developer shall ensure that the EMP:

A. Describes interactions between Developer and ADOT with regard to reporting non-compliance issues;

B. Describes Developer's communication process and Key Personnel who are responsible for making decisions as to when a Design Change and/or alternative construction technique may require a modification to a Governmental Approval or an additional Governmental Approval; and

C. Describes Developer's strategy for managing Design Changes that may require a modification to a Governmental Approval or an additional Governmental Approval.

420.2.4 Project Environmental Commitment Requirements

The table provided in TP Attachment 420-1 includes the Project-specific environmental commitments associated with the I-17, Anthem Way to Jct. SR 69 CE dated May 26, 2021. ADOT has reviewed and approved environmental mitigation measures for the construction of the Project. These mitigation measures are not subject to change without prior written approval from ADOT in its sole discretion. Developer shall comply with and perform all Project Environmental

Commitment Requirements in TP Attachment 420-1, except performance of those requirements specifically identified as an ADOT action. Developer shall track and document the completion of environmental commitments as the Project progresses and make the documentation available to ADOT upon request. Prior to Final Acceptance, Developer shall provide a final report / document that verifies compliance with all Project Environmental Commitments.

If, at any time, Developer fails to comply with any applicable Laws, including any Environmental Laws, or with any Governmental Approvals, ADOT may suspend the Work, in whole or in part, under Section 20.2.1 of the Agreement until such time as the errors, deficiencies, or noncompliant situations have been corrected. Developer shall be responsible for any associated monetary fines and any environmental restoration activities required in resolving violations that are the responsibility of Developer.

420.2.5 Environmental Protection Training Program

Developer shall design and implement an environmental protection training program for all Developer and Subcontractor employees. Every Developer and Subcontractor employee who works on the Project, including each new employee who begins Work after issuance of NTP 1, must participate in the Project specific environmental protection training. Each individual must complete the environmental protection training prior to such individual performing any Work on the Site. The environmental protection training must educate and inform Developer employees and Subcontractors of the following:

A. The overall importance of environmental issues in achieving a successful Project and
B. The particular environmental sensitivities of the Project (including environmental monitoring requirements)

ADOT will provide assistance regarding clarification and understanding of ADOT environmental goals and policies. Developer shall notify the Governmental Entities and Project staff of the training sessions and invite them to participate.

Developer shall include a schedule for implementation of the environmental protection training program in the EMP. The schedule must include environmental protection training sessions that address the Project Environmental Commitment Requirements.

420.2.6 Governmental Approvals

420.2.6.1 NEPA Approval

The Governmental Approvals that ADOT is responsible for acquiring (ADOT-provided approvals), and their status, are set forth in Table 420-1. The ADOT-provided approvals are based on the Final Design Concept Report – I-17, Anthem Way Traffic Interchange to Jct. SR 69 (Cordes Junction) and subsequent evaluations that are provided in the RIDs. The RIDs provide copies of ADOT-provided approvals that ADOT has already secured.

Table 420-1
ADOT-Provided Approvals

TP Attachment	Governmental Entity	ADOT-Provided Approval	Status	Availability Date
420-1	ADOT	I-17, Anthem Way to Jct.SR 69 Categorical Exclusion (NEPA Approval) and Environmental Commitments	Approved	May 26, 2021

Developer shall comply with the obligations appearing in the NEPA Approvals. Developer shall perform all obligations of the NEPA Approvals except to the extent allocated to ADOT as identified in TP Attachment 420-1. Developer shall not construct Work outside of the NEPA cleared areas.

Developer acknowledges and agrees that changes to the Schematic ROW or incorporation of Developer-Designated ROW into the Project might require additional NEPA evaluation and approval as the Work progresses. Developer shall be responsible for all Work in connection with such evaluations in accordance with Section 6.3 of the Agreement. Developer shall identify any such changes and notify ADOT immediately. ADOT will determine the level of additional environmental study necessary.

Developer may request ADOT's assistance and cooperation in connection with additional NEPA evaluations in accordance with and subject to the requirements in Section 6.3.8 of the Agreement. Developer shall prepare a NEPA Approval Package that includes material in connection with the NEPA evaluations. Developer shall submit the NEPA Approval Package to ADOT for review and approval by ADOT, in ADOT's sole discretion. Upon ADOT's approval of the NEPA Approval Package, ADOT will submit the NEPA Approval Package to the Governmental Entity having jurisdiction for consideration, if required.

In connection with any additional NEPA evaluation, Developer shall provide ADOT all documentation and perform analysis, as required, to ensure that ADOT can complete coordination and resolution of all environmental issues with affected interests and regulatory agencies as noted in the TP Attachment 420-1. Developer shall document the resolution of issues for the correspondence file, including meeting minutes and memoranda for the record. Developer shall document the permit requirements and contacts with the permitting agencies.

420.2.6.2 Governmental Approvals Applied For or Issued in ADOT's Name

Developer shall assist ADOT with Governmental Approvals when formal submission or issuance in ADOT's name is required. In cases that require ADOT to act as the coordinating party for Governmental Approvals, Developer shall provide all required data to support, secure or comply with the conditions of such Governmental Approvals. ADOT has undertaken certain preliminary work, including applications, exhibits, and correspondence, concerning such Governmental Approvals which are included in the RIDs. ADOT must apply for or have issued in its name the following listed Governmental Approvals. Information concerning the preliminary work performed by ADOT to date and certain requirements to be performed by Developer with respect to such approvals is provided below:

A. *Section 404 of the Clean Water Act Permitting.*
ADOT submitted a Preliminary Jurisdictional Delineation (PJD) to the United States Army Corps of Engineers (USACE) that was approved in April 2020 and provided in the RIDs. ADOT submitted an Approved Jurisdictional Delineation (AJD) to the USACE that was approved on June 9, 2021 and provided in the RIDs. Waters of the United States subject to Section 404 Permit requirements consist of those identified in the PJD that have not been excluded in the AJD.

Developer shall review the Regional General Permit 96 and abide by all terms and conditions of such Section 404 Permit.

Developer shall submit to ADOT a notification package, complete with design and information, in conformance with the Regional General Permit 96 requirements, for ADOT to coordinate with the USACE the approval of Final Designs eligible for permitting under the Regional General Permit 96.

Where Developer's Final Design does not qualify for permitting under the Regional General Permit 96, Developer shall submit to ADOT a Governmental Approval Package for a Section 404 Individual Permit.

B. *Section 401 of the Clean Water Act Certification.*

Developer shall implement any water quality certification conditions established by the USACE based on the notification package with respect to Regional General Permit 96 or submit a Section 401 Governmental Approval Package for a Section 404 Individual Permit, as applicable.

For Governmental Approvals that must be applied for or issued in ADOT's name, Developer shall prepare Governmental Approval Package(s) and submit the Governmental Approval Package(s) to ADOT for approval. For this purpose, ADOT's disapproval of the Governmental Approval Package(s) shall be deemed reasonable if based on one of the following grounds: (i) the Governmental Approval Package(s), if submitted to the USACE, would result in ADOT failing to meet the performance objectives set forth in Attachment A of the 404 Permit MOA; (ii) the Governmental Approval Package(s) are inconsistent with the requirements of ADOT's Clean Water Act Guidance Manual (April 2019); (iii) the Governmental Approval Package(s) fail to include complete design information, complete applications or any other required documentation; (iv) the Governmental Approval Package(s), if submitted to the USACE, would fail to satisfy the requirements of the USACE forms; (v) the Governmental Approval Package(s) do not meet Good Industry Practice for quality or thoroughness for permit applications; or (vi) the Governmental Approval Package(s) do not incorporate applicable mitigation measures in the Environmental Approvals. If ADOT's review elicits comments, ADOT will provide the comments to Developer to address prior to ADOT's submittal of the Governmental Approval Package(s) to the Governmental Entity. ADOT will submit the Governmental Approval Package to the Governmental Entity within five Business Days after Developer resolves ADOT's comments to ADOT's reasonable satisfaction. If the Governmental Entity provides comments, Developer shall address the comments and resubmit to ADOT prior to resubmittal to the Governmental Entity.

420.2.6.3 All Other Governmental Approvals

Developer shall obtain all other Governmental Approvals, other than the approvals to be obtained by ADOT as stated in this Section DR 420.2.6 of the TPs, to complete the Work. Prior to submittal to the Governmental Entity having jurisdiction, Developer shall submit any and all applications for Governmental Approvals to ADOT.

420.3 ENVIRONMENTAL REQUIREMENTS

Developer shall not conduct or perform any ground disturbance activities until after issuance of the appropriate Environmental Approvals (e.g., regarding cultural resources, Hazardous Materials, or biological evaluations) for the applicable area or activity. Developer shall coordinate with ADOT to confirm issuance of the appropriate Environmental Approval.

420.3.1 Environmentally Sensitive Avoidance Areas

Developer shall protect Environmentally Sensitive Avoidance Areas. Environmentally Sensitive Avoidance Areas include cultural resources as well as those areas identified during the permitting and the preconstruction environmental survey(s) process. Developer shall map Environmentally Sensitive Avoidance Areas on all Design Documents and shall identify and address them in the EMP.

The Project is subject to inspections by or for Governmental Entities. Developer shall allow access to and follow the instructions from any Governmental Entities or their authorized representatives

pertaining to requirements for the protection or mitigation of impacts on Environmentally Sensitive Avoidance Areas.

Developer shall install clearly visible barrier fencing with metal t-posts around all Environmentally Sensitive Avoidance Areas within the Project ROW, TCEs, or Developer's Temporary Work Areas prior to any ground-disturbing activities. Developer shall notify ADOT at least 14 Business Days prior to installing any Environmentally Sensitive Avoidance Area fencing to schedule coordination of the fence installation. During Construction Work near these areas, Developer shall provide daily inspection of Environmentally Sensitive Avoidance Areas in accordance with the EMP, and immediately report any damage or impact to ADOT and the appropriate Governmental Entity. Developer shall coordinate with ADOT on such damage or impacts and provide potential on-Site or off-Site mitigation for such impacts, as required by applicable Governmental Entities.

Developer shall remove fencing from Environmentally Sensitive Avoidance Areas prior to Final Acceptance. For fencing installed at the direction of ADOT, Developer shall notify ADOT a minimum of 14 Business Days prior to the removal of fencing around Environmentally Sensitive Avoidance Areas to schedule the coordination of the fence removal.

420.3.2 Archaeological

ADOT does not anticipate the need for archaeological testing and recovery within the Schematic ROW. However, Developer shall survey any other use areas, including Developer-Designated ROW, Replacement Utility Property Interests and Developer's Temporary Work Areas, outside of the Schematic ROW to locate and evaluate cultural resources. ADOT is completing data recovery of known cultural resource sites that would be affected based on the Schematic Design. Developer shall be responsible for any additional permitting, surveying, testing, or data recovery that might be necessary, in accordance with the *Section 106 Programmatic Agreement*. Prior to any ground disturbance outside the Schematic ROW, Developer shall prepare and submit all archaeological documentation and reports to ADOT for review and comment. ADOT will be responsible for submitting any draft or final report to the SHPO or other consulting Governmental Entities.

420.3.3 Cultural Resources

Developer shall contact ADOT at least ten Business Days prior to the start of ground-disturbing activities, including excavation, rock work, earthwork, staging, and stockpiling to arrange for a qualified archaeologist to be present and monitor the flagging/fencing of avoidance areas. Developer will install flagging/fencing avoidance measures and maintain them for the duration of the project's construction. Developer shall contact ADOT at least ten Business Days prior to the start of any Work that has the potential to impact flagged/fenced avoidance areas to arrange for qualified personnel to monitor and be present during that Work. Construction activities must avoid all flagged/fenced and otherwise designated sensitive resource areas within or adjacent to the Site.

If Developer encounters previously unidentified cultural resources during activity related to the construction of the Project, then Developer shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those resources and notify ADOT. In such event, ADOT will have the ADOT Engineer contact the ADOT Environmental Planning Historic Preservation Team immediately and arrange for the proper treatment of those resources. ADOT will, in turn, notify the appropriate agency(ies) to evaluate the significance of those resources. If Developer encounters human remains or funerary objects during activity related to the construction of the Project, Developer shall cease all further disturbances and activities within 300 feet of the human remains or funerary objects and notify ADOT. Work cannot begin, continue or recommence within 300 feet of the human remains until directed by ADOT.

420.3.4 Hazardous Materials

Developer shall develop and implement a Lead-Based Paint Removal and Abatement Plan for the removal and abatement of lead-based paint and asbestos on or within components listed in the Lead-Based Paint and Asbestos Containing Materials Detections dated April 3, 2018, listed in hazardous materials measures of TP Attachment 420-1, and potential asbestos as noted on as-built plans for the slope paving on the Bumble Bee and Black Canyon TI bridges. If the lead-based paint or asbestos elements of a structure or component identified in the RID documents will not be exposed, removed, demolished, altered, repaired, abraded, cleaned, painted, encapsulated, ground, sawed, sanded, heated, or otherwise disturbed, Developer will not be required to complete lead-based paint and asbestos abatement of those materials. Developer shall also comply with *National Standards for Hazardous Air Pollutants (NESHAP)* notification for all Work associated with lead-based paint and asbestos per TP Attachment 420-1. Developer shall manage Hazardous Materials discovered during the Construction Work in accordance with Section 8.8 of the Agreement and the Hazardous Material Management Plan.

420.3.5 Noise

Developer shall prepare a Final Technical Noise Analysis and Mitigation Report that complies with the ADOT *Noise Abatement Requirements, 2017*. At the same time as the Initial Design Submittal of the roadway design, Developer shall submit the Final Technical Noise Analysis and Mitigation Report to ADOT for approval in ADOT's good faith discretion. In accordance with the ADOT *Noise Abatement Requirements, 2017*, Developer shall use the design year used during the development of the NEPA Approval, (year 2040) for prediction of future noise levels.

Developer shall use the MAG Travel Demand Model provided in the RIDs as the future traffic volumes.

420.3.6 Biological Resources

Developer shall follow Section DR 450.2.3 of the TPs for native plant inventory and salvage.

The resume of Developer's qualified biologist shall be provided to ADOT prior to any survey, monitoring, or other biology related work.

Developer shall complete a Sonoran desert tortoise survey within suitable habitat prior to any vegetation removal or construction and provide the results to ADOT. If desert tortoises or active burrows are found during the survey, ADOT will coordinate with agencies on the appropriate course of action. If Developer encounters any Sonoran Desert tortoises during construction, Developer shall (i) adhere to the Arizona Game and Fish Department (AGFD) *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects, 2014*, and (ii) notify ADOT within 12 hours to report the encounter.

Developer shall design drainage structures extensions (pipes and culverts) to provide crossing by mammals, tortoises, amphibians, and reptiles to the extent existing structures promote wildlife crossing. These designs shall:

A. Include natural substrate;
B. Not include drop-offs greater than four inches such as may be caused by erosion on downstream side of a concrete-bottom drainage structure or stepped elevation within a structure;
C. Not include rip rap blocking access to the structure; Developer shall grout or bury and maintain rip rap so that it does not block tortoises from entering the structure; and
D. Use materials that are not toxic to aquatic life and are not prone to erosion.

Developer shall employ a qualified biologist to conduct a migratory bird nest search of all vegetation within ten days prior to clearing, grubbing, or tree/limb removal if the vegetation removal will occur between March 1 and August 31. If Developer finds active nests or nestlings, Developer shall flag the area for avoidance and determine a strategy to avoid disturbance and allow the nestlings to fledge from the nest. If Developer surveys the vegetation and no active bird nests are present, then Developer may remove the vegetation. If Developer cannot avoid active bird nests, then Developer shall notify ADOT to evaluate the situation. During the nonbreeding season (September 1 to February 28), vegetation removal is not subject to this restriction.

Developer shall completely remove all existing, inactive swallow nests from any bridge or drainage structure where work will occur within 100 feet of nests, after August 31 but prior to February 1 to prevent swallows from reusing nests. Project work shall not cause injury or death to swallows, including eggs and nestlings. If work will occur in swallow nesting locations from February 1 to August 31 of any calendar year, the contractor shall implement exclusionary measures to prevent swallows from building new nests within areas directly impacted by construction activities.

Exclusionary measures shall be implemented in all areas where swallows are likely to nest, and may include (a) continually removing nesting materials during early nest construction when eggs or nestlings are not present, (b) installing deterrent spike strips, and/or (c) installing polytetrafluoroethylene (Teflon) sheeting. Developer shall closely monitor exclusionary measures to ensure any nesting attempts are prevented. If swallow exclusion measures fail and a nest with eggs or nestlings is found, the nest shall not be disturbed and work shall stop within 100 feet from the nest. The ADOT Resident Engineer or Construction Manager shall be notified and it shall be determined, in coordination with Developer, and ADOT biologist if necessary, if the area can be avoided until nesting activity is complete or if construction activity will disturb nesting. The nesting and avoidance determination shall be reported to the ADOT biologist.

Developer shall have available, a wildlife rehabilitator licensed by United States Fish and Wildlife Service to, as authorized by permit, relocate and rehabilitate any eggs or nestlings that cannot be avoided and to address any wildlife injured during project activities.

Any costs incurred as a result of delays related to failure of swallow exclusion measures, including waiting until the nests are not active and/or time required to obtain a Migratory Bird Treaty Act relocation permit and the eggs or nestlings to be relocated from the work area shall be Developer's responsibility.

All bird exclusionary measures shall be removed prior to Substantial Completion to the satisfaction of the ADOT Resident Engineer or Construction Manager.

Developer shall implement the Noxious and Invasive Plant Species Control Plan that is developed in accordance Section DR 450.2.4 of the TPs.

Among other measures, to prevent the introduction of invasive species seeds, Developer shall inspect all earthmoving and hauling equipment at the storage facility. All vehicles and equipment must be cleaned and free of all attached plant/vegetation and soil/mud debris prior to entering the Project ROW.

420.3.7 Waters of the United States

Developer shall:

A. Provide ADOT a complete submittal package with all required information to obtain necessary Section 404 Permit for the project.

B. Track and evaluate any changes in impacts to Waters of the United States and submit updated information to ADOT for coordination with the USACE as necessary.

Developer shall make every effort to not:

A. Create new drainage ditches or channels that the USACE would consider jurisdictional or
B. Increase waters of the U.S. jurisdictional area.

420.3.8 Stormwater

Developer shall:

A. Obtain and comply with an AZPDES general construction permit;
B. Comply with all requirements of the local jurisdictions where stormwater leaves the ROW; and
C. Design and install post-construction controls for all newly developed or redeveloped roads that discharge stormwater runoff in accordance with the ADOT *Post-Construction Best Management Practices Manual for Water Quality*.

420.4 SUBMITTALS

Table 420-2 reflects a nonexclusive list of Submittals identified in Section DR 420 of TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 420-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Environmental Management Plan	2	0	1	Prior to issuance of NTP 2	DR 420.2.3
NEPA Approval Package	1	0	1	As determined by Developer	DR 420.2.6.1
Governmental Approval Package(s)	3	0	1	As determined by Developer	DR 420.2.6.2
Applications for Governmental Approvals	5	0	1	Prior to submittal to the Governmental Entity having jurisdiction	DR 420.2.6.2
Archaeological Documentation and Reporting	4	0	1	Prior to any ground disturbance	DR 420.3.2
Final Technical Noise Analysis and Mitigation Report	2	0	1	At the same time as Initial Design Submittal of the roadway design	DR 420.3.5

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 425 PUBLIC INFORMATION

Refer to Section CR 425 of the TPs for public information provisions during the design phase.

End of Section

DR 430 UTILITIES

430.1 GENERAL REQUIREMENTS

Developer shall perform all Utility Design Work in compliance with the requirements of Section DR 430 of the TPs.

430.2 ADMINISTRATIVE REQUIREMENTS

430.2.1 Standards

Developer shall perform all Utility Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

Developer shall perform the Utility Adjustment Work in accordance with the applicable Utility Company's standards, 23 CFR 645 for Utilities, and the Contract Documents.

430.2.2 Utility Coordination

430.2.2.1 Utility Coordination Plan

Developer shall prepare a Utility Coordination Plan that includes the following information:

A. Description of the Utility Adjustment Coordinator staff, their roles, and responsibilities;
B. Description of the procedures and schedule for contacting Utility Companies;
C. Description of the documentation of all Work with the Utility Companies;
D. Description of the process of coordinating Utility Design Work with Utility Companies;
E. Description of the process of coordinating Utility Construction Work with Utility Companies; and
F. Appendix, including the following:
    1. Utility coordination staff organizational chart;
    2. Utility contact list;
    3. Utility coordination flow chart;
    4. Utility coordination check list;
    5. Utility conflict matrix; including:
        a. Conflict; and
        b. Proposed mitigation; and
    6. Prior rights determination matrix.

Prior to issuance of NTP 2, Developer shall submit the Utility Coordination Plan to ADOT for review and comment.

430.2.2.2 Utility Coordination Meetings

The Utility Adjustment Coordinator must hold utility coordination meetings on an as needed basis, with ADOT and the Utility Companies to communicate with the Utility Companies, ADOT, Developer's staff, and others to ensure that conflicts are being resolved throughout the duration of the Project.

430.2.3 ADOT-Provided Information

ADOT conducted a Utility data search for the Project that includes the collection of as-built drawings and system maps from Utility Companies. ADOT did not perform field location surveys and potholing. ADOT has designated Utilities along the Schematic ROW; however, the

designation might not include all Utilities within the Project ROW. Developer shall verify the presence of all Utilities within the Project ROW. ADOT developed the existing Utility CAD file and inventory matrix for the Project. The Utility inventory matrix, Utility CAD file, and any maps provided by the Utility Companies are included in the RIDs.

430.2.4 Procedures and Agreements

430.2.4.1 Prior Rights Determination

Utilities that have prior rights are those that existed before the construction of a public highway, or by ownership of the land, or by possession of an easement or other compensable land right, as evidenced by Prior Rights Documentation. Developer shall coordinate with ADOT and the Utility Companies to ensure Utility Companies provide all required Prior Rights Documentation, evaluate the information, provide a recommendation to ADOT and ensure ADOT makes a final prior rights decision. Developer shall document all coordination throughout the approval process, including the final approval disposition.

Should any Utility Company claim prior rights during the Work, Developer shall obtain the Prior Rights Documentation from the Utility Company and submit a Request for Prior Rights Determination to ADOT. The Request for Prior Rights Determination must include the following information:

A. Date;
B. Project name;
C. Project number and TRACS number;
D. Utility Company claiming prior rights;
E. Description of the conflict and proposed relocation;
F. Description of the Utility Company's basis of prior rights claim (e.g., easement utility agreement) with supporting Prior Rights Documentation as an attachment;
G. Confirmation by Developer that the Prior Rights Documentation submitted by the Utility Company represents the areas of the Project where the Utility conflict exists;
H. Exhibit depicting the plan view location of the existing Utility, proposed improvements, conflict, Project ROW and easement information; and
I. Signature page for ADOT and the Utility Company.

If the Request for Prior Rights Determination submitted by Developer is incomplete, ADOT may return the submittal with comments to Developer for resubmittal. Upon acceptance of the submittal, ADOT will make a final determination within 20 Business Days. ADOT will approve or disapprove of any prior rights claim in its good faith discretion. Developer shall coordinate with the Utility Companies to continue to resolve the potential conflicts pending the prior rights determination.

430.2.4.2 Utility Agreements

Developer is responsible for preparing, negotiating, and entering into Utility Agreements with all Utility Companies affected by Utility Adjustment Work, as more particularly provided in Section 7.4.2 of the Agreement. The Utility Agreement shall define who will have the responsibility to perform the design and construction of the Utility Adjustment Work, the periods during which the Utility Adjustment Work must occur, and compensation terms, if any, between the parties performing the Utility Adjustment Work. Refer to Sections 7.4.2, 7.4.5, and 7.4.6 of the Agreement for Utility Agreement requirements.

A sample ADOT Utility Agreement format is included in the RIDs. When a Utility Agreement is required, Developer shall verify with the Utility whether the ADOT Utility Agreement is the

appropriate form of agreement. Each Utility Agreement shall set forth all required terms and conditions for the subject Utility Adjustment Work, including:

A. A clear description and specification of the scope of Utility Adjustment Work Developer is to perform, and the scope the Utility Company is to perform;
B. The applicable Utility conflict map;
C. A schedule for the Utility Adjustment Work, or procedures for preparing and implementing such schedule;
D. The applicable Adjustment Standards and any terms and conditions regarding any Change in Adjustment Standards;
E. If necessary, requirements and location for any Replacement Utility Property Interest;
F. Provisions for payments, payment terms, controlling specifications, and work description;
G. Security that Developer will provide to the Utility Company for reimbursement of the Utility Adjustment costs to which the Utility Company is entitled;
H. Provisions for liability insurance that Developer shall provide for the Utility Company to protect the Utility Company in connection with Developer's performance of Utility Adjustment Work;
I. Any Utility permits that may then exist with respect to the construction and relocation of the subject Utility;
J. Specific procedures for resolving scheduling, design, construction, and payment issues arising due to errors or omissions in information the Utility Company provides to Developer or other disputes between Developer and the Utility Company; and
K. Terms and provisions regarding Betterments, if any.

430.2.4.3 Utility Clearance Letters

Developer shall prepare a Utility Clearance Letter for the Project. A sample Utility Clearance Letter is included in the RIDs; however, the initial Utility Clearance Letters must include the following:

A. Each Utility Company within the Project listed separately, showing the following information:
    1. The name of the Utility Company and contact information;
    2. For each of the Utility Company's Utilities, a description of each Utility and one or the other of the following statements:
        a. The Utility is not in conflict with construction. This statement is to be used only if:
            i. A Utility is present, but does not need to be the subject of a Utility Adjustment; or
            ii. A Utility is present, and it needs to be specifically avoided or have Protection in Place;
        b. The Utility is in conflict and a Utility Adjustment is necessary. A description of the required Adjustment must be included, and the status of each Adjustment, which must include one of the following statements:
            i. Adjustment completed;
            ii. Adjustment to be done by Developer during construction;
            iii. Adjustment to be done by the Utility Company during construction, with estimated completion date or number of working days tied to another milestone; or
            iv. Adjustment is currently in progress, by who, with an estimated completion date.

At least ten Business Days prior to any Construction Work, Developer shall submit to ADOT for review and comment initial Utility Clearance Letter(s), along with copies of correspondence from Utility Companies verifying the information contained in the letter is accurate.

Developer shall prepare a final Utility Clearance Letter for the Project indicating the completion of all needed Utility Adjustments and the mitigation of all Utilities. Within ten Business Days after the completion of all Utility Adjustments within the Project, Developer shall submit a final Utility Clearance Letter to ADOT for review and comment. The final Utility Clearance Letter must include encroachment permit numbers for any ADOT issued encroachment permits related to Utility Adjustment Work done within the Project.

430.3 DESIGN REQUIREMENTS

430.3.1 General Requirements

Developer shall minimize impacts to all Utilities. Utility Adjustments or protection of Utilities within the Project ROW must comply with the requirements of the ADOT *Guide for Accommodating Utilities on Highway Right-of-Way*, except as modified in the Contract Documents.

Unless otherwise required by a city- or county- owner, Developer shall design all Utility Adjustments to city- or county-owned water, sanitary sewer, and storm drain facilities, as needed, and shall obtain approval of the design from the appropriate Governmental Entities.

Prior to permit application, Developer shall obtain Utility Company approval of Utility Adjustment Plans prepared by Developer. Developer shall provide Utility Adjustment Plans approved by the Utility Company to ADOT and shall process such plans for RFC as Design Documents.

Developer shall perform all other Design Work for Utility Adjustments to the extent required or permitted by Utility Companies.

430.3.2 Utility Identification

Developer shall verify the location of all Utilities within the Project ROW or otherwise affected by the Work. Utility Companies known to have facilities within the Project ROW include the following:

A. Arizona Public Service;
B. AT&T;
C. Black Canyon City Water
D. Eagle West Cable
E. Kinder Morgan (El Paso Natural Gas);
F. Southwest Gas – pipelines for natural gas;
G. Transwestern Pipeline Company; and
H. Western Area Power Administration.

Developer shall ensure the designation and inclusion in the base CAD file(s) of all Utilities within the Project ROW. Developer shall be responsible for potholes as necessary to confirm utility locations and conflicts. All Utility designation, including potholes, must follow the American Society of Civil Engineers (ASCE) *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02)*. Developer shall provide all pothole information to ADOT within 30 Business Days of the performance of the pothole work.

Developer shall coordinate with Arizona 811.

430.3.3 Utility Report

Developer shall prepare a Utility Report that documents the Utility coordination efforts and work for the Project. The Utility Report must contain a narrative detailing the various Utility conflicts and resolutions. The Utility Report must include:

A. A list of all Utility Companies and contact information;

B. A utility tracking matrix that includes a list of all Utilities by Utility Company, including facilities, conflicts, and considerations for relocation or mitigation (see example provided in the RIDs);

C. Pothole data requested and obtained;

D. Identification of the quality of the Utility Information shown on the RFC plans per CI/ASCE 38-02;

E. Utility Agreements;

F. Replacement Utility Property Interests needed for relocations and acquisition status; and

G. A list of ADOT encroachment permits issued for Utilities affected by the Project.

Developer shall submit the Utility Report to ADOT for review and comment no later than 20 Business Days after Substantial Completion.

430.3.4 Utility Adjustments

Developer shall perform Utility Adjustments or ensure that the Utility Companies perform Utility Adjustments to accommodate the Project in accordance with the ADOT *Guideline for Accommodating Utilities on Highway Rights-of-Way* and the Contract Documents.

Developer shall not permit new Utilities on or within any existing bridges. Developer shall not permit Utilities on or within new bridges. Abandonment of Utilities within the Project ROW must comply with the requirements in the ADOT *Guideline for Accommodating Utilities on Highway Rights-of-Way.*

Developer shall coordinate access requirements of the Utility Companies. Developer shall provide such access as the Utility Companies request and shall ensure that it is acceptable to ADOT. For Utilities that possess proper Prior Rights Documentation, Developer shall design replacement access roads for any access roads displaced by the proposed improvements.

430.3.5 Utility Service Connections

Developer shall provide new Utility service connections as required for the Project, including lighting, freeway management systems, or other facilities in accordance with the Contract Documents. Developer shall convert all existing unmetered Utility service connections within the Project limits to metered Utility service connections. Developer shall also provide any temporary service connections as may be needed during construction. Developer shall coordinate with the appropriate Utility Companies and Governmental Entities to disconnect existing services and set up new or temporary services in accordance with the appropriate Utility Company's or Governmental Entity's requirements.

Developer shall prepare Utility Service Request Letter(s) to establish new services in accordance with the applicable Utility Company standards. At least ten Business Days prior to planned submittal of a Utility Service Request Letter to the associated Utility Company, Developer shall submit Utility Service Request Letter(s) to ADOT. Utility Service Request Letters must include the service address and information for the individual responsible for paying the Utility bill. Developer shall obtain and comply with all permit requirements for all Utility service establishment and disconnections needed for the Project. Developer shall acquire the addresses for all new

permanent Utility services and label the Utility service addresses on the appropriate discipline plans.

Developer shall remove any temporary Utility facilities no longer required. Developer shall furnish the necessary equipment and furnishings required by the Utility Companies, as applicable, at the point of source. This includes any and all necessary special trench, conduit and backfill, and fence enclosures or gates required by each Utility Company. If extensions of a Utility are required to provide the new service, Developer shall be responsible for the extension, including any necessary land rights.

430.3.6 Utility Plans

Developer shall display all Utility base CAD file information in the Design Documents. Developer's Utility base CAD file must indicate the quality and reliability of existing Utility information. All cross sections and details in the Design Documents must show vertical locations of underground Utilities.

430.3.7 ADOT Encroachment Permits

Developer, in coordination with the Utility Companies and ADOT, shall be responsible to secure an ADOT encroachment permit prior to the commencement of any construction of a Utility Adjustment within the Project ROW. The Utility Company must file the permit application. See the ADOT website (http://azdot.gov/business/Permits/encroachment-permits) for more information regarding encroachment permits.

An ADOT encroachment permit is required for each Utility that will be installed, adjusted, or abandoned in the Project ROW, and for any existing Utility that will remain in place within the ADOT ROW but does not have an ADOT encroachment permit.

430.3.8 Utility Encasement

Developer shall determine if Utilities require encasement and shall encase Utilities in accordance with the ADOT *Guideline for Accommodating Utilities on Highway Rights-of-Way*, unless otherwise specified in the Contract Documents.

For existing Utility crossings that are to remain, Developer shall provide calculations sealed by a Professional Engineer to determine if the existing facility can accommodate soil and traffic loading of the proposed improvements. Developer shall provide the calculations to the Utility Company and ADOT. For existing encasements that do not extend past the Project improvements, Developer shall extend the casing or provide protection for the roadway subgrade to one foot outside of the pavement, back of curb or gutter, or back of barrier, as applicable. Developer shall obtain Utility Company and ADOT approval of casing extension or method of subgrade protection. ADOT, together with the Utility Owner and ADOT shall have the final approval to determine if existing Utility crossings can remain in place.

430.4 SUBMITTALS

Table 430-1 reflects a nonexclusive list of Submittals identified in Section DR 430 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 430-1 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Utility Coordination Plan	4	0	1	Prior to issuance of NTP 2	DR 430.2.2.1
Request for Prior Rights Determination	2	0	1	As needed	DR 430.2.4.1
Initial Utility Clearance Letter(s)	4	0	1	At least 10 Business Days prior to any Construction Work within the Project Segment	DR 430.2.4.3
Final Utility Clearance Letter(s)	4	0	1	Within 10 Business Days of the completion of all Utility Adjustments within the applicable Project Segment	DR 430.2.4.3
Final Utility Report	4	0	1	Within 20 Business Days of Substantial Completion	DR 430.3.3
Utility Service Request Letter(s)	5	0	1	At least 10 Business Days prior to submitting the Utility Service Request Letter to the associated Utility Company	DR 430.3.5

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 440 ROADWAY

440.1 GENERAL REQUIREMENTS

Developer shall perform all roadway Design Work in compliance with the requirements of Section DR 440 of the TPs.

440.2 ADMINISTRATIVE REQUIREMENTS

440.2.1 Standards

Developer shall perform all roadway Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

440.3 DESIGN REQUIREMENTS

440.3.1 Design Criteria

Developer shall design the roadway in accordance with the ADOT *Roadway Design Guidelines* and the design criteria shown in TP Attachment 440-1, except as documented in approved Design Variances, in TP Attachment 440-2, and Design Exceptions, in TP Attachment 440-3.

440.3.1.1 Sight Distance

Sight distance requirements for all roadways must comply with Section 201 of the ADOT *Roadway Design Guidelines*.

440.3.1.2 Superelevation

Superelevation must comply with the requirements in Section 202 of the ADOT *Roadway Design Guidelines.* Superelevation rates on new pavement widening areas must match the existing roadway cross slopes.

440.3.1.3 Horizontal Alignment

Mainline horizontal alignment must comply with the requirements in Section 203 of the ADOT *Roadway Design Guidelines.*

440.3.1.4 Vertical Alignment

Mainline vertical alignment must comply with the requirements in Section 204 of the ADOT *Roadway Design Guidelines.* Within the limits of the roadway widening, the profile grade must match existing.

440.3.1.5 Transitions and Tapers

When adding a lane, the approach transition must have a taper rate of 25 to one. The transition when dropping a lane must have a taper rate of design speed to one.

Taper rates from narrow to wider shoulder widths in the direction of traffic must be 15 to one. When tapering from wider to narrower shoulder widths, the taper rate must be design speed to one. Shoulder width changes resulting from widening of the concrete barrier at appurtenances must be in conformance with Section DR 440.3.1.6 of the TPs.

440.3.1.6 Cross Section Elements

The standard cross slope for all types of paved surfaces must be 0.02 ft/ft. The cross slope of widened roadways must match the cross slope of the adjacent lane. The cross slope of the shoulder must match the cross slope of the adjacent lane, except at ramp gores.

Unless otherwise specified herein, the minimum vertical clearance for new bridges must be 16'-6" and the minimum vertical clearance for bridges that are widened or have roadway widened under them must be 16'-0". The minimum vertical clearance shall be provided over the entire roadway width under the bridge.

A Design Exception has been provided for I-17 northbound at the Velda Rose Road bridge. Additional Design Exceptions to maintain existing clearances are anticipated for I-17 southbound at the Velda Rose Road bridge and I-17 northbound and I-17 southbound at the Table Mesa Road bridges. Alternatively, Developer may propose methods with which to eliminate or minimize these anticipated Design Exceptions.

The minimum vertical clearance for the I-17 SB Moores Gulch bridge over the grader road must be 15'-0".

Shoulder widths provided in TP Attachment 440-1 must be the minimum continuous usable width of paved shoulder. If alternate designs are not feasible, spot locations that would reduce the shoulders by up to one foot are allowed in order to accommodate overhead signs, vehicle arresting barriers, barrier gates and Flex Lane gate installations.

All barrier width transitions must be per Section 305.9 of the ADOT *Roadway Design Guidelines*.

Flex Lane roadways must provide two 12 foot-wide lanes throughout their length, including the crossovers through the limits of the striped gores.

Roadside recovery areas must comply with the requirements in Section 303.2 of the ADOT *Roadway Design Guidelines.*

Side slopes must comply with C-02.20 of the ADOT *Construction Standard Drawings.* Slope rounding for cut slopes must be in accordance with the details provided in TP Attachment 450-3 When behind new precast concrete barrier, the hinge must be located one foot behind the back of barrier and the fill slope from that hinge can vary up to 2H:1V max to provide for the drainage ditch.

Slopes within rock cuts must comply with the geotechnical recommendations in the Geotechnical Engineering Report(s) and the Contract Documents.

Developer shall provide crown ditches when constructed cut slopes are over 40 feet in height. Developer shall provide crown ditches in rock cut slopes of any height when the rock is overlain by more than two feet of colluvium and/or decomposed rock at the crest. Crown ditches do not need to be excavated into rock where the rock is fresh to moderately weathered and not moderately to closely fractured, except in the event that such excavation is necessary to assure continuity of drainage along the crown ditch. Crown ditches must be in conformance with C-03.10 of the ADOT *Construction Standard Drawings.*

Developer shall provide embankment curb at all new guardrail installations on the low side of the pavement. At guardrail replacement areas, embankment curb shall not be required where none currently exists. At guardrail replacement areas, embankment curb that doesn't meet the 3.5-inch minimum height above the roadway shall be removed and replaced, and including the removal and replacement of portions of spillway or downdrain inlets in order to maintain the curb height into the inlet. Embankment curb and inlets must be in conformance with C-05.10 and C-04.10/C-04.20 respectively of the ADOT *Construction Standard Drawings.*

Developer shall re-establish use of the existing emergency vehicle median crossovers located near MP 234 and MP 241 concurrently with the widening at each location.

Developer shall provide maintenance pads for all DMS locations identified in Section DR 466.3.3.2 of the TPs. DMS maintenance pads must meet the following requirements:

A. DMS maintenance pads must provide an area that is 25 feet wide from the edge of the travel lane and 75 feet in length exclusive of the transitions;
B. The DMS structure must be located 25 feet beyond the beginning of the maintenance pad;
C. Transitions to access the maintenance pads and transitions to enter the travel lane from the maintenance pads must be 5:1 taper or flatter;
D. Guardrail must be provided in advance of the maintenance pad access, along the length of the transition, and along the maintenance area through the DMS structure at a minimum; and
E. DMS maintenance pad pavement structural sections must be in accordance with Section DR 419.3.3 of the TPs.

440.3.1.7 Roadside Safety Devices

All existing roadway barriers and barrier end treatments, that are in compliance with the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features* and are not otherwise impacted by Construction Work may remain in place. Safety hardware allowed to remain in place is provided in the RIDs. All other roadway barriers must comply with the requirements of the AASHTO *Manual for Assessing Safety Hardware (MASH)* unless otherwise specified in the Contract Documents.

Existing guardrail must be replaced if the rail height (measured from the roadway surface to top of rail) will be less than 26.5” at Project Final Acceptance. Rail height is determined for each run from the average of field measurements at 100’ intervals for that run. At a minimum, the existing runs of guardrail that must be replaced are provided in TP Attachment 440-4. Guardrail that replaces existing guardrail shall be installed at no less than the current offset to face of existing guardrail.

When Developer places barriers against the top of retaining walls or protecting slopes to the top of walls located within the clear zone, barriers must be 42” and meet minimum test level TL-5.

Developer shall provide median barriers for median widths of 75 feet or less. Except for barriers protecting sign structures, vehicle arresting barriers (VAB) or Flex Lane gate equipment, barriers used with non-paved medians must be new precast concrete barrier in accordance with the ADOT *Traffic Signing & Marking* Standard Drawing C-3, be pinned to the roadway and provide one foot of pavement behind the barrier. In reaches where the barrier is protecting sign structures, VAB or Flex Lane gate equipment, the barrier must be a cast-in-place 42” F-Shape. Barriers installed throughout the limits of the Flex Lane Gates and VAB equipment must be continuous cast-in-place 42” F-Shape. Barriers that must be backfilled and capped must be cast-in-place F-Shape. Barriers with paved shoulders on each side must be 42” Type ‘F’ in accordance with the ADOT *Construction Standard Drawings.*

Developer shall provide emergency accesses through the concrete barrier between the Flex Lanes and SB general purpose lanes through steel barrier gates. Developer shall not use a temporary concrete barrier as a barrier gate system. The barrier gate system must meet NCHRP Report 350 criteria for Test Level 3 and be 32 inches high, at a minimum. Barrier gates must provide a minimum 25-foot gap to allow emergency access. The barrier gate system must be manually operational and not rely on vehicles to operate. Road geometry must comply with the manufacturers’ recommendations for installation locations of the barrier gate system. One barrier gate system must be provided within each of the following locations:

1. Between I-17 SB Sta 2361+63 to Sta 2363+99
2. Between I-17 SB Sta 2465+52 to Sta 2466+30
3. Between I-17 SB Sta 2518+45 to Sta 2526+22
4. Between I-17 SB Sta 2622+25 to Sta 2623+08

Developer shall provide a minimum of two sets of any required operating tools per barrier gate location.

Existing chain link cable barrier impacted by Construction Work must be replaced with new chain link cable barrier C-12.30 of the ADOT *Construction Standard Drawings.*

Developer shall place compacted backfill and 3.5-inch Class B concrete cap with 0.5-inch expansion joint filler in areas between the back of concrete barrier and concrete barriers, walls, abutments, etc. less than 10 feet in width, graded to drain.

Developer shall not place signs in line with or integrated on barriers.

440.3.1.8 Fencing

Developer shall provide fencing at the Project ROW boundaries that are adjusted from existing boundaries and along extensions of drainage features that have existing fencing. Developer shall not remove existing fencing in conflict with construction until temporary or new permanent fencing is in place.

Fencing must comply with ADOT *Construction Standard Drawing* C-12.10 Type 2 Barbed Wire.

440.3.1.9 Temporary Roads

Temporary roadways must comply with the requirements in Section 316 of the ADOT *Roadway Design Guidelines*.

440.3.1.10 Traffic Interchanges and Crossroads

Ramps must comply with the requirements in Section 504 of the ADOT *Roadway Design Guidelines.* The following five ramps shall be modified from taper-type to parallel-type ramps:

- Table Mesa TI northbound entrance ramp
- Black Canyon TI northbound exit ramp
- Black Canyon TI northbound entrance ramp
- Black Canyon TI southbound exit ramp
- Black Canyon TI southbound entrance ramp

The Moores Gulch Road grader road shall be regraded within the limits of the Project ROW for Southbound I-17 only. The grader road must be a minimum 12 feet in width consisting of material suitable for and compacted to subgrade requirements per the ADOT Standard Specifications. Developer shall raise the grader road elevations as necessary such that all elevations are at least two feet above the lowest current elevation.

440.3.2 Design Exceptions and Design Variances

The Schematic Design includes design elements that require Design Exceptions and Design Variances. Approved Design Exceptions and Design Variances are included in TP Attachments 440-2 and 440-3 and in the RIDs.

If Developer's design creates additional Design Exceptions or Design Variances, Developer shall submit to ADOT a request and must demonstrate on a case-by-case basis that substantial benefits to the Project would result from the request.

For each Design Exception or Design Variance requested by Developer, Developer shall prepare all documentation in accordance with the ADOT *Design Exception and Design Variance Process Guide.* At the same time as Initial Design Submittal for the associated Work, Developer shall submit any request(s) for Design Exception(s) or request(s) for Design Variance(s) to ADOT for review and approval by ADOT, in ADOT's sole discretion. Following review of any request(s) for Design Exception(s), ADOT will submit the request to FHWA for review and approval; provided that ADOT is not required to submit to FHWA those requests that ADOT elects to disapprove without FHWA review. Developer shall schedule sufficient time for ADOT and FHWA evaluation of requests. No Design Exception shall be effective unless approved by FHWA or Design Variance shall be effective unless approved by ADOT.

Developer shall prepare a Design Exception and Design Variance Report that consolidates all Design Exceptions and Design Variances requested by Developer, all supporting documentation, and copies of the ADOT and FHWA approval letters. At the same time as Final Design Submittal for the associated Work, Developer shall submit the Design Exception and Design Variance Report to ADOT.

440.4 SUBMITTALS

Table 440-1 reflects a nonexclusive list of Submittals identified in Section DR 440 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 440-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Request(s) for Design Exception	1	0	1	At the same time as Initial Design Submittal for the associated Work	DR 440.3.2
Request(s) for Design Variance	1	0	1	At the same time as Initial Design Submittal for the associated Work	DR 440.3.2
Design Exception and Design Variance Report	5	0	1	At the same time as Final Design Submittal for the associated Work	DR 440.3.2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 445 DRAINAGE

445.1 GENERAL REQUIREMENTS

Developer shall perform all drainage Design Work in compliance with the requirements of Section DR 445 of the TPs. Developer shall provide a highway drainage design that minimizes off-site impacts while maintaining a frequency of protection for the highway in accordance with Section DR 445 of the TPs.

445.2 ADMINISTRATIVE REQUIREMENTS

445.2.1 Standards

Developer shall perform all drainage Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

445.2.2 Data Collection

Developer shall collect all data, including those Elements outlined in Section DR 445.3.6 of the TPs and in accordance with Section 5.2 of the ADOT *Highway Drainage Design Manual, Hydraulics,* to determine all historic and proposed tributary flows to the proposed drainage system.

Developer shall investigate and videotape or photograph existing drainage Elements in the Project ROW that are planned to remain in place to determine their condition, size, material, location, and other pertinent information when documentation is not available.

Developer shall inspect, with a Representative of ADOT in attendance, the condition of the existing culverts. The ADOT Representative will determine the repairs to be completed, and Developer shall incorporate such repairs into the drainage Plans. The repairs will be considered additional work and will be compensated in accordance with Section 16.4.19 of the Agreement. In addition, if Governmental Entities other than ADOT request modifications to existing drainage Elements not impacted by construction, ADOT will determine whether to make the requested modification and any decision to do so will be treated as an ADOT Directed Change.

Developer must document the data collected as outlined in Section DR 445 of the TPs and in accordance with Chapter 4 of the ADOT *Highway Drainage Design Manual, Hydraulics*.

445.2.3 Coordination with Other Agencies and Governmental Entities

Developer shall coordinate all drainage designs with all affected interests, Governmental Entities, and Utility Companies as applicable.

If the information in the drainage reports warrant a Federal Emergency Management Agency (FEMA) map revision, Developer shall prepare documentation, perform the design, and provide to the local floodplain administrators all necessary information and technical data for filling with FEMA a conditional letter of map revision and letter of map revision.

445.2.4 Software

Developer shall use drainage software that is compatible with or fully transferrable to the software in use by ADOT in accordance with Section GP 110.10.2.2 of the TPs. Culvert hydraulic software must comply with the requirements of FHWA *Hydraulic Design Series Number 5*.

445.3 DESIGN REQUIREMENTS

445.3.1 General

Developer shall design all Elements of the drainage system(s) for the Project to provide a complete and functional drainage system that complies with the requirements in Section DR 445 of the TPs. Developer shall design all drainage improvements in a manner that accounts for all existing and proposed tributary areas within or outside the Project ROW. Tributary areas must incorporate future land-use plans and/or potential land uses from applicable Governmental Entities with drainage areas discharging to the Project ROW.

Developer shall design the drainage improvements based on the future land use as determined by the Governmental Entity with jurisdiction. Developer shall not cause objectionable backwater and/or excessive velocities as specified in the standards listed in Table 400-1, which may negatively affect traffic safety, embankment stability, adjacent property, natural drainage courses, drainage facilities, floodplain developments, upstream drainage systems, and the use of downstream receiving waters. Developer shall design the drainage improvements such that post-Project flow conditions are at or below pre-Project flow conditions. Developer shall design the drainage systems aesthetics in accordance with Section DR 450 of the TPs.

Where drainage patterns are changed from existing patterns, Developer shall obtain all permits, drainage easements, and ADOT and Governmental Entity approval prior to construction of any drainage improvements.

445.3.2 Drainage Master Plan

Developer shall prepare a Drainage Master Plan that depicts the existing and proposed drainage system, including size, for the Project in accordance with the requirements for a drainage report identified in Chapter 4 of the ADOT *Highway Drainage Design Manual, Hydraulics*. ADOT intends the Drainage Master Plan to be a schematic analysis of the drainage systems that provides an overview of the overall drainage system for the Project. Developer shall ensure that the Drainage Master Plan is the basis for the roadway drainage design. Developer shall update the Drainage Master Plan as the development of the roadway drainage design proceeds. The Drainage Master Plan must include hydrology calculations, evaluation of existing conditions, documentation used to size the ultimate off-site drainage improvements, and a comparison of the existing and proposed flow conditions.

At the same time as Initial Design Submittal of the roadway drainage, roadway design, and/or bridge hydraulic design, Developer shall submit the Drainage Master Plan to ADOT for review and comment by ADOT. Prior to submitting a drainage design Submittal that is not consistent (e.g., changes in tributary areas, concentration points, basin locations, etc.) with the Drainage Master Plan, Developer shall submit an updated Drainage Master Plan to ADOT.

445.3.3 Drainage Report

Developer shall prepare a preliminary Drainage Report(s) for the Project drainage system(s) in accordance with Chapter 4 of the ADOT *Highway Drainage Design Manual, Hydraulics* and shall include all calculations and analysis in the report as required by the Contract Documents. Developer may prepare the preliminary Drainage Report(s) per drainage system, Project Segment, or for the entire Project.

At the same time as Initial Design Submittal for the associated drainage improvements, Developer shall submit a preliminary Drainage Report to ADOT for review and comment. Developer shall prepare a final Drainage Report based on the final drainage design. The final Drainage Report must address ADOT comments from the preliminary Drainage Report. At the same time as Final

Design Submittal for the associated drainage improvements, Developer shall submit a final Drainage Report to ADOT.

Developer shall prepare an As-Built Drainage Report that compiles all Drainage Reports into one report. As part of the Record Drawing Submittal, Developer shall submit the As-Built Drainage Report to ADOT.

445.3.4 Storm Frequency and Design Discharge

445.3.4.1 Design Frequencies

Developer shall use the design frequencies as specified in ADOT *Roadway Design Guidelines*.

445.3.4.2 Allowable Spread

Developer shall design drainage systems to limit ponding to the widths for the design frequency event in accordance with the requirements in Table 603.2A and Table 603.2C of the ADOT *Roadway Design Guidelines*.

445.3.4.3 Additional Requirements

Developer shall not permit any increase in water surface elevation from existing conditions upstream or downstream of the Project ROW. Developer shall make modifications to new or existing drainage features to achieve no rise in water surface elevation outside the Project ROW or in existing drainage easements due to the Work.

Discharge, velocity, or water surface elevation at the outfalls to existing drainage conveyance features must not increase from the existing conditions. Mitigation to offset any increase of discharge, velocity, or water surface elevation at the outfalls to existing drainage conveyance features must be in the form of providing storage capacity at locations within the Project ROW.

Runoff from roadway ditches must not cause additional erosion, scour, or undermining to bridge abutments.

445.3.5 Hydrology

Developer shall determine design flows based on the following sources, provided in the order of relative importance:

A. Existing hydrologic studies: Where highway facilities encroach on established or planned regulatory floodplains, the flood frequency curve approved by FEMA for the site must be the primary source of data for use in design. In the absence of a FEMA flood frequency curve, Developer shall evaluate runoff rates from drainage studies by other Governmental Entities for use in establishing a design flood frequency curve. Developer shall review such studies for appropriateness regarding the needs of the facility that Developer designs. There may be instances where Developer shall use two hydrologic values: (1) the FEMA or other agency value, to evaluate the impacts of the ADOT system on the existing FEMA floodplain/floodway; and (2) an ADOT value, to size the drainage facilities.

B. Rainfall-runoff models: Developer shall use rainfall-runoff models where stream runoff data are not available. For drainage areas of 160 acres or less, Developer may use the rational method. For drainage areas greater than 160 acres, Developer shall use the USACE computer program HEC-HMS. Developer shall comply with the approved procedures and recommended parameter values for the rational method and HEC-HMS based on the local jurisdiction requirements. Developer shall use the Green and Ampt method to estimate rainfall losses. Developer shall use the S-curve or the Clark unit hydrograph to calculate the unit hydrograph parameters.

445.3.6 Drainage Improvements

445.3.6.1 Inlets

Developer shall provide stormwater drainage improvements behind proposed retaining walls and barriers to convey side slope runoff to the wall into the proposed storm drain system and prevent stormwater from ponding or draining over the walls.

Developer shall design all off-roadway inlets within the roadway recovery area with three inches or less local depression. Developer shall account for a potential reduction of inflow capacity attributable to clogging using the capture ratios shown in ADOT *Roadway Design Guidelines*.

445.3.6.2 Storm Drain System

Where physical constraints preclude a storm drain system from handling runoff with open channels, or as directed in Section DR 445 of the TPs, Developer shall design enclosed storm drain systems to collect and convey runoff to appropriate discharge points.

Developer shall prepare storm drain documentation encompassing all storm drain systems that contains, at a minimum, the following items:

A) Drainage area maps for each storm drain inlet with pertinent data, such as boundaries of the drainage area, topographic contours, runoff coefficients, time of concentration, and land use, design runoff coefficients, discharges, and ponding;

B) Location and tabulation of all existing and proposed pipe and drainage structures, including size, class, or gauge; catch basin spacing; detailed structure designs; and any special designs;

C) Specifications for the pipe bedding material and structural pipe backfill on all proposed pipes and pipe alternates; and

D) Complete pipe profiles, including pipe size, type, and gradient; station offsets from the centerline of the roadway; length of pipe; class/gauge of pipe; and numbered drainage structures with elevations.

Developer shall include the storm drain documentation as part of the preliminary and final Drainage Reports.

The maximum allowable hydraulic grade line elevation for the design frequency must not exceed six inches below the lip of gutter, the top of manhole cover, and as specified in Table 400-1.

Developer shall identify manhole covers as shown on the ADOT *Construction Standard Drawing* No. C-18.10.

445.3.6.3 Pipes

Developer shall design storm drain pipes with a minimum velocity of three fps when flowing full, for "self-cleaning" purposes using the appropriate design flow. Developer shall design all storm drains to sustain all loads using fill heights and D-loads for determining pipe classifications. Developer shall design pipes in accordance with the following requirements:

A. Pipe diameter: 18 inches minimum;

B. Pipe depth of cover: six inches minimum (top of pipe to bottom of finished subgrade);

C. Provide outfall protection when the outlet velocity is greater than 1.4 times the natural stream velocity; and

D. When outfall protection is required, Developer shall provide calculations to document the design.

The design life of new pipe and pipe extensions must comply with the criteria for a 75-year "maintenance free" service life for the Project. Developer shall determine the class of new pipe in accordance with the ADOT *Standard Pipe Selection Guidelines*. Developer shall include evaluation documentation with the design calculations. Developer shall include "new pipe summary sheets" in the Plans.

Developer shall use the Manning's "n" values included in ADOT *Roadway Design Guidelines*.

445.3.6.4 Culverts

Developer shall analyze existing and proposed culverts, drainageways, and associated appurtenances affected, replaced, or created by the Project design for any localized flooding deficiencies.

Where upstream storage owned by a Governmental Entity for the purpose of stormwater storage influences culvert design, Developer shall incorporate the analysis of the storage into the design of the culvert. Developer shall analyze all water levels for backwater and design all culverts, so backwater does not increase above existing conditions that extend onto adjacent properties.

Developer shall ensure that culverts comply with the following requirements:

A. The minimum height for new box culvert inside dimension must be six feet;
B. Extension of existing box culverts must maintain existing open area (sq. ft.); no reduction in conveyance capacity is allowable;
C. Extensions to existing culverts must not have individual angle changes greater than 36 degrees. Culvert extensions for angle changes greater than 36 degrees must have manholes or junction structures;
D. For the design flood, the headwater level must be no higher than three inches below the pavement. The headwater depth to culvert height ratio must not exceed one and one-half;
E. The 100-year floodwater levels must not increase the flood damage potential on areas outside of Project ROW;
F. Developer shall investigate flow capacity of any culvert whenever the invert of the culvert is embedded below the natural streambed thalweg. Developer shall not include embedded area in the effective culvert waterway opening where the embedded area is backfilled with erosion-resistant material or where one can anticipate siltation to the original grade.
G. All new culverts and culvert extensions must have end sections or headwalls;
H. Culverts with a span or diameter greater than or equal to 48 inches must have concrete headwalls;
I. Concrete box culverts must have inlet cut-off walls. Concrete box culverts must have an outlet cut-off wall with a minimum four foot depth;
J. Culverts with a span or diameter 48 inches or greater must have an apron with cut-off wall;
K. Concrete cut-off walls, headwalls, and partial headwalls must extend at least two feet below the ultimate bed elevation and a minimum of four feet below culvert inverts;
L. Cut-off walls, headwalls, partial headwalls, and aprons must be attached to the culvert;
M. Outlets must have riprap whenever the outlet velocity is between four and 15 feet per second and comply with the requirements of Section DR 420 of the TPs; and
N. Outlets with velocity greater than 15 feet per second must have an energy dissipator.

Developer shall design bridge culverts subject to traffic loading in accordance with Section DR 455 of the TPs.

445.3.6.5 Temporary Drainage Facilities

Developer shall design temporary drainage systems to:

A. Provide safe operation during construction;
B. Accommodate both existing and construction area runoff water; and
C. Comply with Good Industry Practice.

Developer shall provide drainage design details for each stage of construction. Developer shall design temporary stormwater conveyance systems such that the systems confine stormwater to the shoulders and no water encroaches into the travel lanes.

445.4 SUBMITTALS

Table 445-1 reflects a nonexclusive list of Submittals identified in Section DR 445 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 445-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Drainage Master Plan	4	0	1	At the same time as Initial Design Submittal of the roadway drainage, roadway design, and/or bridge hydraulic design	DR 445.3.2
Updated Drainage Master Plan	5	0	1	Prior to submitting a drainage design Submittal that is not consistent with the original Drainage Master Plan	DR 445.3.2
Preliminary Drainage Report(s)	4	0	1	At the same time as Initial Design Submittal for the associated drainage improvements	DR 445.3.3
Final Drainage Report(s)	5	0	1	At the same time as Final Design Submittal for the associated drainage improvements	DR 445.3.3
As-Built Drainage Report	5	0	1	As part of the Record Drawing Submittal	DR 445.3.3

Table 445-1 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(b) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

End of Section

DR 450 AESTHETICS AND LANDSCAPING

450.1 GENERAL REQUIREMENTS

Developer shall perform all aesthetics and landscaping Design Work in compliance with the requirements of Section DR 450 of the TPs.

450.2 ADMINISTRATIVE REQUIREMENTS

450.2.1 Standards

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450.2.2 Meetings

450.2.2.1 Pre-design Coordination Meeting

Developer shall conduct an aesthetics and landscaping pre-design coordination meeting prior to beginning aesthetics and landscaping design Work and in accordance with Section GP 110.02.3 of the TPs. The aesthetics and landscaping predesign coordination meeting must include all personnel involved in the design and construction of the aesthetics and landscaping for the Project.

450.2.2.2 Technical Work Group Meeting

Developer shall conduct aesthetics and landscaping TWG meetings every other week throughout the Design Work of the aesthetics and landscaping, unless otherwise directed by ADOT. ADOT staff will participate in these TWG meetings and be available for over-the-shoulder plan reviews. Developer may combine design aesthetics and landscaping TWG meetings with construction aesthetics and landscaping TWG meetings.

450.2.3 Plant Inventory

Developer shall inventory native trees (including ironwood, mesquite, and blue and foothills palo verdes) with a single trunk diameter or combined trunk diameter of between three and ten inches, measured six inches above natural grade at the root location. Developer shall inventory saguaro spears between four and twelve feet in height. Developer shall inventory accents including ocotillos with four or more canes and six to eight feet tall; barrel cacti over six inches and under two feet height; all yucca species; and all young, non-flowering agaves. The Plant Inventory shall occur prior to issuance of NTP2 (see Section DR 450.3.5 of the TPs and Table 450-1). Developer shall select areas slated for disturbance during construction, within the Project ROW, in which to inventory plants for salvage.

Developer shall give each plant an identification (ID) number that is associated with that plant through the salvaging, nursery, and replanting processes. Developer shall prepare a matrix of inventoried plants that includes plant ID number; the species common and botanical names; tree caliper; whether the tree is multi-trunked; and the height of trees, saguaros, ocotillo, and barrel cacti.

Developer shall prepare a Plant Inventory for the Project that includes the following:

A. Cover page;
B. Table of contents;
C. Location on the plans of the disturbance areas included in field inventory;
D. Matrix of inventoried plants;
E. Description of each plant, such as height, health condition, location, form, diseases, damage, salvageability, and other information used to determine plant status; and

F. Plant inventory exhibits showing the existing location of each plant with its associated ID number.

Developer shall clear and grub all plants determined to be non-salvageable or removed by Developer within disturbance areas.

If additional areas are necessary for the Project subsequent to preparing the Plant Inventory, Developer shall submit a revised Plant Inventory and additional plants, applying the same requirements above.

450.2.4 Noxious and Invasive Species Control Plan

Developer shall inventory the presence of noxious and invasive species in the Project ROW, in conformance with environmental mitigation measures of Section DR 420 of the TPs. Developer shall prepare a Noxious and Invasive Species Control Plan that describes the proposed methods and products for minimizing the spread and growth of noxious and invasive species from the beginning of construction through the end of the D&C Period. Developer shall treat noxious and invasive species before ground disturbance begins and throughout the D&C Work, excluding geotechnical activities.

The United States Department of Agriculture website includes a list of Arizona invasive and noxious plants. The Noxious and Invasive Species Control Plan must be consistent with implementing the applicable Project Environmental Commitment Requirements and include the following:

A. Cover page;
B. Table of contents;
C. Information on the species that are found in the Project ROW;
D. Maps that identify the location(s) and approximate area(s) of each type of species found;
E. Proposed chemical or mechanical means to minimize germination of these plants; and
F. The schedule for periodic inspections and control of species throughout the D&C Work. Every three months, throughout the D&C Period and Landscaping Establishment Period, Developer shall look for noxious and invasive species and take remedial action within ten Business Days if identified species appear on Site.

Developer shall submit the Noxious and Invasive Species Control Plan to ADOT for review and comment in a time frame that allows for ADOT review of the plan and the initial treatment to occur before ground disturbance begins. Developer shall prepare an updated Noxious and Invasive Species Control Plan if needed and directed by ADOT.

450.3 DESIGN REQUIREMENTS

Developer shall produce plans and specifications to implement the landscape, temporary irrigation components, and aesthetic treatments. All landscape architectural, aesthetics treatments, erosion control plans, specifications, and reports shall be signed and sealed by a registered Arizona Professional Landscape Architect.

Since aesthetics and maintenance considerations will directly influence Project components, it is important for Developer and ADOT to reach concurrence on the aesthetic and landscaping design concepts to be incorporated into the Final Design.

450.3.1 Aesthetic Theme

The Aesthetic Theme for this Project is to express the natural geology of the corridor. The Aesthetic Theme shall be expressed through the color palette, stains, building materials, variations in wall height, noise wall accent panels, patterns, and textures used.

450.3.2 Rustication

All new noise walls and new retaining walls throughout the Project must receive rustication patterns and paint on all exposed surfaces in accordance with TP Attachment 450-2.

Rustication is an aesthetic treatment. Rustication is defined as any change in the pattern or texture of built structures as compared with a standard smooth finish. Rustication, whether it protrudes out or is inset into the wall, must comply with the structure requirements in Section DR 455 of the TPs.

Developer shall make rustication appear integral to the overall structure if rustication is an attached method.

Developer shall be responsible for developing Design Documents that incorporate and show the structure aesthetic treatments. Developer shall submit the drawings and specifications to ADOT for approval prior to fabricating any formliners as required in Section CR 450.3.1.1 of the TPs. The drawings and specifications shall include:

A. Dimensions, shape, orientation, textures, and colors of aesthetic treatments including recessed and built up (inward/outward) features of each treatment type and location. The drawings and details provided by Developer shall specify the inward/outward distance of each aesthetic element, which is an important part of the aesthetics effect.
B. An elevation of the expected visible portions of the features for all structures receiving aesthetic treatments. The elevation shall demonstrate the placement of the treatment above the ground line, the top/bottom and outline of background wall, and the locations of construction and/or expansion joints within ten feet of the treatments.
C. Common construction materials, patterns, and textures, demonstrating a coordinated visual appearance and construction technique regardless of their location within the Project area.

Refer to Section DR 455 of the TPs and Sections 601-3.02 (C) and 610-1 through 610-3.06 of the ADOT Standard Specifications for additional criteria related to structure aesthetics.

450.3.3 Accessory Structures

Accessory structures shall use materials and colors that match the rustication requirements for the materials from which they are built.

450.3.4 Painting

All new noise walls and new retaining walls throughout the Project corridor shall be painted; the concept base color.

450.3.5 Landscape Design

The goal for landscape design is to achieve restoration of the natural environment using salvaged plant material and revegetation seeding. Restoration includes aesthetic considerations for sculpting the terrain and transitioning between the cuts and fills and the existing ground plane. Landscape details are provided in TP Attachment 450-3.

Developer shall be responsible for placing plant material to meet the minimum densities identified in Table 450-1. Seventy percent of the planted materials, by each category identified in

Table 450-1, must be salvaged materials from the Project area. The remaining 30 percent may be nursery grown materials. Nursery grown material sizes must be at least 15 gallon for trees; five gallon for agaves and yuccas; ocotillos at four or more canes and six- to eight-feet tall; six inches minimum to two feet high for barrels; and six feet high for saguaros.

Table 450-1
Minimum Planting Densities

Limits	Plant Category		
	Trees per acre	**Saguaros per acre**	**Accents per acre**
South project limits to Milepost 240	14	2	5
Milepost 240 to Milepost 248	23	1	3
Milepost 248 to North project limits	17	N/A	2
Project-wide - Developer shall preserve existing plants in place outside of disturbance areas. Plants removed or damaged by Developer that were indicated in the approved plans as preserve-in-place shall be replaced by a similar plant species with salvaged material or nursery stock at the sizes indicated in Section CR 450.3.4.5 of the TPs.			

Planting design shall emulate the existing natural condition in layout and densities per Table 450-1. The planting design shall have Landscape Areas, Seeded Areas, and Preserve-in-Place Areas identified on the plans.

A. Landscape Areas are comprised of revegetation with salvaged native plants, nursery stock, and restoration seeding.
B. Seeded Areas are comprised of restoration seeding only.
C. Preserve-in-Place Areas are comprised of areas not to be disturbed by construction activities.

Revegetation must be generally located on maintainable and accessible portions of the disturbance areas. Remaining unpaved disturbed areas shall be Seeded Areas except as noted below.

Landscape design shall comply with the following objectives:

A. Comply with sight visibility criteria to minimize trimming operations;
B. Avoid the creation of “hidden” areas;
C. Maintain maintenance access areas free of vegetation;
D. Vegetation shall not obscure signage;
E. Maintain the drainage function of channels, basins, and low flow structures;
F. Seeding the bottom of drainage basins (1 acre or larger) with the seed mix H1;
G. Ensure compatibility with existing elements designated to remain;
H. Address maintenance access for permanent roadway features;
I. Comply with roadway visibility criteria;
J. Utility-specific planting lists and guidelines; and
K. Setbacks determined by utility companies for pull boxes, light poles, sign foundations, and impact devices.

The following conditions can be excluded from the Landscape Area:

A. Restricted slope locations (e.g., top 2/3 of a 2:1 slope);
B. Exposed bedrock or solid rock cut areas;
C. Areas necessary to maintain drainage function of channels, basins, and low flow channels (e.g., plant only the top 1/3 of slopes inside drainage features);
D. Riprap, lined channels, or other large diameter surface treatments (e.g., other stabilized outfalls);
E. Areas behind MSE retaining walls (distance equal to tieback length);
F. Grading disturbance including areas of planned and actual construction impacts (including haul roads);
G. Roadway clear zones;
H. Designated maintenance access and paths;
I. Preserve-in-Place Areas;
J. Existing and proposed utility easement setbacks;
K. Other existing elements designated to remain; and
L. Environmentally sensitive areas as noted in the mitigation measures.

The initial landscape Plans shall include diagrammatic information that portrays the Landscape Areas by priority rating considering the following high priority factors:

A. Graded and disturbance areas of planned and actual construction impacts less that 2:1 on fill slopes and cut slopes with suitable soil depths (including haul roads);
B. Visible from highway, crossroads, and/or visually sensitive areas; and
C. Accessible by maintenance vehicles and water trucks;

If additional areas are disturbed by construction activities, those areas shall be planted in a manner that matches adjacent areas.

Developer shall use rock dams, ditches, and other similar water harvesting structures to direct runoff to planting pits. On-site rock shall be used as the material source for these features.

Trees must be used in mass plantings and groups, where possible, to provide vertical structure and relief, vegetative texture accent, and seasonal interest while breaking up the effects of disturbance area clearing of existing vegetation.

Saguaros and accents (as defined in Section DR 450.2.3 of TPs) must be used to soften the effects of disturbed areas and highlight ramps, cross street intersections, bridges, and highly visible areas for the Project, and provide contrasting textures, colors, and feature native desert plantings.

450.3.5.1 Plant Materials

All plant material with the potential to reach a four-inch diameter trunk shall be located in accordance with the ADOT clear zone requirements.

Developer shall furnish a preliminary Plant Availability List of all the nursery grown plant species and quantities required for this Project at the same time as submission of the initial landscape Plans. Developer shall furnish a final Plant Availability List of all the nursery grown plant species and quantities required for this Project at the same time as submission of the final landscape Plans. The list shall include the species name, size, and estimated quantity of the proposed plant material. The list shall also include anticipated nursery source(s) for the planting stock.

450.3.5.2 Seeding

Developer shall use seeding as the primary method of establishing revegetation in conjunction with the salvaged materials.

Developer shall seed with the two mixes shown in TP Attachment 450-1. Boundaries of the two mixes shall be shown in the Aesthetics and Landscape Plans

Developer shall seed rock cut slopes less steep than 2:1 (H:V). Rock cut slopes steeper than 2:1 (H:V) do not require seeding.

450.3.5.3 Irrigation Design

Irrigation must be a temporary system to establish the plants. Developer shall prepare plans and shop drawings for approval that detail how salvaged plants and nursery plants will be irrigated from the time of planting through the end of the Landscaping Establishment Period.

A drip system is the recommended method of supply. Alternative methods of temporary irrigation may be considered by ADOT. The irrigation system shall give 100 percent coverage to all plant material (salvaged and transplanted, and nursery stock). Provide a typical schematic design plan with sample hydraulic calculations that confirm system operation. Provide typical seasonal irrigation schedules.

Equipment that could create a potential roadway hazard shall be located in accordance with the ADOT Clear Zone Requirements as approved by ADOT. Show water tank locations, if stationary, and show how they will be accessed by water trucks. If using mobile tanks, show where they can safely park outside the vehicle recovery zone while they are operating the system. Spray trucks are not allowed.

Describe how the system will be monitored and maintained. Describe how the system will be protected from rodent damage or similar causes. Describe how the system will be removed at the end of the Landscaping Establishment Period.

450.3.6 Rock Mulch and Rip Rap

All rock mulch and rock riprap that Developer uses for erosion/sediment control must be fractured/crushed rock that is angular in shape and shall match the surrounding desert pavement and rock color. Natural river-run materials, including rounded natural river rocks/cobblestones and pebbles, are not acceptable for erosion/sediment control.

No material greater than four inches is allowed in the recovery zone in accordance with the ADOT Roadway Design Guidelines.

Rock mulch and rip rap for erosion control shall comply with the gradation requirements of Section 810-2.03 of the ADOT Standard Specifications.

Rock mulch and rip rap areas shall be placed in drainage swales, check dams, around drainage catch basin aprons, behind sloped retaining walls, behind box culvert headwalls, wingwalls, cut and fill transitions, and pipe inlet and outlet protection in accordance with Section 803-3.03 of the ADOT Standard Specifications. Developer shall prepare all Plans and details for these installations and provide them for review with the Landscape Submittals.

Rip rap for erosion control shall comply with installation requirements of Sections 913-3.03 through 913-3.07 of the ADOT Standard Specifications. Rock mulch and rip rap for drainage shall comply with Section DR 445 of the TPs.

450.3.7 Aesthetics and Landscape Plans

Developer shall prepare aesthetics and landscape Plans that include the following:

A. Face sheet;
B. Standard sheets, if applicable;
C. Design sheet;
D. Summary sheet, including the following:
    1. Legends; and
    2. General notes.
E. Aesthetic detail sheets;
F. Aesthetic layout sheets;
G. Planting and inert materials detail sheets (planting details must account for the varied planting conditions that may occur throughout the Project area and show the best planting method for each that will ensure growth success);
H. Planting and inert materials layout sheets;
    1. Show plant layout. In the final Plans, include the salvaged plants' ID numbers;
    2. Show the different types of seeding and their limits;
    3. Identify the areas that are too steep for planting and/or seeding; and
    4. Identify the areas where existing vegetation is to be preserved in place.
I. Temporary irrigation shop drawings, including the following:
    1. Installation details for each product used;
    2. Trenching, if applicable;
    3. Emitter layout, if applicable;
    4. Locations of mainline, laterals, tanks; and
    5. Water sources.
J. SWPPP index sheet;
K. SWPPP detail sheets, if applicable; and
L. Identify portions of the Project that are to be preserved throughout the Construction Work and Landscaping Establishment Period.

Developer shall submit aesthetics and landscape Plans to ADOT for review and comment.

450.4 SUBMITTALS

Table 450-2 reflects a nonexclusive list of Submittals identified in Section DR 450 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Unless otherwise indicated, Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 450-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Plant Inventory	4	2	1	Prior to issuance of NTP 2	DR 450.2.3
Noxious and Invasive Species Control Plan	4	2	1	15 Business Days prior to any ground disturbance	DR 450.2.4
Preliminary Plant Availability List	4	2	1	At time same time as the initial landscape Plans	DR 450.3.5.1
Final Plant Availability List	4	2	1	At the same time as the final landscape Plans	DR 450.3.5.1

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 455 STRUCTURES

455.1 GENERAL REQUIREMENTS

Developer shall perform all structures Design Work in compliance with the requirements of Section DR 455 of the TPs.

455.2 ADMINISTRATIVE REQUIREMENTS

455.2.1 Standards

Developer shall perform all structures Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

455.3 DESIGN REQUIREMENTS

The aesthetic features of the structures design must comply with the requirements in Section DR 450 of the TPs.

Foundations for bridges and retaining walls must be shallow (spread) foundations, driven piles, or drilled shafts for both abutments and piers. In the case of piers, the transition from drilled shafts to columns must occur below finished grade, in which case the drilled shaft reinforcing steel must extend above finished grade to form the pier columns, provided Developer has made arrangements for removal of temporary casing and the ability to provide an acceptable concrete finish.

Developer shall not use spread footings in locations where potential for scour is present.

Developer shall protect existing structures and utilities during installation of driven piles. Developer shall monitor vibrations, and Developer shall submit the monitoring plan to ADOT for review and approval prior to starting a pile driving operations.

455.3.1 Structure Type Selection

Developer shall prepare a Foundation Report(s) for new and widened bridges and retaining walls in accordance with the applicable standards and guidelines listed in Table 400-1. As part of the Structure Type Study Report(s), Developer shall submit each Foundation Report(s) to ADOT for review and comment for the selection of particular foundation types.

Developer shall prepare an Existing Structure Modification Report for each bridge widening. Developer shall ensure that each Existing Structure Modification Report is sealed and signed by a Professional Engineer. Developer shall submit each Existing Structure Modification Report to ADOT for review and approval prior to beginning construction of foundations that might impact the existing bridge foundations.

Impacts to existing foundations include the following:

A. Placement of proposed drilled shafts will be near an existing drilled shaft such that the spacing between the two is reduced below three diameters based on the average diameter of the proposed and existing drilled shaft;
B. Placement of proposed drilled shafts will be within the influence zone of existing spread footings. The influence area is defined as the frustum bounded by a 45-dgree line starting at each corner of the spread footing to a depth equal to the longest horizontal dimension of the foundation;
C. Placement of proposed spread footings will be next to an existing spread footing such that the spread footing imparts a lateral squeeze and/or downdrag force to the existing drilled shaft;

D. Placement of proposed spread footings will be next to an existing spread footing such that increased vertical loading causes additional settlement to the existing structure; and
E. Rigid attachment of a proposed substructure to an existing substructure causing a redistribution and/or increase to foundation elements in the existing substructure.

The Existing Structure Modification Report contents must include the following:

A. An analysis of the as-built existing bridge foundations, including the affected frame within the bridge; if required. If there is no impact to the existing frame, the report must state there is no impact along with a description of the engineering judgment and/or analysis used to determine no impact;
B. An analysis and assessment of the maximum allowable settlement of the existing bridge, or affected frame within the bridge, caused by impacts to its foundation. The maximum allowable settlement is that which causes any portion of the existing structure to reach a maximum permissible stress as specified in the AASHTO *LRFD Bridge Design Specifications*, as modified by these TPs.
C. A detailed procedure that Developer shall employ to monitor and preclude/control/recover deflection of the existing superstructure throughout the bridge widening construction, beginning 30 days prior to commencement of construction and ending no earlier than 120 days after completion of the superstructure construction. Monitoring is required at foundations impacted by construction and at existing nearby foundations subject to disruption of the footing influence area;
D. For existing spread footing foundations, the procedure that outlines the steps Developer shall take to avoid disruption of the influence area below the foundations of structures located near construction activities;
E. In cases where construction encroachment on the influence area is unavoidable, the countermeasures and safeguards to protect the integrity of the existing foundations against settlements, lateral movement, and loss of capacity. The procedure must identify all temporary and permanent materials, products, equipment, instrumentation, and processes Developer shall use, and prescribe the sequence and estimated duration of installation, utilization, and removal of such items;
F. Analysis, design, and preliminary drawings of the proposed structure foundations;
G. Drawings(s) clearly illustrating the construction sequence and schematic load transfer and deflection control from the existing foundation to the new foundation modification; and
H. A detailed list of the phases or steps, if any, and their respective estimated durations during which closure of the existing bridge to vehicular traffic will be necessary.

Developer shall prepare a Structure Type Study Report(s) for all new and widened bridges and retaining walls. Cost analysis between several structure types is not required. The Structure Type Study Report(s) must identify which bridges Developer shall design to carry construction overload vehicles. The Structure Type Study Report(s) must include Plans for each structure that includes, at a minimum, the following information:

A. Location plan;
B. Elevation;
C. Typical sections;
D. Girder type and spacing;
E. Superstructure depth;
F. Bridge deck thickness;
G. Minimum vertical and horizontal clearance dimensions and location;
H. Abutment, pier, and foundation type;

I. Expansion and fixity conditions;
J. Deck joint type;
K. Flow rate and high water elevation for 50- and 500-year storm events (if applicable);
L. Roadway lane, roadway shoulder, and total bridge widths;
M. General notes with all loading conditions for bridge elements; and
N. General notes with design stresses for all bridge elements.

Prior to submitting any Initial Design Submittals for the associated structure Developer shall submit the Structure Type Study Report(s) to ADOT for review and comment. Developer shall not make any subsequent design submittal with respect to any particular structure until Developer has addressed the all Structure Type Study Report comments for such structure.

455.3.2 Roadway Bridges

Developer shall design all new and widened roadway bridges in accordance with the AASHTO *LRFD Bridge Design Specifications*. Developer shall design bridges for a 75-year design life.

455.3.2.1 Geometry

All fill and cut slopes along the longitudinal axis of bridges with spill through abutments must not be steeper than 2:1 (H:V). Slopes steeper than 3:1 must have concrete slope paving with exposed aggregate surface. Details of slope paving for new bridges must be in accordance with ADOT Standard Detail SD 2.04. Slope paving for widened bridges shall match the original slop paving type and finish. Exceptions to these criteria are at bridge abutment locations where rock cut slopes are in accordance with TP Section DR 416 of the TPs.

Except for the specific bridge widenings set forth below, minimum vertical clearances for all new and widened roadway structures must be 16’-6” and 16’-0” respectively. Minimum vertical clearances for temporary bridges must be 16’-6”.

Developer shall determine the existing vertical clearance at the following bridge widening locations:

- New River TI bridges (NB & SB)
- Black Canyon City TI bridges (NB & SB)
- Bumble Bee TI bridge (NB)

The minimum vertical clearance for the widened bridges listed above must not be less than the lowest existing minimum vertical clearance of the entire crossing.

The Bumble Bee TI bridge (SB) must provide a clear span over southbound I-17 general purpose lanes and the Flex Lanes. Placement of a pier along the separation barrier between the southbound general purpose lanes and Flex Lanes is prohibited.

455.3.2.2 Loads

Developer shall design bridges for the following loading:

A. Dead load – Developer shall include a reserve superimposed dead load of 25 psf in the design of all bridge elements to provide for a future deck overlay.
B. Live load – Developer shall design all new vehicular structures for HL93 live loading. Developer shall design bridges Developer proposes to carry construction overload vehicles per Section 16 of the ADOT *Bridge Group Practice Guidelines*. The definition of overload vehicles is any vehicle that exceeds the legal truck loads as specified in the AASHTO *Manual for Bridge Evaluation*.

455.3.2.3 Uplift

Developer shall proportion bridge spans to prevent uplift at supports for all LRFD limit states except for the extreme event limit state per the AASHTO *LRFD Bridge Design Specifications*.

455.3.2.4 Stress Limits for Concrete

Developer shall ensure that all concrete structures comply with the stress limits identified in Table 455-1.

Table 455-1
Stress Limits for Concrete

		Before Time-Dependent Losses	After Losses			
			DC + Prestress	Service Limit I	Service Limit III	0.5(DW + DC + Prestress) + (LL + IM)
Compression (ksi)		$0.6f'_{ci}$	$0.45f'_c$	$0.6\emptyset_w f'_c$	N/A	$0.4f'_c$
Tension (ksi)	Any region of a prestressed component in which prestressing causes compressive stresses and service load effects cause tensile stresses	N/A	0 for post-tensioned boxes N/A for precast prestressed members	N/A	$0.0948\sqrt{f'_c}$ (For post-tensioned structures built on falsework, this value shall be zero. No tension shall be allowed.	N/A
	Other Regions	$0.0948\sqrt{f'_{ci}}$ ≤ 0.2 ksi	N/A	N/A	N/A	N/A

455.3.2.5 Structural Concepts and Design

Developer shall satisfy the following criteria for structure types and components:

A. Developer shall not use cable stayed bridge types.

B. Developer shall not use external post-tensioning.

C. Developer shall use a minimum of three girders to provide redundant load path structures, except in bridge widenings when the deck is mechanically connected to the existing bridge deck to develop full shear and moment transfer

D. Developer shall not use fracture critical members. The definition of fracture critical members is in Article 4.11 of the AASHTO *Manual for Bridge Evaluation*. Fracture critical members also include precast, prestressed beams and girders that do not provide a redundant load path.

E. Developer shall not use the approximate analysis methods for curved bridges in Article 4.6.2.2.4 of the AASHTO *LRFD Bridge Design Specifications*. The definition of curved bridges is in Article 4.6.1.2 of the AASHTO *LRFD Bridge Design Specifications*.

F. Developer shall not use V-load method for curved steel I-girders or M/R method for curved steel box girders.

G. Bridge widening bearings must match the existing bridge configuration unless being replaced as required in Section DR 455.3.2.10 of the TPs.

H. Developer shall only use proposed structure concepts accepted for general use by other transportation authorities. For proposed structure types not commonly used by ADOT, Developer shall demonstrate that the proposed structure concepts do not require more inspection and/or maintenance than structure types and components that ADOT traditionally uses.

I. For post-tensioned structures, Developer shall adjust the design, as necessary, to ensure that Developer properly incorporates creep and shrinkage parameters in the design of the superstructure. Developer shall not place deck closure pours until a minimum of 60 days after post-tensioning activities to allow for the majority of creep and shrinkage to occur unless a shorter duration is demonstrated as acceptable through calculations based on concrete mixed that have undergone creep testing per ASTM C512 for use in calculations.

J. Developer shall design exterior girders to meet or exceed the load capacity of the interior girders to allow for future widenings.

K. Developer shall design and construct post-tensioning with corrosion protection for the strands, consisting of grout filled galvanized or non-metallic ducts. Developer shall not use experimental ducts.

L. Prestressing steel must have a minimum center-to-center spacing of two inches. Developer shall not use bundled or debonded pretensioning strands.

M. Developer shall properly incorporate creep and shrinkage parameters into the design of the superstructure with consideration given to the existing structure. The AASHTO *LRFD Bridge Design Specifications*, NCHRP Report 496, and the FHWA *Post-Tensioned Box Girder Design Manual*. Include guidance for creep and shrinkage. Developer shall place deck closure pours no less than 60 days after tensioning activities.

455.3.2.6 Bridge Barriers

Bridge barriers must be ADOT *Bridge Group Structure Details* SD 1.10 and SD 1.11. Existing bridge barriers not impacted by construction shall remain.

Developer shall not slip form bridge barriers.

455.3.2.7 Approach Slabs

Developer shall provide a 15-foot minimum length reinforced concrete bridge approach slab at the ends of each new bridge and at each end of Bumble Bee TI OP NB. The approach slab length for bridge widenings shall match the existing approach slab length and the widened approach slab shall be reinforced in accordance with ADOT *Bridge Group Structure Details*. Approach slabs do not need to be added to Coldwater Road TI OP NB & SB. The bridge approach slabs must extend the full width of the roadway. Details of the approach slab must conform to ADOT *Bridge Group Structure Details*.

After the overlay is removed, Developer shall inspect, with a Representative of ADOT in attendance, the condition of the existing approach slabs. Repairs shall be completed as directed by the ADOT Representative. The repairs will be considered additional work and will be compensated in accordance with Section 16.4.19 of the Agreement.

Barriers on approach slabs must have a minimum one inch cover over reinforcing steel to rustication.

455.3.2.8 Bridge Deck

All structural deck slabs must be concrete. Developer shall minimize the number of deck joints wherever possible. Developer shall not use asphaltic plugs, aluminum, finger, or sliding plate bridge joints for new bridge deck joints. All new bridge deck joints must be in accordance to ADOT *Bridge Group Structure Details*. The bridge deck designs must:

A. Be controlled by service limit state I;
B. Be considered elastic for bridge deck behavior;
C. Be designed by the working stress method;
D. Have allowable tensile stress in reinforcing steel, f_s, be limited to 24 ksi;
E. Have a minimum clear cover for reinforcing steel in new deck slabs of 2.5-inches for top reinforcement and one-inch for the bottom reinforcement for corrosion protection; and
F. Have epoxy coated reinforcement for the Bumble Bee TI bridges.

Developer shall design new bridge deck thicknesses in 0.5-inch increments with the minimum thicknesses shown in Table 455-2. Table 455-2 is only applicable to open girder / beam superstructure systems. Developer shall not use an effective span length greater than 13 feet.

Table 455-2
Minimum Bridge Deck Thickness

S (feet)	≤7	7< and ≤8.5	8.5< and ≤10	10< and ≤11.5	11.5< and ≤13
t (inches)	8.0	8.5	9.0	9.5	10.0

Where: S = the effective span length specified in the AASHTO LRFD Article 9.7.2.3
t = Minimum thickness of deck slab includes the 0.5-inch wearing surface

Developer shall armor joints in concrete decks and approach slabs with steel shapes, weldments or castings.

Developer shall not use stay-in-place deck forms.

Partial-depth and full-depth concrete deck panels are acceptable on new bridges. Developer shall submit Plans detailing the proposed deck panel system for ADOT review and approval. Such plans must include the following:

A. Minimum, typical, and maximum panel widths, and lengths;
B. Transvers and longitudinal keyway details;
C. Shear pocket and shear connector details;
D. Post-tensioning and pre-tensioning details;
E. Temporary shim details;
F. Proposed method for compensating girder camber;
G. Overhang details;
H. Sidewalk, barrier, and parapet details;
I. Grout specifications for keyways and shear pockets;
J. Overlay details and specifications;
K. A description of at least one previous project completed by Developer using the proposed panel details on a structure of similar type, size, and complexity, including contact information for ADOT's Representative; and

L. Refer to Section DR 457.3.7 of the TPs for additional requirements for Bridge Deck Drainage.

Developer shall not use partial-depth or full-depth precast concrete deck panels on bridge widenings.

Bridge widenings must use conventional forming methods that Developer shall remove after construction.

Existing bridges to be widened that currently have an asphalt overlay shall have the overlay removed from the bridge deck and the approach slabs. If bridge joint rails have steel bars to accommodate asphalt overlays they must not be removed and reattached. A 20' H to 1" V taper rate shall be used at the joints. After the overlay is removed, Developer shall inspect and sound the deck and the approach slabs, with a Representative of ADOT in attendance, to determine the need for repairs. Repairs shall be completed as directed by the ADOT Representative. The repairs will be considered additional work and will be compensated in accordance with Section 16.4.19 of the Agreement. The Little Squaw Creek NB structure has a thin bonded epoxy overlay below the asphalt overlay. This thin bonded epoxy overlay shall be preserved. If the existing deck, approach slab, thin bonded epoxy overlay or any joint is damaged as part of the asphalt overlay removal, Developer shall prepare either a bridge deck repair plan or a bridge joint repair plan. The repair plans are subject to review and approval by ADOT. The repairs shall be completed within 60 calendar days of the removal of the existing asphalt overlay.

Except at New River Bridges (NB & SB), New River TI Bridges (NB & SB) and Little Squaw Creek NB, Developer shall apply a penetrating crack sealer, Methacrylate, in accordance with TP Attachment 455-3, to new bridge decks and existing decks where Developer removes the existing overlay and places a new overlay. Developer shall place the Methacrylate sealer after deck and approach slab repairs and within 60 calendar days of the removal of the existing asphalt overlay.

Expansion joints at bridge widenings must match existing expansion joints in location, type, and opening. Developer shall inspect, with a Representative of ADOT in attendance, the soundness of concrete near steel headers and rails at all new and existing bridge expansion joints. This includes sliding plate joints. Developer shall inspect the joints for voids by sounding the angle with a hammer. Developer shall repair all voids within the inspected limits by epoxy injection. For bridge widenings, the new steel plate system on sliding plate joints and the new steel headers and rails on other joint types shall have ¾" diameter air holes spaced similar to as shown on ADOT *Bridge Group Structure Details*.

Developer shall include in its work on new expansion joints for widened sections, expansion joint repairs within five feet of the widened sections. After the overlay is removed, Developer shall inspect, with a Representative of ADOT in attendance, the condition of the existing expansion joints. Repairs shall be completed as directed by the ADOT Representative. Additional repairs required beyond the five-foot will be considered additional work and will be compensated in accordance with Section 16.4.19 of the Agreement.

Refer to Section DR 457.3.7 of the TPs for additional requirements for Bridge Deck Drainage.

455.3.2.9 Intermediate Diaphragms

Developer shall construct precast-prestressed I-girder bridges with spans over 40 feet with a nine inch thick cast-in-place concrete diaphragm at the midspan of bridge. Developer shall give special consideration for additional diaphragms to bridges with long spans. For bridge skew less than or equal to 20 degrees, Developer shall place the diaphragm either parallel to the skew or staggered and normal to the girder. For bridge skew greater than 20 degrees, Developer shall stagger the

diaphragms and place them normal to the girder. Developer shall not use steel intermediate diaphragms for prestressed I-girders bridges.

Developer shall construct precast-prestressed I-girder bridges at bridge widenings with cast-in-place concrete diaphragms located to match existing diaphragms. Developer shall not use steel intermediate diaphragms.

Developer shall construct post-tensioned box girder bridges with a nine inch thick cast-in-place concrete diaphragm at the midspan of the bridge. Developer shall give special consideration for additional diaphragms to box girders with large skews, curved boxes, and boxes over seven feet in depth. For bridge skew less than or equal to 20 degrees, diaphragms must be placed either parallel to the skew or staggered and placed normal to the girder. For bridge skew greater than 20 degrees, Developer shall stagger the diaphragms and place them normal to the girder. All diaphragms must be cast integral with the girder webs to add lateral stability to the forming system.

Developer shall provide rolled beams and plate girders with cross-frames or diaphragms at each support and with intermediate cross-frames or diaphragms placed in all bays at intervals not to exceed 25 feet. Design criteria and provisions for cross-frames or diaphragms must conform to the AASHTO *LRFD Bridge Design Specifications*. For bridge skew less than or equal to 20 degrees, Developer may place the stiffener plates that also serve as connection plates parallel to the skew or may stagger them and place them normal to the girder. For bridge skew greater than 20 degrees, Developer shall stagger the stiffener plates that also serve as connection plates and place them normal to the girder. Developer shall pace transverse intermediate stiffeners that are not connection plates normal to the web.

455.3.2.10 Bearings

Bridge widening bearings must match the existing bridge configuration and details, unless otherwise approved by ADOT. Developer's design must account for expansion or contraction in the lateral as well as the longitudinal directions.

The existing rocker bearings at the following locations shall be replaced with elastomeric bearing pads:

A. New River TI Bridges (NB & SB)
B. Little Squaw Creek Bridge (NB);
C. Moores Gulch Bridge (NB); and
D. Bumble Bee TI Bridge (NB).

Welding or drilling the existing steel structure for temporary supports is not permitted to facilitate bearing replacement.

455.3.2.11 Utilities

Developer shall not place or permit Utilities on bridge structures except as allowed in this section. Developer shall limit conduits to those needed for ITS, traffic signals, and overhead/underdeck lighting. Developer may provide or permit shared or separate conduits for local agencies with prior approval from ADOT. Developer shall encase conduits in bridge barrier or sidewalk or shall otherwise place them between girders such that conduit and support elements, including hanger, are not exposed from the exterior "outboard" side of exterior elements of the bridge framing.

455.3.2.12 Bridge Hydraulics and Scour

455.3.2.12.1 Moores Gulch Bridge (SB)

Developer shall design Moores Gulch Bridge (SB) for stream loading and scour as required in Section DR 457.3.6 of the TPs. Developer shall evaluate the bridge for all applicable load combinations required by the AASHTO *LRFD Bridge Design Specifications*. Developer shall also evaluate the bridge for the check flood (Superflood/500-year event) – The check flood represents the streambed cross section conditions for the superflood condition. For this case, Developer shall assume all bank protection and approach embankments have failed. Developer shall design abutments and piers to withstand the load combination of 1.0DL + 1.0SF + 0.5WS under full scour. Developer shall consider this load combination an extreme event limit state and shall use the Strength III wind speed shown in Figure 3.8.1.1.2 -1 of the AASHTO *LRFD Bridge Design Specifications*.

455.3.2.12.2 Bridge Widenings

For all bridge widenings over waterways, the Developer shall evaluate the entire bridge for stream loading and scour as required in Section DR 457.3.6 of the TPs.

Developer shall evaluate new foundations for all applicable load combinations required by the AASHTO *LRFD Bridge Design Specifications*.

Developer shall also evaluate new foundations for the check flood (Superflood/500-year event) – The check flood represents the streambed cross section conditions for the superflood condition. For this case, Developer shall assume all bank protection and approach embankments have failed. Developer shall design new abutments and piers to withstand the load combination of 1.0DL + 1.0SF + 0.5WS under full scour. Developer shall consider this load combination an extreme event limit state and shall use the Strength III wind speed shown in Figure 3.8.1.1.2 -1 of the AASHTO *LRFD Bridge Design Specifications*. New foundations shall not consider new or existing scour mitigation features as effective to prevent scour.

The bridge widening shall not degrade the effectiveness of existing scour mitigation and bank protection features. Non-degradation shall be verified as designated in the ADOT Bridge Hydraulics Design criteria. If the resulting analysis shows that the bridge widening jeopardizes the effectiveness of the existing scour mitigation measures, then either the scour mitigation measures shall be modified to remain effective or the existing foundations shall be modified.

455.3.3 Retaining Walls and Wingwalls

Developer shall provide 42-inch metal handrail on top of retaining walls of 48 inches in height or greater, except when protected by barrier wall against the top of retaining wall.

Developer shall not use mechanically stabilized earth (MSE) walls to support abutment foundations on the Project.

Retaining wall layout must address slope maintenance above and below the wall and provide return into the retained fill or cut at retaining wall ends where possible.

Developer's design must account for surface and subsurface drainage. Developer shall provide a system to intercept or prevent surface water from entering behind walls. Developer shall capture and redirect surface water behind walls. Developer shall not permit conveyance of surface water over the top of walls.

Developer shall support MASH compliant concrete barriers along wingwalls and retaining walls on a footing independent from the adjacent wall. Developer may employ approach slabs as independent footings. Developer shall not use or permit barriers integral with walls, except for

combination barrier / toe-down walls that utilize a cast-in-place wall extending below the barrier foundation without the use of a secondary foundation. Developer shall limit these toe-down walls to a maximum height of six feet measured along the exposed face from the top of barrier foundation to the bottom of the toe-down wall. The bottom of the wall must have a minimum of 18 inches cover for a maximum exposed surface of four and a half feet measured from the top of barrier foundation to finished grade.

The maximum slope for finish grading adjacent to retaining walls is two horizontal to one vertical. Developer shall grade a minimum four-foot bench at the face of walls except that walls supporting embankments must have a minimum ten-foot wide access road and bench to the face of wall for maintenance activities.

455.3.3.1 Wall Types

The following wall types shall be used.

455.3.3.1.1 Cast-in-Place Walls on Spread Footings

Cantilever concrete retaining walls shall be in accordance with ADOT *Bridge Group Structure Details* SD 7.01. The spacing of construction and expansion joints shall account for short and long-term longitudinal differential settlements. If a wall section is modified, it shall be designed in accordance with AASHTO *LRFD Bridge Design Specifications*. That modified wall section shall extend at a minimum to adjacent contraction or expansion joints.

Developer may provide specially designed cast-in-place (CIP) walls. Specially designed CIP walls shall be designed and constructed in accordance with the AASHTO *LRFD Bridge Design Specifications* and the ADOT *AASHTO LRFD Policy for Bridge Substructures: Geotechnical Design Policy.* Geotechnical design shall be in accordance with Section DR 416 of the TPs.

455.3.3.1.2 Cast-in-Place Walls on Drilled Shafts

CIP walls on drilled shafts shall be designed and constructed in accordance with the AASHTO *LRFD Bridge Design Specifications* and the ADOT AASHTO *LRFD Policy for Bridge Substructures: Geotechnical Design Policy.* Geotechnical design shall be in accordance with Section DR 416 of the TPs.

455.3.3.1.3 Anchored Walls

Anchored walls design and construction shall use *FHWA-IF-99-015 Geotechnical Engineering Circular 004: Ground Anchors and Anchored Systems.* Anchors shall use Class I Protection and shall be encapsulated with plastic sheathing. Proof load tests for anchors shall be provided in accordance with the above FHWA guidelines. Calculations and drawing details shall be signed and sealed by a Professional Engineer.

The use of anchored walls is limited to supporting existing embankment and at bridge widenings. Anchored walls shall not be used to support embankment under new bridges.

455.3.3.1.4 Mechanically Stabilized Earth (MSE) Walls

Design and construction of MSE wall systems shall be in accordance with TP Attachment 455-1. Calculations and drawing details shall be signed and sealed by a Professional Engineer.

Mechanically stabilized earth (MSE) walls shall not be used to support abutment spread footing foundations on the Project. Drilled shaft foundation and driven pile foundations may be placed within the MSE wall reinforced zone. Foundation loads from the structure shall be properly incorporated into the MSE wall design in accordance with the FHWA design manuals.

Barriers adjacent to MSE walls shall be supported independently from the wall coping. Top of coping shall match top of barrier footing.

455.3.3.1.5 Soil Nail Walls

Soil nail wall design and construction shall use FHWA *NHI-14-007 Geotechnical Engineering Circular 007: Soil Nail Walls Reference Manual.* Anchors shall use Class A Protection and shall be encapsulated with plastic sheathing. Proof load tests for nails shall be provided in accordance with the FHWA guidelines specified in this section. Calculations and drawing details shall be signed and sealed by a Professional Engineer.

The use of soil nail walls is limited to supporting existing embankment and at bridge widenings. Soil nail walls shall not be used to support embankment under new bridges.

455.3.3.1.6 Post and Panel Walls

Developer shall design post and panel walls in accordance with the AASHTO *LRFD Bridge Design Specifications*. Geotechnical design shall be in accordance with Section DR 416 of the TPs.

455.3.4 Noise Walls

Developer shall design noise walls at the locations as determined by Developer in accordance with Section DR 420 of the TPs.

Developer shall design and construct noise walls in accordance with AASHTO *LRFD Bridge Design Specifications* and the ADOT AASHTO *LRFD Policy for Bridge Substructures: Geotechnical Design Policy.* Geotechnical design shall be in accordance with Section DR 416 of the TPs. For noise walls supported on retaining walls (i.e., combination walls), strength and serviceability requirements apply per AASHTO *LRFD Bridge Design Specifications* for load conditions that include wind loads.

Noise walls adjacent to landscaped areas where failure due to vehicular collision does not result in adjacent property damage or debris impact to travel ways; do not require designs to accommodate collision forces.

Developer shall design noise walls located on bridges and adjacent to traffic hazards to prevent a catastrophic failure due to vehicle impact load and to limit the risk of falling debris resulting from vehicle impact. Developer shall place noise walls on the bridges behind bridge barrier.

Developer shall design masonry walls to prevent water seepage into the wall system.

455.3.5 Drainage Structures, Sign Structures, Temporary Structures

Developer shall design drainage structures, sign structures, and temporary structures in accordance with the Applicable Standards in Table 400-1.

455.3.6 Plans and Design Calculations

455.3.6.1 Plans

Developer shall request structure names and structure numbers for each bridge replacement from ADOT by the Initial Design Submittal.

Developer shall prepare bridge Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks, 2019*. Developer shall not combine multiple bridge designs on the same Plans. Developer shall submit bridge Plans separately for individual bridges. The bridge Plans must include the following:

A. General plan, including plan, elevation, and typical section;

B. General notes, including bridge load rating;
C. Foundation sheets;
D. Abutment details;
E. Wing wall details;
F. Pier details;
G. Slope protection;
H. Superstructure sheets;
I. Bearings;
J. Prestressing details (if applicable);
K. Girder layout and elevation;
L. Girder details;
M. Special details (if applicable); and
N. Pile records (if applicable).

455.3.6.2 Design Calculations

455.3.6.2.1 Structure Calculations

Developer shall prepare a Structure Calculations Report that includes a table of contents, all structure calculations, references to computer programs in the calculations, and computer documentation that includes name of program, vendor, version, and release date. Developer shall bind and number all pages of the Structure Calculations Report. Concurrent with the Final Design Submittal of a structure Plan, Developer shall submit to ADOT a Structures Calculations Report(s) for the structure.

455.3.6.2.2 Bridge Load Rating

Developer shall load rate all NBI qualified bridges carrying vehicular traffic (20 feet in length or more), including culverts that are defined as bridges and prepare a Load Rating Report(s) in accordance with the AASHTO *Manual for Bridge Evaluation*. The minimum operating load-rating factor for all new bridges must be 2.0 for concrete bridges and 1.8 for steel bridges. For bridge widenings, the minimum operating load rating factor must be the operating load rating of the existing bridge or 1.5, whichever is greater. If the operating load rating of the existing bridge is greater than 2.0, then the minimum operating load rating factor must be 2.0. The minimum length of structures that are required to be load rated and the loading requirements must be in accordance with the AASHTO *Manual for Bridge Evaluation*. At the same time as the Initial Design Submittal of a Bridge Plan, Developer shall submit an initial Load Rating Report(s) to ADOT for review and comment. At the same time as the Final Design Submittal of a Bridge Plan, Developer shall submit a final Load Rating Report(s) to ADOT for review and comment.

455.4 SUBMITTALS

Table 455-3 reflects a nonexclusive list of Submittals identified in Section DR 455 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 455-3 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Pile driving monitoring plan	3	0	1	Prior to starting a pile driving operation	DR 455.3
Foundation Report(s)	4	0	1	As part of the Structure Type Study Report(s)	DR 455.3.1
Structure Type Study Report(s)	4	0	1	Prior to submitting any Initial Design Submittals for the associated structure	DR 455.3.1
Existing Structure Modification Report	3	0	1	At the same time as the Final Design Submittal of a bridge Plan	DR 455.3.1
Bridge deck repair plan	3	0	1	Within two weeks after removal of the AC overlay.	DR 455.3.2.8
Bridge joint repair plan	3	0	1	Within two weeks after removal of the AC overlay.	DR 455.3.2.8
Structure Calculations Report	5	0	1	Concurrent with the Final Design Submittal of a structure Plan	DR 455.3.6.2.1
Initial Load Rating Report(s)	4	0	1	At the same time as the Initial Design Submittal of a bridge Plan	DR 455.3.6.2.2
Final Load Rating Report(s)	4	0	1	At the same time as the Final Design Submittal of a bridge Plan	DR 455.3.6.2.2

*Levels of Review

1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 457 BRIDGE HYDRAULICS

457.1 GENERAL REQUIREMENTS

Developer shall perform all hydraulic Design Work in compliance with the requirements of Section DR 457 of the TPs.

457.2 ADMINISTRATIVE REQUIREMENTS

457.2.1 Standards

Developer shall analyze and design all hydraulic structures and appurtenances in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

457.2.2 Data Collection

Developer shall collect all necessary data to design bridges in compliance with the hydraulic requirements of Section DR 457 of the TPs to accommodate the historical hydrologic flows in the Project.

Developer shall collect available data identifying all water resource issues, including water quality requirements as imposed by State and federal government regulations, National Wetland Inventory and other wetland/protected waters inventories, Effective FEMA Special Flood Hazard Area, and official documents concerning the Project, such as the CE or other drainage and environmental studies.

Developer shall carefully consider existing studies, such as any existing floodplain studies performed by FEMA or local jurisdictions.

All hydraulic computations, designs, and recommendations must consider past studies and projects in the area by the USACE, FEMA, and other State or federal agency studies and projects.

Developer shall collect all available geotechnical reports and studies, including sediment transport analysis, regarding the scour resistance of the soil strata to stream forces.

457.2.3 Coordination with Other Agencies and Disciplines

Developer shall coordinate all hydraulics and water resource designs and obtain all applicable approvals from all affected Governmental Entities and Utility Companies.

457.3 DESIGN REQUIREMENTS

457.3.1 General

Developer shall determine if the ADOT *Bridge Hydraulics Guidelines* defines hydraulic structures and appurtenances as a bridge. The aesthetics for hydraulics structures must be in accordance with Section DR 450 of the TPs.

457.3.2 Discharge Rates

Developer shall determine discharge rates in accordance with ADOT *Bridge Hydraulics Guidelines*. Developer shall confirm design discharge rates with the applicable governing Governmental Entity prior to use.

For a crossing on the same waterway as a stream gauging station where the station has a length of record of at least 25 years within the last 50 years and there are no major control structures between the station and the design site, Developer shall use the flow data available from the stream gauging station to determine design flows.

457.3.3 Design Frequency

ADOT has designated the freeway that is part of the Project as a Class I route based on drainage frequency classification. Storm frequency and hydraulic requirements within Effective FEMA Special Flood Hazard Area must be in accordance with FEMA C.F.R. for the National Flood Insurance Program: 44 C.F.R. Parts 59, 60 65, and 70 EO 11988, and 23 C.F.R. 650.

457.3.4 Floodplains

Developer shall evaluate water surface elevations within the regulatory 100-year FEMA effective floodway to ensure no rise in water surface elevation profile due to the hydraulic structure(s). Developer shall limit water surface elevation increases within the floodplain to the designated regulatory floodway elevation or criteria as set forth by designated floodplain within the effective FEMA study.

457.3.5 Hydraulic Analysis

Developer shall evaluate water surface elevations in the main channel for existing and proposed conditions for sizing of bridge waterway openings based on ADOT's *Bridge Hydraulics Guidelines*. The hydraulic analysis and design must account for the presence of any additional existing control structures that may affect the hydraulic performance and design of the structure. Developer shall identify and mitigate all negative hydraulic impacts caused by the Project.

Developer shall ensure that the hydraulic analysis of bridge crossings at Effective FEMA Special Flood Hazard Area adhere to those mandates as outlined by the applicable Governmental Entity and federal mandates as contained within FEMA C.F.R. for the National Flood Insurance Program: 44 C.F.R. Parts 59, 60, 65, and 70.

Developer shall use HEC-RAS Water Surface Profile Program (the most current version as of the Setting Date) to perform hydraulic analyses at bridge crossings, including culvert structures that meet bridge definitions, for both existing and proposed conditions. Culvert structures are considered a bridge if they meet the definition of a bridge in the National Bridge Inventory or they meet the criteria noted in Section 1.5 of the AASHTO *Manual for Bridge Evaluation*.

Developer shall perform a preliminary assessment of drainage (hydrology and hydraulics) effects on adjacent public and private properties. If existing hydrologic studies are used, Developer shall verify validity of assumptions and accuracy of the results of such studies.

457.3.6 Scour Analysis

Developer shall design bridge foundations to withstand the effects of scour, as estimated using the methods described in FHWA's HEC 18 and HEC 23 publications and ADOT's *Bridge Hydraulics Guidelines*, unless otherwise authorized in writing by ADOT. The recommendations from these publications must be the basis for the design of bridge foundations and for the design of scour countermeasures of waterway bridges.

Deep foundations (piles and drilled shafts) must not rely on lateral support from soil within the estimated scour depth. If Developer embeds the pile or the drilled shaft into a rock formation, Developer shall confirm that the rock is not subject to erosion.

All bridges must account for debris loading in accordance with ADOT standards and HEC-18 methodologies.

Developer shall evaluate all piers and abutment foundations for superflood conditions and shall design them to be stable for the calculated scour. Developer shall design revetment at abutments in accordance with the procedures outlined in HEC-23. Developer shall not use or permit

alternatives to random revetment for bridge abutments in urban areas or those frequently used by pedestrians, unless authorized in writing by ADOT.

Developer shall evaluate the scour effects of any gravel mining operations within one mile upstream and 2 miles downstream of the bridges.

457.3.7 Bridge Deck Drainage

Developer shall convey runoff from bridge decks off the bridge, unless otherwise specified in the Contract Documents, and runoff must comply with Section DR 420 of the TPs. The roadway drainage design must include bridge approach drains to intercept gutter flow at both ends of the bridge. Developer shall ensure that all stormwater flowing toward any bridge is intercepted upstream from the approach or anchor slab. Developer shall construct these drains, or temporary drains, at time of bridge deck placement to prevent erosion.

Developer shall space deck drains to comply with the design spread criteria in Section DR 445.3.4.2 of the TPs. Deck drainage outfalls must avoid corrosion of bridge structural members, erosion of embankments, and splashing of moving traffic and sidewalk areas below the bridge. The drainage system must intercept pavement drainage at both ends of bridges.

Developer shall space runoff from Bridge Deck Drainage as required by ADEQ or other applicable regulation prior to discharge to natural waters of the United States. Bridge Deck Drainage must not discharge directly into natural waters of the United States. The Bridge Deck Drainage system must not discharge against any part of the bridge structure.

Developer shall ensure that Bridge Deck Drainage conforms to the following requirements:

A. Bridge Deck Drainage downspouts at piers must have outfall erosion protection.

B. Bridge Deck Drainage must be in conformance with the guidelines included in FHWA's *HEC_21 – Design of Bridge Deck Drainage*.

457.3.8 Bridge Hydraulics Report

Developer shall prepare an initial Bridge Hydraulics Report for each bridge over a waterway in accordance with the ADOT *Bridge Hydraulics Guidelines*. The initial Bridge Hydraulics Report must include the following:

A. A comparison of water surface elevations at each bridge waterway opening between the existing condition and the proposed condition;

B. All electronic HEC-RAS files;

C. Concurrences from all applicable Governmental Entities that the design does not affect the effective floodplain in the final Bridge Hydraulics Report; and

D. A discussion regarding whether the constraints from FEMA studies or the impact of the Project to the existing drainage patterns is significant enough to alter concentration of flow patterns to existing structures.

At the same time as the Initial Design Submittal for each bridge, Developer shall submit an initial Bridge Hydraulics Report to ADOT for review and comment. At the same time as the Final Design Submittal for each bridge, Developer shall address ADOT comments on the initial Bridge Hydraulics Report in a final Bridge Hydraulics Report and shall submit the final Bridge Hydraulics Report to ADOT for review and comment.

457.3.9 Bridge Plans

In addition to the requirements of Section DR 455.3.6.1 of the TPs, the elevation view of bridge Plans subject to Section DR 457of the TPs must also clearly indicate the following:

A. The design discharge value, the water surface elevation, and the channel cross section;
B. The 100-year design discharge elevations of the Effective FEMA Special Flood Hazard Area;
C. The super flood discharge (either 500-year discharge or overtopping discharge); and
D. Consensus scour depth.

457.4 SUBMITTALS

Table 457-1 reflects a nonexclusive list of Submittals identified in Section DR 457 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 457-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Initial Bridge Hydraulics Reports	4	0	1	At the same time as the Initial Design Submittal for each bridge	DR 457.3.8
Final Bridge Hydraulics Reports	4	0	1	At the same time as the Final Design Submittal for each bridge	DR 457.3.8

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 460 TRAFFIC

460.1 GENERAL REQUIREMENTS

Developer shall perform all traffic Design Work, including pavement markings, signs and lighting Design Work, in compliance with the requirements of Section DR 460 of the TPs.

460.2 ADMINISTRATIVE REQUIREMENTS

460.2.1 Standards

Developer shall perform all traffic Design Work in accordance with the relevant requirements of the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

460.2.2 Traffic Software

Developer may use the following software programs to present traffic operational information for Mainline and ramp operations: TSIS-CORSIM or PTV VISSIM.

If Developer proposes to use any software other than that listed, with the Basis of Design Report in accordance with Section GP 110.01.1.2 of the TPs, Developer shall submit proposed Traffic Software (including input and output files for verification data) to ADOT for approval.

460.2.3 Existing Signs

Developer shall prepare a Sign Inventory of existing signs within the Project ROW. The Sign Inventory must extend outside the Project ROW, where necessary, to show how the existing signs work with the proposed signing system to provide a complete and functional signing system. The Sign Inventory must include the following:

A. Title sheet;
B. Table of contents; and
C. Inventory of signs;
    1. Listing of all existing signs (description, size, dimensions, mounting type, post type, etc.);
    2. Approximate location of existing signs;
    3. Description if the existing signs do not comply with current standards; and
    4. Proposed disposition (salvaged, relocated, replaced, etc.).

Prior to issuance of NTP2, Developer shall submit the Sign Inventory to ADOT.

460.3 DESIGN REQUIREMENTS

460.3.1 General

Developer shall design traffic improvements that require Utility service in accordance with Section DR 430 of the TPs and ADOT standards, manuals, and guidelines.

460.3.2 Pavement Markings

Pavement marking layout must comply with the ADOT *Signing and Marking Standard Drawings* and the ADOT *Traffic Guidelines and Processes*. Developer shall design a complete and functional pavement marking system for the Project that:

A. Provides for the orderly and predictable movement of all traffic;
B. Provides guidance and warnings as needed to ensure the safe and informed operation of individual elements of the traffic stream; and

C. Is consistent with pavement markings on the ADOT transportation system.

Pavement marking for legends and symbols, must be Preformed Type I pavement (durable tape) in accordance with Section 705 of the ADOT Standard Specifications. Lane skip striping, and gore markings may be extruded thermoplastic or Preformed Type I pavement (durable tape). All other final striping must be 90 mil (0.090-inch) thick ribbon extruded thermoplastic in accordance with Section 704 of the ADOT Standard Specifications.

Developer shall not use paint for final pavement markings.

Developer shall provide bridge and barrier markers in accordance with ADOT *Traffic Signing and Marking Standard Drawings* M-32 and M-33.

Developer shall provide delineators in accordance to ADOT *Traffic Signing and Marking Standard Drawings* M-26 and M-27. Delineators will not be required behind guardrail or barrier.

Developer shall provide off-mainline reference markers in accordance with ADOT *Traffic Signing and Marking Standard Drawings* M-29 and M-30.

460.3.2.1 Rumble Strips

Developer shall install longitudinal rumble strips in accordance with ADOT *Traffic Signing and Marking Standard Drawings* M-22. Rumble strips must be 12” wide with offset. Developer shall not install rumble strips adjacent to concrete barriers. Developer shall not install rumble strips within the following limits:

- MP 229.1 to MP 233.2 - Project beginning at Anthem Way to beyond the northern limits of the New River NB sound wall
- MP 242.2 to MP 244.9 - Rock Springs TI northern ramps back of gore to Black Canyon TI northern ramps

460.3.2.2 Raised/Reflective Pavement Markers

Developer shall install reflective raised pavement markers on the mainline and ramps from the Anthem Way TI to the Coldwater Road TI in accordance with ADOT *Traffic Signing and Marking Standard Drawings* and the *Traffic Guidelines and Processes*.

460.3.2.3 Pavement Marking Plans

Developer shall prepare permanent pavement marking Plans that show the following, in accordance with the MUTCD and the *Arizona Supplement to the* MUTCD, ADOT *Traffic Signing and Marking Standard* Drawings, and the ADOT *Traffic Guidelines and Processes*:

A. edge and lane line striping;
B. stop lines;
C. crosswalks;
D. arrows
E. legends;
F. gore areas;
G. symbols;
H. rumble strips;
I. raised pavement markers;
J. object markers;
K. delineation; and
L. other required.

460.3.3 Signs

Signing layout must comply with the ADOT *Traffic Signing and Marking Standard Drawings*, ADOT *Manual of Approved Signs*, ADOT *Traffic Guidelines and Processes*, and Good Industry Practice. Developer shall design all components of the signing system for the Project to provide a complete and functional system that complies with the following requirements:

A. During all phases of construction and until such time that the permanent signs are in place, Developer shall relocate existing signs or provide temporary signs;

B. Remove and dispose of all conflicting signs and sign structures; and

C. All permanent signs, sign supports, sign structures, and sign bridges, impacted by the Project, must be new; modification or relocation of signs, sign supports, and sign structures is not permitted.

All signs must be ground mounted except as provided in Section DR 460.3.3.2 of the TPs.

All signs must comply with the ADOT *Traffic Guidelines and Procedures* Section 380 for sign sheeting.

Developer shall not locate signs where future vegetation growth might obstruct them or their viewing. Developer shall not place signs in line with or integrated on barriers.

Developer shall install advance informational signs to inform drivers entering the southbound Flex Lanes that no exits are available at the Bumble Bee Road TI or Coldwater Road TI. Developer shall install advance informational signs to inform drivers entering the northbound Flex Lanes that no exits are available at the Bumble Bee Rd. TI. Developer shall install an informational sign to inform drivers exiting the southbound Flex Lanes that there is no access to the Coldwater Road TI.

Developer shall install signs in advance of the Flex Lanes entrances indicating slower traffic keep right.

Developer shall install signing to indicate which shoulder should be used for emergencies within the Flex Lanes. Signs shall be installed at the beginning of the Flex Lanes entrances and at one-mile intervals within the Flex Lanes.

460.3.3.1 Sign Panels

All sign panels must be aluminum. Developer shall not use overlaid sign panels or overlaid plywood sign panels. All ground-mounted sign supports must be in accordance with the ADOT *Signing and Marking Standard Drawings*. Developer shall not use u-channel posts for sign mountings.

460.3.3.2 Flex Lanes Guide Signs

Developer shall provide three overhead guide signs in each direction to clearly convey the operational status of the Flex Lanes (“Flex Lanes Guide Signs”). The signs shall meet all requirements as indicated in this Section DR 460.3.3.2 and Section DR 466.3.3.10 of the TPs.

The first Flex Lanes Guide Sign shall be placed approximately one mile in advance of the exit for entrance to the Flex Lanes. The second Flex Lanes Guide Sign shall be placed at the beginning of the auxiliary lane leading to the Flex Lanes. The third Flex Lanes Guide Sign shall be placed at the exit for entrance to the Flex Lanes.

Developer shall approximately center down arrows or upward angled exit only arrows over the lane the arrows control. Developer shall approximately center Flex Lanes Guide Signs without arrows over all the lanes to which the signs apply.

Sign formats for the Flex Lanes Guide Signs are shown in TP Attachment 460-1. Developer shall comply with the formats.

Minimum overhead clearance for the Flex Lanes Guide Signs must be in accordance with the ADOT *Bridge Group Structure Details* over the entire width of the pavement, including shoulders.

Developer shall approximately center down arrows or upward angled exit only arrows over the lane the arrows control. Developer shall approximately center Flex Lanes Guide Signs without arrows over all the lanes to which the signs apply.

460.3.3.3 Signing Plans

Developer shall prepare a Signing Concept Plan showing all existing and proposed guide, warning, regulatory, marker signs, and DMS and their disposition for the Project. Developer shall submit an updated Signing Concept Plan to ADOT when there are changes to the Work that affect the guide signing.

In conjunction with the pavement marking Plans, Developer shall prepare signing Plans. The signing Plans must include, at a minimum, the following:

A. All existing and proposed signs and DMSs for the Project, including signs designated for removal.
B. Signing summary sheets per ADOT *Traffic Design CADD Standards Manual*.
C. Sign format plan sheets for all signs that are not included in the ADOT *Manual of Approved Signs*. Developer shall develop sign formats using SignCAD and ADOT's current policy for the formatting of guide signs.
D. Sign elevation sheets that show the sign position in relation to the travel lanes and the position of the sign lighting fixtures, if required, in relation to the sign panel for all overhead signs, spacing between stringers, and the number of stringers used.
E. Sign mounting details for all overhead signs mounted on bridges, non-standard sign structures details, and non-standard sign structure foundations details.

460.3.4 Lighting

Developer shall design partial interchange-type light-emitting diode (LED) lighting systems to illuminate the following:

A. All entrance and exit ramps at Coldwater Road traffic interchange;
B. Flex Lanes crossover merge and diverge areas just north of Coldwater Road traffic interchange; and
C. Flex Lanes crossover merge and diverge areas just south of the Sunset Point traffic interchange.

The partial lighting must cover the decision points between the mainline and entrance and exit ramps at Coldwater Road, and for the entry and exit locations between the mainline and the Flex Lanes as shown in Figure 12-2c of the ANSI/IES RP-8-18 *Recommended Practice for Lighting Roadway and Parking Facilities*. Existing lighting not impacted by construction may be used in the design. The average maintained horizontal illuminance must be a minimum of 0.6 foot-candles with an average to minimum uniformity ratio of 4.0:1 or better. Developer shall design such lighting system in accordance with the requirements in the AASHTO *Roadway Lighting Design Guide*, the ADOT Standard Specifications, and the ADOT *Signals and Lighting Standard Drawings*.

LED lighting must have a correlated color temperature of 3000° Kelvin and Developer shall use zero uplight on the Project in accordance with the Dark Skies recommendations. Each LED light fixture must include an adjustable control module for dimming.

Developer shall perform load calculations and voltage drop calculations for each circuit. Developer shall not use more than a three percent voltage drop from the load center cabinet to the branch circuits to size conductors. Developer shall size the conductors from the load center to the point of service using a one percent voltage drop. Developer shall meter all new lighting load center cabinets for a maximum of 480 volts. Developer shall convert all unmetered lighting load center cabinets to metered lighting load center cabinets for a maximum of 480 volts.

Developer shall limit circuit size based on voltage drop and conductor size. Power company requirements might govern the number of circuits contained within one load center cabinet, and the location of each cabinet.

Light poles must comply with the requirements in the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. All new light poles must be aluminum, except median barrier mounted type u-poles.

Developer shall provide a pull box at the intersection of each foundation conduit and the mainline conduit that runs parallel with the freeway. All lighting pull boxes and lids must comply with ANSI/SCTE 77 requirements with a Tier 22 load requirement and must be tamper-resistant.

Developer shall prepare a Lighting Design Report that provides all necessary engineering data to support the conclusions arrived at by Developer for the roadway lighting design. The Lighting Design Report must include equipment type, photometric analyses, layout, voltage drop calculations, load calculations, and conductor sizing information. Developer shall ensure that a Professional Engineer signs and seals the Lighting Design Report. At the same time as the Initial Design Submittal of the roadway lighting system, Developer shall submit the Lighting Design Report to ADOT.

460.3.4.1 Lighting Plans

Developer shall prepare lighting Plans for the Project. The lighting Plans must show all existing and new electrical features, all details, pole schedules, conductor, and lighting circuit schedules, distribution schedule for each lighting service, notes, and special provisions. The plans must include information regarding conduit used to intercept existing circuits Developer shall use for new lighting and for new conduit crossing locations for median lighting. The lighting Plans must also include lighting summary sheets per the ADOT *Traffic Design CADD Standards Manual*.

460.4 SUBMITTALS

Table 460-1 reflects a nonexclusive list of Submittals identified in Section DR 460 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 460-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Traffic Software	3	0	1	With the Basis of Design Report	DR 460.2.2

Table 460-1 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Sign Inventory	5	0	1	Prior to issuance of NTP 2	DR 460.2.3
Signing Concept Plan	5	0	1	At the same time as the Initial Design Submittal for signing Plans	DR 460.3.3.3
Lighting Design Report	5	0	1	At the same time as the Initial Design Submittal of the roadway lighting system	DR 460.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 462 MAINTENANCE OF TRAFFIC

462.1 GENERAL REQUIREMENTS

Developer shall perform all MOT Design Work in compliance with the requirements of Section DR 462 of the TPs.

462.2 ADMINISTRATIVE REQUIREMENTS

462.2.1 Standards

Developer shall perform all MOT Design Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

462.2.2 Maintenance of Traffic Task Force

Developer shall establish a MOT Task Force, including representatives of Developer, ADOT, cities, counties, law enforcement agencies, emergency response providers, Governmental Entities, and other agencies whose operations affect or are affected by the Project.

The purpose of the MOT Task Force is to:

- Review and refine the TMP and its implementation;
- Review and refine Developer's MOT plans, specifications, and details;
- Disseminate MOT information to task force meeting attendees; and
- Determine additional membership invitees affected by the MOT, as needed.

Developer shall ensure the establishment of the MOT Task Force, the holding of the initial meeting of the MOT Task Force, and the meeting of the MOT Task Force at the frequency noted in Section GP 110.02.6 of the TPs.

462.2.3 Transportation Management Plan

Developer shall develop, implement, and maintain throughout the D&C Period a TMP for the Project that complies with the ADOT *ENG 07-3 Work Zone Safety and Mobility Policy*. The TMP must include the following items:

A. Work zone Traffic Control Plans (TCP) including entrances and exits from the Site and proposed haul routes;

B. Procedures to communicate TMP information to the Public Relations Manager, other public information personnel, and ADOT, and notify the public of MOT issues in accordance with Section CR 425 of the TPs;

C. An emergency vehicle access plan that describes procedures to provide notification and access to Emergency responders (e.g., police, fire, ambulance, Arizona Department of Public Safety (DPS), school districts, Flood Control District of Maricopa County) throughout the Site, including critical flood control structures being constructed or reconstructed within the Project ROW. Developer shall obtain approval of the emergency vehicle access plan from all applicable Emergency responders;

D. Descriptions of the duties of the traffic personnel, by name and level of authority, with MOT responsibilities;

E. Procedures to identify and incorporate the needs of Emergency service providers, law enforcement entities, Governmental Entities, Utility Companies, and other related corridor users and must be presented in the emergency vehicle access plan;

F. Procedures to provide access and minimize disruption to U.S. mail, parcel delivery services, school buses, refuse collection, Governmental Entities and Utility Companies maintenance activities, etc.;

G. Procedures to address special circumstances, such as but not limited to equipment malfunction, Incidents, Closures not reopening on time, motorists' property being damaged, and special events, consistent with the respective roles and responsibilities during the D&C Period of ADOT and Developer under the Contract Documents regarding Incident and Emergency response;

H. Identification of, and procedures for addressing and resolving, Project-related construction traffic impact issues on the Project, and recommendation of mitigation measures for Project-related construction traffic impacts;

I. Identification of all special events;

J. Procedures to minimize Project-related traffic delays and potential accidents by the effective application of traditional traffic mitigation strategies and an innovative combination of public and motorist information, demand management, incident management, system management, alternate route strategies, construction strategies, or other strategies; and

K. Procedures to modify the TMP as needed to adapt to current Project circumstances.

Prior to issuance of NTP 2, Developer shall submit the TMP to ADOT for review and comment. Developer shall present the TMP at the first pre-construction coordination meeting. The TMP is a living document. As changes occur in the MOT strategies proposed by Developer, but no later than 30 Business Days prior to submittal of any RFC Submittal, Developer shall amend and submit the updated TMP to ADOT for review and comment.

462.3 DESIGN REQUIREMENTS

462.3.1 Temporary Construction Traffic Control Conditions

Developer shall design and post speed limits in the construction zone in accordance with Good Industry Practice. Developer shall not reduce the posted speed limits on the I-17 freeway to less than 55 miles per hour (mph).

462.3.1.1 Temporary Exit Ramp Extensions

Developer shall design and construct temporary lanes and extensions for exit ramps to comply with the following:

A. Developer shall post a speed limit of 30 mph for temporary lanes and extensions for exit ramps;

B. Developer shall design acceleration lanes to comply with the requirements in Section DR 440 of the TPs; and

C. Developer shall provide a minimum 2-foot lateral reaction distance for any temporary barrier device, including portable temporary concrete barrier.

462.3.1.2 Lanes and Shoulders

The minimum allowable lane widths are 11 feet on the mainline and ramps and ten feet on the crossroads. Developer shall maintain the minimum number of lanes as reflected in Table 462-1.

Table 462-1 Number of Lanes to Remain Open	
Location/Direction	**Number of Lanes**
I-17 NB (Black Canyon Freeway)	2 general purpose lanes
I-17 SB (Black Canyon Freeway)	2 general purpose lanes
Ramps	1 lane*
Crossroads	1 lane in each direction
*Full closure of the Bumble Bee Road TI SB entrance ramp is allowed for up to six (6) weeks. Access for emergency vehicles and for vehicles to turn around in case of emergencies must be provided.	

Developer shall not use or permit differential pavement elevations within the same travel lanes or adjacent travel lanes.

Developer shall provide at a minimum a nominal two-foot right and left shoulder during all phases of construction.

Developer shall remove existing rumble strips that are within temporary construction lanes or temporary crossovers.

462.3.1.3 Emergency Pullouts

Developer shall provide emergency pullouts where outside shoulders are restricted to less than 10 feet for a distance greater than two miles. Emergency pullouts must meet the following requirements:

A. Emergency pullouts must be provided at a maximum two-mile spacing throughout the limits of the shoulder restriction;
B. Existing traffic interchanges may be utilized to meet the spacing requirements for emergency pullouts;
C. Emergency pullouts must provide an area that is 12 feet wide from the edge of the travel lane and 300 feet in length exclusive of the transitions;
D. Transitions to access the pullouts must be 5:1 tapers and transitions to enter the travel lane from the pullout must be 30:1 tapers or flatter;
E. Emergency pullouts must be temporary AC pavement or asphalt millings;
F. Emergency pullouts must be located to provide adequate sight distance for vehicle acceleration and deceleration to & from highway;
G. Signing indicating the emergency pullouts must be provided 500 feet in advance of the pullout and at the beginning of the transition to the pullout; and
H. Emergency pullouts must not be used for construction access unless, and only so long as, construction access is blocked by an Incident or Emergency.

462.3.1.4 Detours

Developer shall prepare Detour Plans for all proposed detours. Detour Plans must include detour dates and duration, horizontal and vertical clearances, weight restrictions, and all proposed signs, and shall ensure that all detoured vehicle types can negotiate the detoured path. The Detour Plans must also address disruptions to public services, including the following:

A. Emergency responders;
B. U.S. Mail and parcel delivery services;
C. School buses;
D. Public transportation services;
E. Refuse collection; and
F. Normal commercial activities (e.g., materials and products pick-ups and deliveries, customer access)

At least 15 Business Days prior to implementation of the proposed detour, Developer shall submit Detour Plans to ADOT for approval. Developer shall obtain all permits and approvals from all applicable Governmental Entities.

462.3.2 Traffic Control Plans

Developer shall prepare TCPs that provide for all construction stages and phasing in accordance with the requirements of the Contract Documents. Each TCP must include any proposed changeable message board legends and proposed messages on existing DMS. Developer shall coordinate with all appropriate Governmental Entities and affected parties in the development of the TCPs. Prior to work involving traffic, Developer shall submit a TCP to ADOT for review and comment. Developer shall obtain all permits and approvals from all applicable Governmental Entities.

462.3.3 Closures and Restrictions

462.3.3.1 Full and Partial Closures

Except for Major Closures (which are addressed below in this Section DR 462.3.3.1 of the TPs) and Closures in cases of Emergency, Developer shall submit a written Closure Request along with a TCP to ADOT for approval in ADOT's good faith discretion. Developer shall submit the Closure Request at least ten Business Days prior to the first day of the proposed Closure. Upon ADOT's approval of a Closure Request or, if possible, in cases of Emergency, ADOT will input all Closures into the Highway Condition Reporting System. Approval is subject to availability as set forth in Section 8.5.2 of the Agreement. Developer shall participate in ADOT training prior to obtaining read access to the Highway Condition Reporting System. Developer shall notify ADOT immediately as soon as Developer becomes aware of a delayed or canceled scheduled Closure.

Developer shall coordinate Closure times with adjacent projects that may affect traffic during the same period and disclose all adjacent project Closures when requesting Closures.

Unless approved by ADOT in its sole discretion, full or partial Closures must occur only during the periods reflected in Table 462-2. Closure times include setup and take down of all traffic control devices.

Table 462-2
Allowable Closure Periods

Nighttime Northbound Closures	Nighttime Southbound Closures
7:00 p.m. Sun to 6:00 a.m. Mon	7:00 p.m. Mon to 6:00 a.m. Tues
7:00 p.m. Mon to 6:00 a.m. Tues	7:00 p.m. Tues to 6:00 a.m. Wed
7:00 p.m. Tues to 6:00 a.m. Wed	7:00 p.m. Wed to 6:00 a.m. Thurs
7:00 p.m. Wed to 6:00 a.m. Thurs	7:00 p.m. Thurs to 6:00 a.m. Fri

Table 462-2 Allowable Closure Periods	
Nighttime Northbound Closures	**Nighttime Southbound Closures**
7:00 p.m. Thurs to 6:00 a.m. Fri	7:00 p.m. Fri to 6:00 a.m. Sat

During any partial Closure, Developer shall maintain a minimum of one open through lane per direction, unless approved otherwise by ADOT in its good faith discretion. Developer shall not implement a full Closure of mainline travel lanes in both directions simultaneously except during blasting operations as set forth below. Developer shall not implement rolling Closures to transfer any equipment or perform any Work except at night and with ADOT approval in its good faith discretion at least 10 Business Days in advance of the proposed rolling Closure.

Major Closures are full Closures of all travel lanes in either direction for a period longer than 15 minutes. Developer shall implement Major Closures in both directions during blasting operations, except where the distance and topography between the northbound and southbound alignments is sufficient to eliminate risk from the blasting operations.

The duration of Major Closures for blasting operations shall be no longer than 40 minutes from 7:00 p.m. to 10:00 p.m. and no longer than 60 minutes from 10:00 p.m. to 6:00 a.m. The duration of Major Closures for other Work shall be no longer than 30 minutes. The duration of Major Closures shall commence at the point in time that Developer physically stops traffic on all mainline travel lanes in either direction until the point in time that traffic physically resumes on at least one mainline travel lane in each direction. The traffic queue due to a Major Closure must clear completely before Developer implements another Major Closure in the same direction. Traffic queues at one Major Closure must not be captured at another Major Closure within the Project limits.

Major Closures are subject to a Major Closure approval process. Major Closures for blasting operations are subject to ADOT's reasonable approval. Major Closures for other Work are subject to approval in ADOT's good faith discretion. In order to obtain approval for a Major Closure, Developer shall prepare a Major Closure Package that contains the following:

A. Location and vicinity maps of the Major Closure;
B. Date, time and duration of the Major Closure consistent with Table 462-2;
C. Description of the Work being performed during the Major Closure;
D. Description of the Major Closure and its anticipated effect on traffic;
E. Amount of expected delay and corresponding queue length for the Major Closure;
F. Summary of TMP strategies that Developer shall use to reduce delay and motorist inconvenience during the Major Closure;
G. A copy of the TMP; and
H. A contingency plan.

At least 15 Business Days in advance of the proposed Major Closure, Developer shall submit the Major Closure Package to ADOT for approval.

462.3.3.2 Work Zone / Work Area Access

Access to Project work zones / work areas shall not be permitted directly to or from any open general purpose lane unless Developer utilizes temporary auxiliary acceleration/deceleration

lanes in accordance with Section DR 440 of the TPs. Developer may utilize an allowable Closure as a temporary auxiliary acceleration/deceleration lane. Developer may utilize constructed portions of the new general purpose lanes that are closed to general purpose traffic as temporary auxiliary acceleration/deceleration lanes.

462.3.3.3 Crossroads

Developer shall comply with all permit requirements of each applicable Governmental Entity for all crossroad Closures.

462.3.3.4 Holiday Restrictions

Developer shall not request, permit or engage in Closures on holidays or weekends, including Fridays and Mondays, that are adjacent to or following a holiday in accordance with Table 462-3. The restricted holidays include New Year's Day, Civil Rights Day, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, and Christmas Day. Developer shall remove all traffic control for temporary Closures prior to holidays or weekends that adjoin a holiday.

Table 462-3
Holiday Closure Restriction Periods

Holiday Period		2021 Closure Restrictions	2022 Closure Restrictions	2023 Closure Restrictions	2024 Closure Restrictions
Civil Rights Day	Start (5:00AM)	N/A	January 14th, 2022	January 13th, 2023	January 12th, 2024
	End (5:00AM)	N/A	January 18th, 2022	January 17th, 2023	January 16th, 2024
Presidents Day	Start (5:00AM)	N/A	February 18th, 2022	February 17th, 2023	February 16th, 2024
	End (5:00AM)	N/A	February 22nd, 2022	February 21st, 2023	February 20th, 2024
Memorial Day	Start (5:00AM)	N/A	May 27th, 2022	May 26th, 2023	May 24th, 2024
	End (5:00AM)	N/A	May 31st, 2022	May 30th, 2023	May 28th, 2024
Independence Day	Start (5:00AM)	N/A	July 1st, 2022	June 30th, 2023	July 3rd, 2024
	End (5:00AM)	N/A	July 5th, 2022	July 5th, 2023	July 8th, 2024
Labor Day	Start (5:00AM)	N/A	September 2nd, 2022	September 1st, 2023	August 30th, 2024
	End (5:00AM)	N/A	September 6th, 2022	September 5th, 2023	September 3rd, 2024
Columbus Day	Start (5:00AM)	October 8th, 2021	October 7th, 2022	October 6th, 2023	October 11th, 2024
	End (5:00AM)	October 12th, 2021	October 11th, 2022	October 10th, 2023	October 15th, 2024
Veterans Day	Start (5:00AM)	November 10th, 2021	November 10th, 2022	November 10th, 2023	November 8th, 2024
	End (5:00AM)	November 12th, 2021	November 14th, 2022	November 13th, 2023	November 12th, 2024
Thanksgiving	Start (5:00AM)	November 24th, 2021	November 23rd, 2022	November 22nd, 2023	November 27th, 2024
	End (5:00AM)	November 29th, 2021	November 28th, 2022	November 27th, 2023	December 2nd, 2024

Table 462-3 Holiday Closure Restriction Periods					
Holiday Period		**2021 Closure Restrictions**	**2022 Closure Restrictions**	**2023 Closure Restrictions**	**2024 Closure Restrictions**
Christmas/ New Years	Start (5:00AM)	December 23rd, 2021	December 23rd, 2022	December 22nd, 2023	December 20th, 2024
	End (5:00AM)	January 3rd, 2022	January 3rd, 2023	January 2nd, 2024	January 6th, 2025

462.3.3.5 Special Events Restrictions

If ADOT determines there is a need to further restrict partial or full Closures for special events, it shall be done through an ADOT-Directed Change or Directive Letter.

462.3.4 Phasing and Construction Sequence Report(s)

Developer shall prepare a Phasing and Construction Sequence Report for each phase of construction Work. Each Phasing and Construction Sequence Report must address, at a minimum, construction activities, construction stage limits, construction sequencing, and traffic control. At the same time as the TCP, Developer shall submit Phasing and Construction Sequence Reports to ADOT for approval.

462.4 SUBMITTALS

Table 462-4 reflects a nonexclusive list of Submittals identified in Section DR 462 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 462-4 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Transportation Management Plan	4	0	1	Prior to issuance of NTP 2	DR 462.2.3
Updated TMP	4	0	1	As changes occur in the MOT strategies proposed by Developer, but no later than 30 Business Days prior to submittal of any RFC Submittal	DR 462.2.3
Detour Plans	3	0	1	15 Business Days prior to implementation of the proposed detour	DR 462.3.1.4
TCP	4	0	1	Prior to Work involving traffic	DR 462.3.2

Table 462-4 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Closure Request	2	0	1	10 Business Days in advance of any Closure	DR 462.3.3.1
Major Closure Package for Blasting Operations	3	0	1	At least 15 Business Days in advance of the proposed Major Closure	DR 462.3.3.1
Major Closure Package for Other Work	2	0	1	At least 15 Business Days in advance of the proposed Major Closure	DR 462.3.3.1
Phasing and Construction Sequence Reports	3	0	1	At the same time as the TCP	DR 462.3.4
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(b) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

End of Section

DR 466 INTELLIGENT TRANSPORTATION SYSTEM

466.1 GENERAL REQUIREMENTS

Developer shall perform all ITS Design Work in compliance with the requirements of Section DR 466 of the TPs.

466.2 ADMINISTRATIVE REQUIREMENTS

466.2.1 Standards

Developer shall design the ITS in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

466.2.2 Technical Work Group Meetings

Developer shall conduct monthly ITS TWG meetings throughout the ITS Design Work and in accordance with Section GP 110.02.4 of the TPs. The ITS Design Manager and ITS Construction Manager must attend all ITS TWG meetings.

466.2.3 Existing ITS Elements

Developer shall prepare an ITS Inventory of existing ITS elements and load centers within the Project ROW. The ITS Inventory must include items outside the Project ROW, where necessary, to show how the existing ITS is to function with the proposed ITS to provide a complete and functional ITS. The ITS Inventory must include the following:

A. Title Sheet;
B. Table of Contents; and
C. Inventory of ITS elements:
    - Listing of all ITS elements (description, size, and type);
    - Exact location of each ITS element;
    - The condition, adequacy, and compatibility with the proposed ITS; and
    - Photo log.

Prior to issuance of NTP2, Developer shall submit the ITS Inventory to ADOT.

466.3 DESIGN REQUIREMENTS

466.3.1 General

Developer shall complete an ADOT Systems Engineering Checklist for the Project. Prior to submitting an Initial Design Submittal for any ITS element, Developer shall submit the ADOT Systems Engineering Checklist to ADOT for approval. Developer shall comply with the requirements in the ADOT Systems Engineering Checklist.

466.3.2 ITS Master Plan

Developer shall prepare an ITS Master Plan that depicts the existing and proposed ITS. Developer shall ensure that the ITS Master Plan is the basis for the ITS design. The ITS Master Plan must include the following:

A. Proposed locations of all ITS elements (DMS, CCTV, detection stations, vehicle arresting barriers, Flex Lane gates, existing node buildings, power distribution, and Flex Lanes Guide Signs);
B. Spacing between DMS; and

C. Spacing between DMS and traffic signs.

Developer shall submit the ITS Master Plan to ADOT not later than the first Initial Design Submittal of any ITS element. Developer shall update the ITS Master Plan as the development of the Project design proceeds. Prior to submitting any ITS design to ADOT that is not consistent with the ITS Master Plan, Developer shall submit an updated ITS Master Plan to ADOT.

466.3.3 ITS Elements

Developer shall design a fully operational ITS for the Project that fully integrates with the Traffic Operations Center (TOC). Developer shall inspect all existing ITS Elements and software for adequacy and compatibility with the proposed ITS.

ADOT's software consists of FLIR Cameleon ITS v2020.1.60 which supports operation of dynamic message signs, closed circuit television cameras, wrong way detection stations, variable speed limit signs and dust detection. In addition, ADOT utilizes Intelight Maxview software for mainline detection, ramp metering, and traffic signal control.

The ITS Elements must include the following:

- ITS backbone communication network;
- Dynamic message signs;
- Closed circuit television cameras;
- Detection stations;
- Vehicle arresting barriers;
- Flex lane gates;
- Communications tie-in to existing node buildings;
- Power distribution system; and
- Flex Lanes Guide Signs.

Developer shall prepare a written ITS Element Number Request that includes the Element type, the Element location, and a site map or strip map of sufficient detail to clearly define the relationship of the street names and names of the pertinent features in the vicinity of the ITS Element. With each ITS Final Design Submittal, Developer shall submit an ITS Element Number Request to ADOT. ADOT will provide ITS Element numbers to Developer within ten Business Days after receipt of the written request. Developer shall ensure that the ITS Element numbers are shown on the RFC Submittal.

466.3.3.1 ITS Backbone Communication Network

ADOT is developing a fiber optic communications system along I-17 between Phoenix and Flagstaff referred to hereafter as the ADOT Broadband Initiative for I-17. Detailed information about the location of the micro-duct conduit system, node buildings, and conduit infrastructure is provided in the RIDs.

The ADOT Broadband Initiative for I-17 will be installing seven way micro-duct conduit and 288 fiber cable generally along the I-17 NB alignment within the entire length of the corridor. 144 fibers will be dedicated for ADOT transportation purposes. Developer is allowed to use up to twelve of the 144 ADOT fibers for the field devices installed along the northbound general purpose lanes between MP 229 and 252. Access to the broadband fiber must be at No. 9 pull boxes installed as part of the Broadband Initiative for I-17 where there is a 100-foot minimum coil of fiber. New split No. 9 pull boxes installed on/over the broadband fiber/microduct are prohibited.

Developer shall design an ITS backbone communication network along the southbound general purpose lanes between MP 229 and MP 245, and along the southbound general purpose lanes/Flex Lanes between MP 245 and MP 252 within the Project ROW limits. The network must include fiber optic communications, power conductors to field devices, and conduits. The fiber optic communications conduit shall consist of one 3" PVC conduit with three ¾" innerducts, such that there are two spare innerducts after the fiber optic cable is installed in one of the innerducts. Alternatively, Developer may install a minimum three-way high density polyethylene conduit system.

Developer shall design the ITS backbone communication network in accordance with the ADOT *Intelligent Transportation System Design Guide* and TP Attachment 466-1 of the TPs.

In the Flex Lanes section, Developer shall design a dedicated communication network consisting of an allocation of dedicated fiber optic strands within the ITS backbone in order to connect the following components of the Flex Lanes System to the existing node being installed at Sunset Point as part of the I-17 Broadband Project:

- Vehicle arresting barriers;
- Flex Lane gates;
- CCTV cameras dedicated to coverage of Flex Lane System components;
- Flex Lanes Guide Signs; and
- Associated control cabinets and equipment.

For each control cabinet that controls any of the above components, Developer shall provide battery backup power to maintain communications in the event of a utility power outage. Refer to power distribution system requirements in Section DR 466.3.3.9 of the TPs for additional backup power requirements.

466.3.3.2 Dynamic Message Signs

Developer shall install four dynamic message signs (DMS) as part of the ITS for the Project in accordance with the ADOT *Intelligent Transportation System Design Guide* and the ADOT *Statewide Dynamic Message Sign Master Plan*. Developer shall locate two DMS along southbound I-17, one in advance of the Coldwater Road (Exit 244) exit ramp, and one in advance of the New River Road (Exit 232) exit ramp. Developer shall locate two DMS in advance of the Flex Lane entrances, one northbound near Coldwater Road and one southbound, south of Sunset Point Road.

The DMS shall meet the following requirements:

A. DMS in advance of the Coldwater Road and New River Road SB exit ramps shall be designed to be installed along the right shoulder;
B. DMS in advance of the NB and SB Flex Lane entrances shall be designed to be installed in the median or along the right shoulder;
C. DMS support structures shall be designed in accordance with TP Attachment 455-2;
D. The structure shall be designed to provide for front access to the DMS. Catwalks in front of the sign are required at all new DMS locations;
E. The DMS shall meet the primary and secondary placement criteria per the *Statewide Dynamic Message Sign Master Plan* and integrate with the advance Flex Lanes Guide Signs leading into the transition to the Flex Lanes entrance;
F. DMS shall provide a minimum of 1000 feet visibility in a 30-degree cone of vision, both horizontally and vertically to the relevant traffic lanes;
G. DMS controller cabinets shall be designed to meet the requirements of the ADOT *Intelligent Transportation System Design Guide* and be located within 300 feet of the DMS and as specified by the manufacturer;

H. The locations of all DMS structures and cabinets installed shall meet the clear zone requirements, and;

I. DMS maintenance pads must be provided and designed in accordance with Section DR 419.3.3 and DR 440.3.1.6 of the TPs.

Developer shall design and install CCTV cameras near each DMS location such that a TOC operator can clearly read every character of an active message.

Developer shall show all proposed DMS on the Signing Concept Plan and the signing Plans, and in the ITS Master Plan.

Developer shall provide DMS cone of vision exhibits illustrating the cone of vision for each DMS in the ITS Master Plan and with each ITS Design Submittal.

466.3.3.3 Closed Circuit Television Cameras

Developer shall design a CCTV system per the requirements of the ADOT *Intelligent Transportation System Design Guide* and shall meet the following minimum requirements for each section of roadway.

466.3.3.3.1 General Purpose Lanes between Anthem Way and Coldwater Road

Between Anthem Way and Coldwater Road, Developer at a minimum shall design CCTV at the approximate locations shown in Table 466-1. Developer shall select locations at the approximate locations that maximize viewing along the NB and/or SB direction of I-17 and provide a safe area for maintenance vehicles to access the CCTV and get as far off the shoulder as possible.

Table 466-1
Required NB and SB CCTV between Anthem Way and Coldwater Road

New CCTV's	Approx. NB STA	Approx. SB STA	Approx. MP	Location
1		1599	231	Near Jenny Lin Rd (S of New River)
2	1647	-	232	New River Road TI
3	-	1692	232.8	In advance of new DMS in advance of New River Road
4	1859	-	236	Table Mesa Road TI
5	-	1856	236	Table Mesa Road TI
6	-	2168	242	Velda Rose Rd TI
7	2283	-	244.2	In advance of NB flex lane DMS at Coldwater Road

466.3.3.3.2 NB General Purpose Lanes between Coldwater Road and Sunset Point

Between Coldwater Road and Sunset Point Road, Developer at a minimum shall design CCTV at the approximate locations shown in Table 466-2. Developer shall select locations at the approximate locations that maximize viewing in both directions along NB I-17 and provide a safe area for maintenance vehicles to access the CCTV and get as far off the shoulder as possible.

Developer may install solar-powered CCTV cameras along northbound I-17 between Coldwater Road and Sunset Point if electrical power is not available within one-mile of the proposed CCTV

location. Developer shall design solar panels and battery storage to provide 72 hours of continuous operation.

Table 466-2
Required NB CCTV between Coldwater Road and Sunset Point

New CCTV's	Approx. NB STA	Approx. MP	Location
8	2350	245.75	To be determined by Developer
9	2415	247	To be determined by Developer
10	2445	247.6	To be determined by Developer
11	2460	247.8	To be determined by Developer
12	2474	248.1	To be determined by Developer
13	2521	249	To be determined by Developer

466.3.3.3.3 SB General Purpose Lanes and Flex Lanes between Coldwater Road and Sunset Point

Developer shall design the location of CCTV cameras along the Flex Lanes as necessary to provide complete coverage of the SB general purpose lanes, Flex Lanes, the inside and outside shoulders of both the SB I-17 general purpose lanes and the Flex Lanes, and at least 30 feet beyond such shoulders. In addition, CCTV shall provide 100% coverage of Flex Lane ramp crossovers and to provide for DMS message verification for all DMS located within the corridor. The CCTV system must have the capability to track a vehicle through the entire length of the Flex Lanes. Developer shall design all CCTV cameras with lowering devices integral to the pole. Developer shall demonstrate that the required coverage is achieved using plan/profile exhibits, site line exhibits, and 3D-coverage maps or other means approved by ADOT.

In addition to the CCTV cameras required for complete coverage of the SB general purpose lanes and Flex Lanes, Developer shall provide dedicated CCTV cameras for verification of essential Flex Lane System components as indicated herein. The dedicated CCTV camera system shall meet the following additional requirements:

- Provide unobstructed coverage of vehicle arresting barriers and associated control cabinets.
- Provide unobstructed coverage of all Flex Lane gates
- Provide unobstructed coverage of Flex Lanes Guide Signs located at Flex Lane exit tapers.
    - Coverage of Flex Lanes Guide Signs shall be provided such that the open/closed message is clearly visible as required for message verification.
- Reside on a dedicated communication network; refer to Section DR 466.3.3.1 of the TPs for additional requirements.
- Be provided with battery backup power, refer to Section DR 466.3.3.9 of the TPs for additional requirements.

Roadway coverage provided by dedicated CCTV cameras shall not be considered in the evaluation of complete coverage of the Flex Lanes as required herein.

CCTV cameras shall be powered from existing or new load centers within the corridor. Where wire sizes for CCTV cameras exceed #0 AWG wire sizes, Developer may opt to run the CCTV cameras, cabinets and switches with solar panels, provided the solar panels and battery storage provide 72 hours of continuous operation.

Developer shall account for all field conditions that may restrict required visibility and design the CCTV system accordingly.

At the same time as the ITS Master Plan submittal, Developer shall submit to ADOT for review and approval documentation supporting the proposed locations for CCTV cameras.

Developer shall determine if an FAA determination is required for any new CCTV pole locations. Developer shall obtain an FAA determination for any new CCTV pole which meets the requirements for construction or alteration requiring notice (Part 77.13) in the Code of Federal Aviation Regulations, part 77. Developer shall not incorporate such new CCTV poles unless and until approved by the FAA.

466.3.3.4 Detection Stations

ADOT is currently getting real time traffic information through INRIX, and INRIX data will continue to be the primary traffic source within the corridor between Anthem Way and Black Canyon City. However, the following detection stations are required within the Flex Lanes:

A. Developer shall include traffic detection stations along mainline I-17 approximately one mile in advance of the Flex Lane transition for determination of volume, speed, and occupancy of the I-17 NB and SB lanes approaching the Flex Lanes.

B. Developer shall include traffic detection stations within the Flex Lane crossover area for both the NB and SB directions. These detector locations shall provide volume, speed, and occupancy for both the I-17 NB or SB general purpose lanes and the Flex Lanes to determine the split of volumes using the general purpose lanes and the Flex Lanes.

466.3.3.5 Flex Lane Control Cabinet

Developer shall design, furnish, and install a Flex Lanes control system and cabinet at each crossover to provide consolidated control of the associated Flex Lane System including the following:

A. VAB;

B. Flex Lanes gates; and

C. Flex Lanes Guide Signs

The Flex Lanes control system shall integrate with the existing ADOT software and operations at the TOC and shall provide the following functionality:

A. Remote open/closed control; and

B. Remote status open/closed indication.

The Flex Lanes control system shall include a local over-ride control for each individual system gate, VAB, and Flex Lanes Guide Signs, in the form of a selector switch for on/off/remote operation for testing and maintenance activities.

466.3.3.6 Vehicle Arresting Barriers

Developer shall install two bi-directional VAB as part of the ITS for the Project to prevent wrong way vehicles from entering the Flex Lanes at the northbound and southbound entrance to the Flex Lanes. Developer shall locate each VAB such that it does not allow wrong way traffic from entering the Flex Lanes during operations. The VAB must meet the following requirements:

A. The VAB must be capable of safely stopping an 1,800 lb. car traveling at 70 mph and a 5,000 lb. truck traveling at 70 mph in either direction (though not simultaneously).
B. The VAB structure must be designed such that it is either integrated into concrete barrier or behind concrete barrier.
C. The VAB design must provide a minimum of 250 feet of concrete barrier on the approaching and trailing ends on both sides of the roadway.
D. The VAB must be driven by electrical actuator. The actuator must be capable of remote control by the TOC and control at the control cabinet.
E. The VAB must be equipped with hand crank or mechanical manual override. Access to the hand crank or mechanical override must be behind concrete barrier for protection of the technician.

Developer shall submit to ADOT documentation showing that the VABs to be installed meet the foregoing requirements.

Developer shall coordinate design disciplines to ensure clear zone and safety requirements are met in placement of the VAB.

466.3.3.7 Flex Lanes Gates

Developer shall provide and install automated gates in each direction at both transitions to the Flex Lanes. The Flex Lane gates must meet the following requirements:

A. Gates must be placed at the entrances to the Flex Lanes to control general purpose lane access to the Flex Lanes.
B. Gates must be placed at the exits from the Flex Lanes to prevent Flex Lane wrong way access to the general purpose lanes.
C. Gates must be driven by electrical actuator. The actuator must be capable of remote control by the ADOT TOC and control at the control cabinet.
D. Gates must be equipped with hand crank or mechanical manual override. Access to the hand crank or mechanical override must be behind concrete barrier for protection of technician.
E. Gates must be installed such that they are protected by barrier and meet clear zone requirements. Maintenance access doors must be positioned so that the technician can view and confirm the Flex Lane gate position.
F. Gates must close by swinging sequentially in the direction of traffic when closing the Flex Lanes.
G. Gates must open swinging sequentially in the opposite direction of traffic when the opening the Flex Lanes.
H. Gates must swing with the end of the gate pointing downstream in the direction of travel when the lane is open (gates in the retracted position).

I. All swing gates on the Project must be of the same manufacturer and model for consistent system operation and maintenance.

J. The arm must be constructed of aluminum tubing and polyethylene.

K. Gate arms must be covered on the oncoming traffic side with alternating red and white Type IX or XI retro-reflective sheeting, at a minimum of 13 inches wide and at a 45 degree angle down toward the end of the gate. The reflective sheeting surface must cover a minimum of 100 square inches per linear foot.

L. Each gate arm must have a chevron panel installed the end of the gate arm made of flexible polycarbonate covered with Type IX or XI retro-reflecting sheeting on the traffic side. The panel must consist of a white arrow with a red panel. The chevron panel must include a flashing LED arrow that is configurable in intensity and flashing pattern.

M. The swing gate arm must have been successfully crash tested utilizing NCHRP Report 350 or MASH testing criteria for a small passenger vehicle and truck evaluating windshield performance.

N. Gates must be equipped with:

   a. End of travel limit switches; and

   b. Mechanical overload protection.

O. Individual gates must have a total cycle time of 60 seconds or less.

P. The initial and final gate arms at either end of the crossover must be spaced at 100 feet at the start and termination of lane taper. After the lane taper is developed the gates may be spaced at 400-foot intervals. The length of the first swing gate arm must span the width of the shoulder. The rest of the swing gate arms through the taper section must span the shoulder plus the roadway of the taper lane.

Q. Spacing in advance and downstream of the crossover must be reduced to 100 feet for the five gates in advance of the VAB. The last of these swing gates must be at least 220 feet from the VAB and must be long enough to span the full roadway and most of the shoulder width between the concrete barriers.

Developer shall submit to ADOT documentation showing that the Flex Lanes gates to be installed meet the foregoing requirements.

Developer shall coordinate design disciplines to ensure clear zone and safety requirements are met.

466.3.3.8 Node Buildings

Communications node buildings will be installed and constructed within this Project limits through the ADOT Broadband Initiative for I-17 between Phoenix and Flagstaff. Node building locations in the ADOT Broadband Initiative for I-17 are currently identified as a new node being installed at Sunset Point in the DPS communications building. This node will connect to an existing node building (Node 15) in the I-17/SR 101 interchange in Phoenix. The node building locations are shown in the ADOT Broadband Initiative for I-17 plans provided in the RIDs.

Node building specifications for the ADOT Broadband Initiative for I-17 require a node building with approximate dimensions of 14 feet 6 inches by 10 feet 0 inches. This node building size is large enough to accommodate four equipment racks within the node building.

Developer shall design and install all required communication hardware in the DPS communications building at Sunset Point and at Node 15 to support the operation of the ITS

system within the entire Project corridor as well as all Flex Lane equipment, including gates, vehicle arresting barriers, dedicated CCTV, and Flex Lanes Guide Signs. Required equipment includes equipment racks, fiber termination panels,10 Gig Ethernet switches for ADOT's node to node communications, GigE switch(es), rack mounted UPS and battery storage modules, fiber connectors, and other equipment as required to complete a fully functioning ADOT communications system suitable for managing all field devices for the ITS system and the Flex Lane System.

Developer shall connect the proposed ITS system to existing node buildings and node buildings provided by the ADOT Broadband Initiative for I-17 to provide a fully functional ITS system connected to the ADOT Traffic Operations Center.

466.3.3.9 Power Distribution System

Developer shall provide all electrical system components required for providing power service to ITS equipment. The design for the power distribution system must include:

A. Coordination of power source locations and design with the local Utility Company;
B. Determination of the number and location of load centers necessary to provide electrical power for the ITS system;
C. Determination of the electrical loads at each load center;
D. Sizing of transformers and breakers for each load center;
E. Sizing of conductors running to field devices; and
F. Lightning protection and grounding for all devices.

Between MP 229 and MP 245 in both directions, Developer shall install one additional 3" PVC conduit to provide power to new ITS field devices. The conduit must be installed between existing or new load centers and/or meter pedestal locations to the new field devices.

Between MP 245 and MP 252 in the northbound direction, Developer must install one additional 3" PVC conduit to provide power to the new CCTV cabinets, unless Developer utilizes solar to power the CCTV cabinets pursuant to Section DR 466.3.3.3.3 of the TPs. The conduit must be installed between existing or new load centers and/or meter pedestal locations to the new CCTV cabinets.

Between MP 245 and MP 252 in the southbound direction, Developer shall install one additional 3" PVC conduit to provide power to new and existing ITS field devices. The conduit must be installed between existing or new load centers and/or meter pedestal locations to the respective field devices. Power conduit is required along the entire length of the Flex Lanes section whether it is occupied by power conductors or where it remains empty conduit available for future use.

Developer shall provide battery backup power for continuous monitoring of the components of the Flex Lanes System as indicated in Section 466.3.3.1 of the TPs. Battery backup systems shall be sized as required in order to provide a minimum run time of 72 hours for the following:

A. Open/Closed status indication for each individual Flex Lane Gate shall be provided.
    a. The backup battery power need not enable mechanical operation of the Flex Lane Gates.
B. Open/Closed status indication for each of the Vehicle Arresting Barriers shall be provided.
    a. The backup battery power need no enable mechanical operation of the Vehicle Arresting Barriers.

C. Continuous operation of communication equipment connected to the dedicated Flex Lane network.

D. Continuous operation of CCTV cameras dedicated to coverage of Flex Lane System components.

466.3.3.10 Flex Lanes Guide Signs

The Flex Lanes Guide Signs must include an integrated LED message board to clearly convey the operational status of the Flex Lanes, consistent with the format set forth in TP Attachment 460-1.

The LED message board must be capable of displaying a minimum of two messages "OPEN/CLOSED" with character height of 18 inches. The "OPEN" message must be displayed in green. The "CLOSED" message must be displayed in red.

Flex Lanes Guide Signs provided at exit tapers must be connected to the dedicated Flex Lane communication system and must be provided with battery backup power.

466.3.4 Concept of Operations

A draft Concept of Operations detailing the conceptual design and proposed operations of the Flex Lanes System components is included in the RIDs. Developer shall update and modify the provided draft Concept of Operations Plan as necessary to accurately capture the final components and intended operations of the Flex Lane System.

The Concept of Operations shall be submitted to ADOT for review and comment.

466.3.5 Specifications

Those elements of TP Attachment 466-1 are mandatory minimum requirements for ITS Work. Developer shall prepare ITS specifications using TP Attachment 466-1 and in accordance with Section GP 110.10.2.6.2 of the TPs.

466.4 SUBMITTALS

Table 466-3 reflects a nonexclusive list of Submittals identified in Section DR 466 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 466-3
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
ITS Inventory	5	0	1	Prior to issuance of NTP 2	DR 466.2.3
ADOT Systems Engineering Checklist	3	0	1	Prior to submitting an Initial Design Submittal for an ITS element	DR 466.3.1

Table 466-3 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
ITS Master Plan	5	0	1	Not later than the first Initial Design Submittal of any ITS element	DR 466.3.2
Updated ITS Master Plan	5	0	1	Prior to submitting an ITS design that is not consistent with the ITS Master Plan	DR 466.3.2
ITS Element Number Request	5	0	1	With each ITS Final Design Submittal	DR 466.3.3
VAB Documentation	5	0	1	At the same time as the Initial Design Submittal	DR 466.3.3.6
Flex Lanes Gates Documentation	5	0	1	At the same time as the Initial Design Submittal	DR 466.3.3.7
Concept of Operations Plan	4	0	1	Prior to submitting the initial ITS Flex Lane Design Submittal	DR 466.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

DR 470 RIGHT-OF-WAY

470.1 GENERAL REQUIREMENTS

Developer shall perform all Project ROW Work in compliance with the requirements of Section DR 470 of the TPs.

470.2 ADMINISTRATIVE REQUIREMENTS

470.2.1 Standards

Developer shall perform all Project ROW Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

Developer shall utilize the ADOT *Right of Way Procedures Manual* as a guideline, except to the extent it is inconsistent with the provisions of State or Federal Law or Section DR 470 of the TPs. The ADOT *Right of Way Procedures Manual* includes all ADOT forms referenced in Section DR 470 to the TPs.

470.2.2 Project ROW Status

TP Attachment 470-1 identifies new real property interests that ADOT will acquire to construct the Project as identified in the Final Design Concept Report – I-17, Anthem Way Traffic Interchange to Jct. SR 69 (Cordes Junction) and CE. TP Attachment 470-1 identifies which parcels ADOT will acquire and anticipated dates for access. ADOT has no obligation to provide Developer access for the parcels ahead of the dates set forth in TP Attachment 470-1.

470.2.3 Temporary Construction Easements

TCEs necessary to perform the Work must be obtained in accordance with Section 7.2.1 of the Agreement.

Developer shall clearly mark TCE limits in the field prior to construction and after the acquisition of Developer-requested TCE. Developer shall mark TCE limits per Arizona Boundary Survey Minimum Standards.

Developer shall show TCEs on all Plans once approved by ADOT. Developer shall add TCEs approved after RFC Plans to the Plans through the RFI or Design Change process.

470.2.4 Developer-Designated ROW

Developer acknowledges and agrees that changes to the Schematic ROW or incorporation of Developer-Designated ROW require a new or amended application to the U.S. Bureau of Land Management (BLM) or Arizona State Land Department (ASLD) for ROW. Chapter 3, Sections 3.02 and 3.05, respectively, of the Acquisitions Section of the ADOT *Right of Way Procedures* Manual includes a description of the process for the acquisition from BLM and ASLD of ROW, easements, and temporary entry.

Developer shall prepare a complete and accurate set of supporting documents for any new or amended applications to the BLM or ASLD for Developer-Designated ROW ("Amended Application for ROW Supporting Documents"). The Amended Application for ROW Supporting Documents must include:

1. ROW Plans;
2. Metes and bounds description;

3. Highway Easement Deed (HED) (Exhibit 22.28, see RIDs "HED Exhibits from Right of Way Plans Manual.PDF") with aliquot legal description of the requested permanent right of way;
4. Construction Plans showing any TCEs; and
5. Temporary Construction Easement HED (Exhibit 22.30, see RIDs "HED Exhibits from Right of Way Plans Manual.PDF"), with aliquot legal description of the requested temporary easement areas, if applicable

Developer shall provide the Amended Application for ROW Supporting Documents to ADOT for approval. ADOT will submit the ROW application to BLM or ASLD, as applicable. Should BLM or ASLD request corrections or additional information, Developer shall make the requested corrections and submit a revised Amended Application for ROW Supporting Documents to ADOT for approval.

470.2.5 Replacement Utility Property Interests

Replacement Utility Property Interests (even though not part of the Project ROW) required to complete the Project must be obtained in accordance with Section 7.2.4 of the Agreement.

470.3 SUBMITTALS

Table 470-1 reflects a nonexclusive list of Submittals identified in Section DR 470 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Unless otherwise indicated, Developer shall submit all Submittals in both electronic format and hardcopy format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 470-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Amended Application for ROW Supporting Documents	3	1	1	As determined by Developer.	DR 470.2.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

SECTION C
CONSTRUCTION REQUIREMENTS (CR)

TABLE OF CONTENTS

CR 400 CONSTRUCTION REQUIREMENTS

The following list of references in intended only to assist Developer in identifying the relevant references (manuals, guidelines, regulations, design codes, design standards, and design specifications). Developer is responsible for determining if other relevant references are also applicable.

Table 400-1 lists the standards in no order of precedence; however, in the event of a conflict between ADOT standards or requirements and other standards and requirements, the ADOT standard or requirement, as applicable, shall prevail.

Table 400-1
Standards

No.	Agency	Title
1	ADOT	Current Roadway Design Standards and Memorandums
2	ADOT	Roadway Design Guidelines
3	ADOT	CADD Standards, 1990 including current revisions and amendments
4	ADOT	Drafting Guidelines for Use in Office and Field, 2015
5	ADOT	Dictionary for Standardized Work Tasks, FY 2019
6	ADOT	Interim Auxiliary Lane Design Guidelines, 1996
7	ADOT	ADOT Standard Specifications
8	ADOT	Construction Standard Drawings (C-standards), 2012 with current amendments
9	ADOT	Construction Manual, 2015
10	ADOT	Manual for Field Surveys, 2010
11	ADOT	Geotechnical Project Development Manual (GPDM)
12	ADOT	Materials Testing Manual
13	ADOT	Materials Practice and Procedure Directives (PPD) Manual
14	ADOT	ADOT Pavement Design Manual, 2017
15	ADOT	Pavement Design Report Standard Items
16	ADOT	Bridge Group Structure Detail Drawings
17	ADOT	Bridge Group Bridge Design Guidelines
18	ADOT	Bridge Group Bridge Practice Guidelines
19	ADOT	Noise Abatement Requirements, 2017
20	ADOT	Bridge Hydraulics Guidelines

Table 400-1 Standards		
No.	**Agency**	**Title**
21	ADOT	Highway Drainage Design Manual, Hydrology
22	ADOT	Highway Drainage Design Manual, Hydraulics
23	ADOT	Pipe Selection Guidelines and Procedures, 1996
24	ADOT	Drainage Memorandum, Drainage Design, n-Values for Pavement Drainage Analysis, 2011
25	ADOT	Highway Drainage Design Manual – Hydraulics, 2015
26	ADOT	Drainage Memorandum, HEC-22,
27	ADOT	Approved Products List
28	ADOT	Channel Lining Design Guidelines, 1989
29	ADOT	Guideline for Accommodating Utilities on Highway Rights-of-Way
30	ADOT	Utility Coordination Guide for Design Consultants
31	ADOT	Utility Report Template
32	ADOT	Landscape and Irrigation Drawings/Details
33	ADOT	Regional Freeway System Landscape Value Analysis Report
34	ADOT	Manual of Approved Signs
35	ADOT	Traffic Signals and Lighting Standard Drawings, 2010, with current revisions and amendments
36	ADOT	Signing and Marking Standard Drawings, 2014, with current revisions and amendments
37	ADOT	Arizona Supplement to the MUTCD, 2009 with revisions
38	ADOT	Traffic Control Design Guidelines, 2011
39	ADOT	Traffic Engineering CADD Standards, 2014 and later revisions
40	ADOT	Implementation Guidelines for Work Zone Safety & Mobility, 2009
41	ADOT	Traffic Guidelines and Processes
42	ADOT	Highways Divisions Policy and Implementation Memorandum 95-02
43	ADOT	Intelligent Transportation System Design Guide
44	ADOT	ITS Standard Drawings
45	ADOT	FMS Communication Master Plan
46	ADOT	Erosion and Pollution Control Manual, 2012

Table 400-1 Standards		
No.	**Agency**	**Title**
47	ADOT	Erosion/Sediment & Water Quality Protection BMP Details or Stored Specification
48	ADOT	Post-Construction Best Management Practices Manual for Water Quality
49	ADOT	SWPPP Template
50	ADOT	ADOT DS-1: Development of Drilled Shaft Axial Resistance Charts for Use by Bridge Engineers Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
51	ADOT	ADOT DS-2: Interim Guidance – Design of Drilled Shafts in Gravels and Gravelly Soils Exhibiting Drained Behavior, Memorandum, 2010
52	ADOT	ADOT DS-3: Analysis of Drilled Shafts Subjected to Lateral Loads Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
53	ADOT	ADOT SF-1: Development of Factored Bearing Resistance Chart by a Geotechnical Engineer for Use by a Bridge Engineer to Size Spread Footings on Soils Based on Service and Strength Limit States Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2008 (Revision 1)
54	ADOT	ADOT SF-2: Limiting Eccentricity Criteria for Spread Footings based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010 DRAFT
55	ADOT	ADOT SF-3: Resistance Factors for the Estimation of Factored Sliding and Bearing Resistance for Spread Footings of Gravity and Semi-gravity Walls based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
56	ADOT	Pavement Design Manual, Roadway Engineering Group, Pavement Design Section, Phoenix, Arizona, September 2017.
57	ADOT	Final Design Concept Report – I-17, Anthem Way Traffic Interchange to Jct. SR 69 (Cordes Junction)
58	ADOT	I-17, Anthem Way to Jct. SR 69 - Environmental Commitments 017 MA 229 H6800 01L, STP-017-A(ARV)S
59	ADOT	Encroachment Permit (azdot.gov/business/permits/encroachment-permits)
60	ADOT	Design Exception and Design Variance Process Guide
61	ADOT	Load Rating Guide
62	ADOT	Statewide Dynamic Message Sign Master Plan
63	ADOT	Right of Way Procedures Manual
64	Arizona State Board of Technical Registration	Arizona Boundary Survey Minimum Standards
65	Federal	National Environmental Policy Act, 1969
66	Federal	Council of Environmental Quality EQ Regulations for Implementing the Procedural Provisions of NEPA
67	Federal	Clean Air Act, 1970

Table 400-1 Standards		
No.	**Agency**	**Title**
68	Federal	Flood Plain Management
69	Federal	Fish and Wildlife Coordination Act
70	Federal	National Historic Preservation Act (NHPA)
71	Federal	Section 106 of the NHPA
72	Federal	Resource Conservation and Recovery Act
73	Federal	Comprehensive Environmental Response, Compensation and Liability Act, 1980
74	Federal	Superfund Amendments and Reauthorization Act
75	Federal	Section 401 Clean Water Act (Certification), 1977
76	Federal	Section 402 Clean Water Act (NPDES), 1977
77	Federal	Section 404 Clean Water Act (Permits for Dredge or Fill Material), 1977
78	Federal	Endangered Species Act, 1973
79	Federal	Invasive Species
80	Federal	Environmental Justice
81	Federal	Proposed Right-of-Way Guidelines
82	State	Water Quality Law
83	State	Hazardous Waste Management Act
84	State	Underground Storage Tank Act, 1986
85	FHWA	Environmental Impact and Related Procedures
86	FHWA	Procedures for Abatement of Highway Traffic Noise and Construction Noise
87	FHWA	Section 4(f) of the Department of Transportation Act
88	FHWA	Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods, NHI Training Course No. 132014, Publication No. FHWA-NHI-10-016, 2010
89	FHWA	Geotechnical Engineering Circular No. 11, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, NHI Courses No. 132042 and 132043, Publication No. FHWA-NHI-10-025, Volumes I and II, 2009
90	FHWA	Geotechnical Engineering Circular No. 7, Soil Nail Walls, Report No. FHWA-IF-03-017, 2003
91	FHWA	Geotechnical Engineering Circular No.5, Geotechnical Site Characterization, NHI Course No. 132031, FHWA- NHI-16-072, 2017.

Table 400-1 Standards		
No.	**Agency**	**Title**
92	FHWA	Rockfall Catchment Area Design Guide: Final Report, Report No. SPR-3(032)
93	FHWA	Rock Slopes - Reference Manual, Training Course in Geotechnical and Foundation Engineering, NHI Course No. 13235 – Module 5, Publication No. FHWA-HI-99-007, 1998
94	FHWA	Soil Slope and Embankment Design and Construction - Reference Manual, NHI Course No. 132033, Publication No. FHWA-NHI-05-123, 2005
95	FHWA	Application of Geophysical Methods to Highway Related Problems, Publication No. FHWA-IF-04-021, 2004.
96	FHWA	Hydraulic Design of Highway Culverts, Hydraulic Design Series No. 5
97	FHWA	Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Design Series No. 14
98	FHWA	Design of Roadside Channels with Flexible Linings, Hydraulic Design Series No. 15
99	FHWA	Evaluating Scour at Bridges, Hydraulic Engineering Circular No. 18
100	FHWA	Design of Bridge Deck Drainage, Hydraulic Engineering Circular No. 21
101	FHWA	Bridge Scour and Stream Instability Countermeasures, Hydraulic Engineering Circular No. 23
102	FHWA	Evaluating Scour at Bridges, Hydraulic Engineering Circular No. 18
103	FHWA	Manual on Uniform Traffic Control Devices (MUTCD)
104	FHWA	Road Safety Audit Guidelines
105	FHWA	Hydraulic Engineering Circular, Design of Riprap Revetment
106	FHWA	Drainage of Roadside Channels with Flexible Linings, Hydraulic Engineering Circular No. 15
107	American Association of State Highway and Transportation Officials (AASHTO)	Load and Resistance Factor Design (LFRD) Bridge Design Specifications, 2012, 6th Edition
108	AASHTO	A Policy on Geometric Design of Highways and Streets
109	AASHTO	Roadside Design Guide
110	AASHTO	A Policy on Design Standards – Interstate System
111	AASHTO	LRFD Bridge Design Specifications
112	AASHTO	LRFD Bridge Construction Specifications
113	AASHTO	Construction Handbook for Bridge Temporary Works
114	AASHTO	Guide Specifications – Thermal Effects in Concrete Bridge Superstructures

Table 400-1 Standards		
No.	**Agency**	**Title**
115	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals
116	AASHTO	Manual on Subsurface Investigations
117	AASHTO/American Welding Society (AWS)	D1.5 Bridge Welding Code
118	AASHTO	Guide Design Specifications for Bridge Temporary Works
119	AASHTO	Manual for Bridge Evaluation
120	AASHTO	Guide Specifications for Design and Construction of Segmental Concrete Bridges
121	AASHTO	Guide Specifications for Structural Design of Sound Barriers
122	AASHTO	Guide Specifications for LRFD Seismic Bridge Design
123	AASHTO	Book of AASHTO Testing Standards
124	AASHTO	Guide for Design of Pavement Structures, 1993
125	AASHTO	Construction Stormwater Field Guide
126	AASHTO	Highway Drainage Guidelines, Volume III (Federal Funds)
127	AASHTO	Roadway Lighting Design Guide, 2005
128	AASHTO	A Guide for Transportation Landscape and Environmental Design, 1991
129	IES	Illuminating Engineering Society Standards
130	ASTM	Specifications C136
131	ASTM	Book of American Society for Testing and Materials
132	AWS	American Welding Society (AWS) 1.1 Welding Code
133	Transportation Research Board (TRB)	Landslides, Investigation and Mitigation, Special Report 247, TRB, National Research Council, 1996.
134	Strategic Highway Research Program	Distress Identification Manual for Long-Term Pavement Performance Project
135	USACE	Hydraulic Engineering Center-Hydraulic Modeling System
136	USACE	River Analysis System
137	Varies	Utility Company Standards

End of Section

CR 408 THIRD-PARTY AGREEMENTS

Reserved.

End of Section

CR 410 LAND SURVEYING

410.1 GENERAL REQUIREMENTS

Developer shall perform all land surveying Construction Work in compliance with the requirements of Section CR 410 of the TPs. Developer shall provide all surveying, construction staking, and layout required to complete the Work in accordance with the Contract Documents. Developer shall perform all land surveying Construction Work under the supervision of the Survey Manager.

410.2 ADMINISTRATIVE REQUIREMENTS

410.2.1 Standards

Developer shall perform all land surveying Construction Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

410.3 CONSTRUCTION REQUIREMENTS

410.3.1 Perpetuation of Survey Monuments

Developer shall locate and maintain all existing survey monuments, including section line, right-of-way, and roadway monuments. Developer shall re-establish all disturbed monuments in accordance with Arizona State Board of Technical Registration *Arizona Revised Statutes Title 33* and the *Arizona Boundary Survey Minimum Standards*. Developer shall ensure that the Survey Manager signs and stamps any aliquot corners and major street monumentation that is referenced or re-set.

Developer shall set all ROW monuments in accordance with ADOT *Intermodal Transportation Division Engineering Technical Group Engineering Survey Section Manual of Field Surveys*.

410.3.2 Construction Surveys

Developer shall verify Project ROW boundaries and location prior to construction staking of new ROW. Developer shall perform all land surveying Construction Work necessary to facilitate all construction operations during the Term.

410.3.3 Construction Survey Records, As-Built Surveys, and Reports

Developer shall maintain accurate and complete documentation for all land surveying Construction Work. These records must include all calculations, mapping, staking notes, cut sheets, and field crew daily diaries. Developer shall perform as-built surveys for the Project in accordance with the ADOT *Construction Manual*. Developer shall compile and prepare a complete formal Construction Survey Report that includes the materials listed in the ADOT *Construction Manual* and the following:

A. All survey calculations related to control survey and design survey data;
B. Documentation of the information and rationale used to perform the land surveying Construction Work;
C. Field notes;
D. Cut sheets;
E. Data collection downloads;
F. Maps;
G. CAD files; and
H. As-built survey.

Developer shall ensure that a land surveyor registered in the State of Arizona seals the Construction Survey Report. At the same time as the Record Drawings Submittal, Developer shall submit the Construction Survey Report to ADOT.

410.4 SUBMITTALS

Table 410-1 reflects a nonexclusive list of Submittals identified in Section CR 410 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs.

Table 410-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Construction Survey Report	5	0	1	At the same time as the Record Drawings Submittal	CR 410.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 416 GEOTECHNICAL

416.1 GENERAL REQUIREMENTS

Developer shall perform all geotechnical Construction Work in compliance with the requirements of Section CR 416 of the TPs.

416.2 ADMINISTRATIVE REQUIREMENTS

416.2.1 Standards

Developer shall perform all geotechnical Construction Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

416.3 CONSTRUCTION REQUIREMENTS

416.3.1 Drilled Shaft Foundations

Developer shall construct all drilled shaft foundations in accordance with the FHWA *Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods* and the ADOT Standard Specifications.

416.3.1.1 Drilled Shaft Foundation Load Testing

If Developer performs drilled shaft foundations load testing, Developer shall perform such tests in accordance with the recommendations presented in FHWA *Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods*. Developer shall perform the load tests on a sacrificial, non-production drilled shaft(s) and shall design such load tests to measure the nominal axial resistance of the test drilled shaft and load transfer characteristics of the shaft/soil or rock profile. Both conventional (top-down) and bi-directional Osterberg Cell drilled shaft load testing methods are permitted.

Developer shall prepare a Drilled Shaft Load Test Program that includes the following:

A. Design plans, specifications, and special provisions detailing the design and construction of the test drilled shaft(s), including test shaft materials, reinforcing cage, access tubes for integrity testing, estimated shaft capacities, test loads, loading/unloading increments and sequences, and instrumentation types and locations;

B. Details and capacities of the loading frame and reaction shafts, or Osterberg cell assemblies;

C. Test drilled shaft instrumentation plan, including details and calibration certificates of all test instrumentation proposed for monitoring of the test drilled shaft, such as sister bar strain gauges, linear vibrating wire displacement transducers, compression telltales, vibrating wire pressure transducers, pressure gauges, data acquisition system and all associated software, and survey points and methods, for monitoring the test drilled shaft;

D. Installation plan for the test drilled shaft and reaction shafts in accordance with the Drilled Shaft Installation Plan requirements in Section CR 416.3.1.2 of the TPs; and

E. Drilled Shaft Load Test Report(s), which must include the following items:

   1. Description of the test drilled shaft details, construction, instrumentation, and test procedures;
   2. Tables presenting all monitoring and Instrumentation Data;
   3. Plots of load versus displacement for each stage of the test;
   4. Plots of load transfer along the length of the test drilled shaft determined from the

strain gauge data for at least ten applied load increments;

5. Summaries of mobilized unit side resistance along the length of the drilled shaft, and mobilized tip resistance, versus displacement;
6. Plots of creep displacement for each loading direction and increment; and
7. Plot of equivalent top-down load versus displacement curve for the test drilled shaft, developed from the load test data.

No later than 20 Business Days prior to performing the load test(s), Developer shall submit the Drilled Shaft Load Test Program to ADOT for review and comment.

Subsequent to completion of the drilled shaft load test such that the test drilled shaft is no longer needed, Developer shall cut the test drilled shaft off at least five feet below final grade.

Developer shall prepare a Drilled Shaft Load Test Report in accordance with the Drilled Shaft Load Test Program. Prior to construction of any production-drilled shafts in the area(s) represented by the load test(s), Developer shall submit the Drilled Shaft Load Test Report to ADOT for review and comment.

416.3.1.2 Drilled Shaft Installation Plan

Developer shall prepare a Drilled Shaft Installation Plan that includes the following information:

A. List of proposed equipment to be used, including cranes, drills, augers, digging buckets, core barrels, bailing buckets, final cleaning equipment, desanding equipment, slurry pumps, sampling equipment, tremie pipes or concrete pumps, casing, etc.
B. Details of overall construction operation sequence and the sequence of shaft construction in bents or groups.
C. Details of shaft excavation methods, including equipment and procedures for checking the dimensions and alignment of each shaft excavation.
D. When slurry is required, details of the method proposed to mix, circulate and desand slurry, and methods proposed.
E. Details of methods to clean the shaft excavation.
F. Details of reinforcement placement, including support and centralization methods, lifting equipment, and staging location for tied steel reinforcement cages prior to placement.
G. Details of concrete placement, including concrete volumetric charts.
H. Details of casing dimensions, material, and splice details.
I. Details of concrete mix designs and mitigation of possible loss of slump during placement.
J. List of work experience for previous similar projects.
K. Other information shown on the Plans or requested by ADOT.
L. Emergency horizontal construction joint method if unforeseen stoppage of Work or interruption in concrete delivery occurs.
M. Details of any special access or setup requirements needed to position the drill equipment to advance drilled shaft excavations.

Not less than 20 Business Days prior to drilled shaft construction, Developer shall submit the Drilled Shaft Installation Plan to ADOT for review and comment.

416.3.1.3 Drilled Shaft QC/Integrity Testing

Developer shall perform quality control testing and integrity testing in accordance with Section GP 110.07 of the TPs. Quality control testing and integrity testing must include ultrasonic

crosshole testing in accordance with ASTM D6760 and geophysical logging (gamma logging) in accordance with ASTM D6274.

Developer shall perform construction quality control testing of the load test drilled shaft(s), including mechanical or sonic caliper, concrete sampling and strength testing, ultrasonic cross-hole logging, and geophysical logging (gamma logging).

Developer shall test, at minimum, all production shafts constructed using the wet method and 10 percent of the shafts constructed using the dry method (two tests minimum per bridge). For all structures which do not have redundant shafts, Developer shall test all drilled shafts for the structure regardless of whether they are constructed using the wet method or dry method.. Upon the discovery of a defect in a dry shaft test, Developer shall test all dry method shafts for the associated bridge. Developer shall perform drilled shaft testing no earlier than 48 hours after concrete placement.

Developer shall prepare a Drilled Shaft Quality Control Report for each tested shaft or group of shafts at a bridge, which presents the results of quality control and integrity testing of the drilled shaft foundations, and including documentation of the shaft construction.

Not less than ten Business Days prior to construction of any structure on the associated drilled shaft foundations, Developer shall submit the Drilled Shaft Quality Control Report to ADOT for review and comment.

416.3.2 MSE Walls

Developer shall construct MSE walls in accordance with the FHWA *Geotechnical Engineering Circular No. 11, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes*.

Developer shall determine placement tolerances for MSE wall facing elements. Developer shall include these placement tolerances in accordance with TP Attachment 455-2 for MSE walls.

416.3.3 Soil Nail Walls

Developer shall construct soil-nail retaining walls in accordance with the FHWA *Geotechnical Engineering Circular No. 7, Soil Nail Walls*.

Developer shall identify wall soil zones based on subsurface geotechnical conditions, with one value of design pull-out resistance assigned to each wall soil zone on the Plans.

Developer shall perform a minimum of two verification load tests on sacrificial verification soil-nails for each wall soil zone before starting excavation for the wall zone. Developer shall ensure the calibration of Developer's soil-nail load testing equipment by a qualified testing laboratory that is independent of the Developer's soil-nail installation Subcontractor(s).

Developer shall perform proof load tests on sacrificial proof test soil-nails. The number of sacrificial proof test soil-nails must be a minimum of ten percent of the total number of production soil-nails for each individual wall. Developer shall include the locations of proposed proof test nails on the Plans.

Developer's special provisions for soil-nail walls must include acceptance criteria for verification and proof tests. The acceptance criteria must include criteria for (1) maximum allowable creep movement (creep rate and total creep movement), (2) total measured nail movement at the maximum test load relative to the theoretical elastic elongation of the test nail un-bonded length, and (3) pullout failure criteria.

Developer shall reject tested soil-nails that do not comply with the acceptance criteria.

416.3.4 Blasting

416.3.4.1 General

Developer's shall perform blasting operations, including the storage, handling, and use of explosives and blasting agents, in accordance with the applicable provisions of the ADOT Standard Specifications, and all other pertinent Federal, State, and local regulations. Whenever Developer uses explosives, they must be of such character and in such amount as is permitted by the State and local Laws and ordinances and all respective agencies having jurisdiction over explosives. Developer is responsible for the effects, including damages, of Developer's blasting operations on adjacent public or private property, including objects, structures, and Utilities.

Developer shall control ground vibrations and air-blast when blasting might affect objects, structures, utilities, or existing landslides that might be susceptible to damage from blasting, and shall use properly designed delay sequences and allowable charge weights per delay.

Developer shall prevent or remove deleterious drill hole traces, machine scars, and marks from machine scaling or other excavation equipment in the final roadway cut faces. The definition of deleterious conditions includes the following: (1) Individual drill holes whose remaining traces total more than three feet aggregate length; (2) any portion of any roadway cut bearing drill hole traces whose aggregate length totals more than 25 percent of the total length of controlled blast holes drilled to form that portion of the cut; (3) machine scars traceable for more than 12 feet which parallel the natural geologic structure, bedding, or principal fracture direction; (4) machine scars traceable for more than six feet which do not parallel the natural geologic structure, bedding or principal fracture direction; and (5) machine scars that are approximately parallel and repetitive (groups of two or more scars).

Developer shall scale all slopes for stability, regardless of excavation technique or slope finish required.

Developer shall minimize blast damage behind the trim line. The definition of blast damage includes the following: widening and loosening of the existing joints, bedding planes, or foliation of the rock mass to remain; displacement of blocks of intact rock to remain; and creation of new fractures on the slope to remain.

Developer shall prepare a Test Plot Slope Cut Plan that depicts the proposed location of the proposed cut slope location. No later than 15 Business Days prior to the first test blast, Developer shall submit the Test Plot Slope Cut Plan to ADOT for review and comment. Developer shall schedule a meeting with ADOT to review the Test Plot Slope Cut Plan to assure the finished cut slope will meet applicable requirements and specifications.

416.3.4.2 Protection of Utilities

Developer shall comply with the requirements of the Utility Companies relative to protection of their individual Utilities from the effects of blasting operations. Developer shall reimburse Utility Companies for their costs incurred to monitor blasting operations. Developer shall also comply with the following requirements when blasting operations are within 1,000 feet of transmission line areas:

A. Developer shall not use electric detonators within 500 feet of any transmission line, unless Developer demonstrates and documents to the satisfaction of the relevant Utility Company the safety of their use in the Blasting Plan, including measurements of stray and induced currents.

B. Developer shall provide written notification to Utility Companies a minimum of ten Business Days prior to blasting within 1,000 feet of any transmission line.

C. Once blasting operations have begun, Developer shall proceed as continuously as practicable with blasting operations in that area.

D. Developer shall prevent fly rock when any portion of any blast is within 300 feet of the outside phase of the closest transmission line. Fly rock prevention measures include covering the entire shot with blasting mats or soil.

416.3.4.3 Control of Vibrations and Air-blast

Developer shall locate seismographs between the blast area and the closest susceptible object, structure, or utility. Developer shall use seismographs whenever the blast is located within 300 feet of an existing building, box culvert, retaining wall, bridge structure, pipeline, utility pole, transmission tower, or existing landslide and when the maximum charge weigh per delay period exceeds 20 pounds.

Developer shall protect all existing facilities from damage from blasting vibrations and air-blast. Developer shall deploy and monitor an air-blast monitoring system between the main blasting area and the location(s) subject to blast damage or annoyance.

416.3.4.4 Blast Monitoring Plan

Developer shall prepare a Blast Monitoring Plan that includes the following elements:

A. Types of instruments Developer proposes for use, including seismographs and transducers for ground vibration, and sensors for air-blast:

1. Seismographs must be capable of recording ground motion particle velocity for three mutually perpendicular components of vibration in the frequency range generally found with controlled blasting; and
2. Air-blast sensors must be specifically manufactured for the purpose of making blasting noise and sound pressure measurements;

B. Planned locations (distance and direction) of the monitoring instruments relative to blast locations;

C. Proposed methods of adjusting blast hole patterns, detonation systems, and/or stemming to prevent venting of blasts and to bring air-blast and noise levels produced by blasting operations within applicable limits.

D. Proposed method(s) of documenting occurrence of fly rock.

E. Qualifications and experience of the instrument operators.

F. Proposed methods to protect the public during blasting operations, including notifying the public, locations and types of signage, fencing, and look-outs.

Not later than 15 Business Days prior to the first test blast, Developer shall submit a Blast Monitoring Plan to ADOT review and comment.

416.3.4.5 Blasting Information Report

Developer shall prepare a Blasting Information Report that includes the following:

A. Names and experience of Blasting Supervisors and Blasters in Charge.

B. Methods for and locations of explosives storage, delivery, and handling; a scaled drawing of the location of any magazine to be located within five miles of the Site; and name and contact information for contact person responsible for assuring the security of blasting materials and supplies stored for use on the Project.

C. Name, address, and telephone number of all explosives suppliers; and identification of all explosives delivery vehicles and operators.

D. Manufacturers' safety data sheets (and cut sheets) for all explosives, primers, and initiators to be employed.

E. Methods Developer shall employ for traffic control and other public safety precautions in the use, storage, and transportation of explosives.

F. Materials, equipment, and excavation and/or blasting methods that Developer proposes to use to build stable finished rock cut slopes. This must include general methods and approach to blasting which account for the full range of geologic settings and physical conditions present on the Site; and must include description of how the method and approach accounts for various cut geometries, rock types, access problems, categories of fracturing and faulting, and required face contours.

G. Equipment Developer intends to use in or in support of blasting operations.

H. Methods for preventing fly rock.

I. Methods for preventing rock material from escaping the construction limits, and contingency measures for unanticipated rock-fall.

J. Method of vibration control, vibration monitoring instrumentation, and the identity of the person or persons collecting and analyzing the data.

K. Proposed sequence of excavation of the various major elements of the Project.

Not later than ten Business Days prior to commencing drilling and blasting operations, Developer shall submit a Blasting Information Report to ADOT for review and comment.

416.3.4.6 Test Blasting

Developer shall perform a minimum of one test blast at each cut location where blasting is proposed, to demonstrate the adequacy of the proposed Blast Monitoring Plan and the effectiveness of the proposed fly rock control measures. Developer shall prepare a Test Blast Report for each test blast. Each Test Blast Report must include the following:

A. Details of the test blast;

B. Locations and details of blast monitoring;

C. Fly rock control measures;

D. Results of ground vibration and air-blast monitoring;

E. Video of the test blast;

F. Documentation of fly rock, including particle sizes and travel distances; and

G. Developer’s proposed fly rock control measures based on the test blast results.

Not later than five Business Days after completion of each test blast, Developer shall submit the Test Blast Report to ADOT for review and comment.

416.3.4.7 Blasting Plan and Blasting Report

Developer shall prepare a Blasting Plan that includes the following:

A. Proposed excavation sequence for the cut.

B. Station limits of each proposed shot.

C. Elevations of the tops and bottoms of each lift.

D. For each shot, scale drawings showing plan and section views of all variations of the proposed drill pattern, including clearing limits, free face, burden, blast hole spacing, drill hole location, sub-drill depths, lift height, blast hole diameters, and blast hole angles. Developer shall account for location and attitude of significant fracturing, rock type changes, faulting, and special circumstances in the shot design.

E. For each shot, loading diagram showing powder factor, type and amount of explosives, primers, initiators, and locations and heights of stemming for all substantial variations within the pattern.

F. For each shot, the initiation method and sequence of blast holes, including delay times and delay system.

G. For each shot, fly rock control measures on each shot.

H. Estimated quantities of volume of rock in-place and length of both production and controlled blast drill holes.

I. Vibration criteria, predicted ground motions at sensors, and sensor locations including at existing landslides.

Developer shall record each blast on videotape. At the end of each month, Developer shall make the unedited videotape recording available at all times to ADOT. Not later than five Business Days prior to commencing drilling and blasting operations, Developer shall submit a Blasting Plan to ADOT for approval.

Developer shall prepare a Blasting Report for all blasts that includes the following:

A. The start and finish of drilling and loading, along with a log of actual explosive loading and any changes in pattern.

B. A copy of the blasting shop drawing.

C. Approximate average drilling rate, soft seams or faults, and any occurrences of water, lost circulation, voids, stuck drill steel, or other complications to drilling.

D. Depth measurements of all production and control holes.

E. Name of blasting foreman and date and time of blast.

F. Vibration and air blast records (original printout).

G. Video of each blast.

Within five Business Days after each blasting, Developer shall submit a Blasting Report to ADOT for review and comment.

416.3.5 Slope Stability and Protection

Developer shall ensure and maintain slope stability throughout the Project, both within and adjacent to the Schematic ROW, and including existing landslide areas. If any slope instability develops during construction, Developer shall cease all Work in the immediate area within and around the unstable ground until Developer has fully assessed the situation. Developer shall implement temporary slope stabilization measures to ensure the safety of the public and Developer's personnel prior to returning to Work in the area of unstable ground.

All permanent slope stabilization measures must meet the aesthetic treatment requirements of Section DR 450 and Section CR 450 of the TPs and must comply with the minimum global slope stability safety factors in accordance with the AASHTO *LRFD Bridge Design Specifications, the* FHWA *Soil Slope and Embankment Design and Construction - Reference Manual (FHWA-NHI-05-123, 2005)* and the FHWA *Rock Slopes - Reference Manual (FHWA-HI-99-007, 1998)*.

416.3.6 Instrumentation Report(s)

Developer shall prepare an Instrumentation Report(s) containing the data and results of the monitoring of instrumentation of all geotechnical Work that requires monitoring as described in Section DR 416.3.3.5 of the TPs. The Instrumentation Report(s) must include the following:

A. The types, locations, and depths of installed instruments;

B. Description of the reading procedures and frequencies;
C. Updated summary plots of readings;
D. A brief commentary which identifies all significant changes in the measured parameters since the previous Instrumentation Report;
E. Probable causes of these changes; and
F. Recommended mitigation action(s).

Developer's data interpretation procedure must include evaluation of the data to determine reading correctness and to detect changes requiring immediate action. Developer shall correlate instrument readings with other factors (cause and effect relationships) and evaluate the deviation of the readings from the predicted behavior. The Instrumentation Report must also include a certification from the Geotechnical Manager confirming that the objectives of the Instrumentation Plan have been achieved and construction of the subject Work may proceed. In accordance with the requirements described in the Instrumentation Plan, Developer shall submit Instrumentation Report(s) to ADOT for review and comment. However, within three Business Days of each recording, Developer shall submit all Instrumentation Data for each recording to ADOT.

416.4 SUBMITTALS

Table 416-1 reflects a nonexclusive list of Submittals identified in Section CR 416 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 416-1
Nonexclusive Submittals List

Submittal	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Drilled Shaft Load Test Program	4	0	1	No later than 20 Business Days prior to performing the load test(s)	CR 416.3.1
Drilled Shaft Load Test Report	4	0	1	Prior to construction of any production drilled shafts in the area(s) represented by the load test(s)	CR 416.3.1
Drilled Shaft Installation Plan	4	0	1	Not later than 20 Business Days prior to drilled shaft construction	CR 416.3.1
Drilled Shaft Quality Control Report	4	0	1	Not later than ten Business Days prior to construction of any structure on the associated drilled shaft foundations	CR 416.3.1
Test Plot Slope Cut Plan	4	0	1	Not later than 15 Business Days prior to the first test blast	CR 416.3.4.1

Table 416-1 Nonexclusive Submittals List					
Submittal	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Blast Monitoring Plan	4	0	1	Not later than 15 Business Days prior to the first test blast	CR 416.3.4.4
Blasting Information Report	4	0	1	Not later than ten Business Days prior to commencing drilling and blasting operations	CR 416.3.4.5
Test Blast Report	4	0	1	Not more than five Business Days after completion of each test blast	CR 416.3.4.6
Blasting Plan	3	0	1	Not later than five Business Days prior to commencing drilling and blasting operations	CR 416.3.4.7
Blasting Report(s)	4	0	1	Not later than five Business Days after blasting	CR 416.3.4.7
Instrumentation Report(s)	4	0	1	In accordance with the requirements in the Instrumentation Plan	CR 416.3.6
Instrumentation Data	5	0	1	Within three Business Days of each recording	CR 416.3.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 417 EARTHWORK

417.1 GENERAL REQUIREMENTS

Developer shall perform all earthwork operation Work in compliance with the requirements of Section CR 417 of the TPs.

417.2 ADMINISTRATIVE REQUIREMENTS

Developer shall perform earthwork operation Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

417.3 CONSTRUCTION REQUIREMENTS

417.3.1 Waste Material

Developer acknowledges and agrees that all material that is not used for the Project (i.e. waste material) is the property of Developer. Developer shall be responsible for disposal of waste material at suitable waste disposal locations. The final location of waste material must not be within ADOT ROW.

417.3.2 Borrow

Developer shall evaluate and determine that borrow source complies with the ADOT Standard Specifications. Developer shall secure the borrow source, haul borrow material, and obtain all permits required by Governmental Entities.

417.3.2.1 Environmental Analysis

For the purposes of this Section CR 417.3.2.1 of the TPs, the definition of a haul road is any road on material excavation, processing or crushing sites, and any road between the respective site and a public highway that Developer may use.

Developer shall prepare an Environmental Analysis if any of the following conditions applies to Developer:

A. If Developer elects to provide material from any source other than a source for which ADOT has prospected, taken samples, tested, or prepared an Environmental Analysis, and which might be available for Developer's use, including commercial operations;

B. If Developer elects to use any site to set up a plant for the crushing or processing of base, surfacing, or concrete materials, not located on a site furnished by ADOT or the site of a commercial operation. Developer may request an exemption from the requirement under this subsection B to prepare an Environmental Analysis if all of the following conditions apply:

1. The site is exclusively used for the processing of materials;
2. The site will not be used for excavation of borrow material;
3. The site was developed as a processing area on or before January 1, 1999;
4. The site is currently operating as a processing area; and
5. The plant is located within that portion of the site that was disturbed prior to January 1, 1999; or

C. If Developer requests that ADOT approve access to controlled access highway at points other than legally established access points.

The Environmental Analysis must address all environmental effects, including the following:

A. The location of the proposed source and haul road, and the distance from the source to either an existing highway or an established alignment of a proposed Federal, State or County highway along with vicinity maps, sketches or aerial photographs.

B. The ownership of the land.

C. The identity and location of nearby lakes, streams, parks, wildlife refuges and other similar protected areas.

D. The former use, if known, of the source and haul road, and their existing condition.

E. The identification of present and planned future land use, zoning, etc., and an analysis of the compatibility of the removal of materials with such use.

F. The anticipated volume of material to be removed; the width, length and depth of the excavation; as well as the length and width of the haul road, and other pertinent features and the final condition in which Developer shall leave the excavated area and haul road, such as sloped sides, topsoil replaced, the area seeded, etc.

G. The archaeological survey of the proposed source prepared by a person who complies with the Secretary of the Interior's Professional Qualification Standards (48 FR 44716) and possesses a current permit for archaeological survey issued by the ASM. Developer shall prepare the survey in a SHPO standardized format. The survey must identify all historic properties within the area of potential effect, as defined by the National Historic Preservation Act (36 CFR 800.4). This includes the materials source, processing area, and the haul road. Additionally, the survey report must identify the effects of the proposed source on any historic properties within the area of potential effect, and recommend measures to avoid, minimize or mitigate those effects.

H. If the proposed source or haul road utilizes prime and unique farm land or farm land of statewide importance, a description of such remaining land in the vicinity and an evaluation whether such use precipitates a land use change.

I. A description of the visual surroundings and the impact of the removal of materials on the visual setting.

J. The effect on access, public facilities and adjacent properties, and mitigation of such effects.

K. The relocation of businesses or residences.

L. Procedures to minimize dust in pits and on haul roads and to mitigate the effects of such dust.

M. A description of noise receptors and procedures to minimize impacts on these receptors.

N. A description of the impact on the quality and quantity of water resulting from the materials operation. Developer shall address the potential to introduce pollutants or turbidity to live streams and/or nearby water bodies. Developer shall coordinate measures to mitigate potential water quality impacts through the EPA, for sites located on tribal land, and the ADEQ, for sites located on non-tribal land.

O. A description of the impact on endangered or threatened wildlife and plants and their habitat. Developer shall coordinate the analysis of potential impact to plants and wildlife through the AGFD and U.S. Fish and Wildlife Service. Developer shall coordinate compliance with the Arizona Native Plant Law through the Arizona Commission of Agriculture and Horticulture.

P. A discussion of the effects of hauling activities upon local traffic and mitigating measures planned where problems are expected.

Q. A description of the permits required, such as zoning, health, mining, land use, flood plains (see Section 404 of the Clean Water Act), etc.

R. The effect of removing material and/or stockpiling material on stream flow conditions and the potential for adverse impacts on existing or proposed improvements within the flood plain that might result from these activities. Developer shall coordinate measures to mitigate potential water quality impacts through the EPA, for sites located on tribal land, and the ADEQ, for sites located on non-tribal land.

Guidance in preparing the environmental analysis is available on ADOT's Internet Website (https://azdot.gov/business/environmental-planning) through Environmental Planning, or by calling ADOT Environmental Planning at 602-712-7767.

Developer may incorporate an existing Environmental Analysis approved after January 1, 1999, if the analysis is updated to be in compliance with current regulations and with Developer's planned activities.

Regulatory changes, specification changes, or other reasons might preclude the approval of a materials source. Developer acknowledges and agrees that ADOT may refuse to approve a material source even if ADOT has approved or approves the source for other projects.

The Environmental Analysis must include all areas of proposed excavation, crushing, processing, and haul roads.

Not later than 45 days prior to use of the borrow site, Developer shall submit the Environmental Analysis to ADOT for approval in its sole discretion. ADOT will review the Environmental Analysis and consult with the appropriate jurisdictions and/or Governmental Entities within 45 days after receipt of the Submittal, or subsequent resubmittal.

417.3.3 Material Sources

Developer shall evaluate and secure material source and obtain all necessary haul permits required by Governmental Entities.

The Dugas Pit is prohibited as a material source for the Project.

417.3.4 ASLD Material

Material excavated from ASLD property that is not relocated on ASLD property will be subject to an ASLD mineral rights fee. Developer shall track all material excavated from ASLD property and the location where the material is relocated. Quantities of material removed from ASLD property and not relocated on ASLD property will be measured according to ASLD requirements and policies.

417.4 SUBMITTALS

Table 417-1 reflects a nonexclusive list of Submittals identified in Section CR 417 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 417-1 Nonexclusive Submittals List					
Submittal	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Environmental Analysis	1	0	1	Not later than 45 Days prior to use of the borrow site	CR 417.3.2.1

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 419 PAVEMENT

419.1 GENERAL REQUIREMENTS

Developer shall perform all pavement Construction Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

419.2 ADMINISTRATIVE REQUIREMENTS

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419.3 CONSTRUCTION REQUIREMENTS

419.3.1 Paving Plans

419.3.1.1 Plan Requirements

Developer shall prepare Paving Plans for the Project. Each Paving Plan must include the following:

A. A detailed sequence and schedule of asphaltic concrete (AC) pavement placement operations, including the following:
   1. Width of pavement to be placed;
   2. Proposed equipment;
   3. Production rates;
   4. Working hours;
   5. Asphaltic concrete hauling; and
   6. Placement and compaction methods.

B. A detailed staking plan for subgrade controls, including offset requirements.

C. A Traffic Control Plan for pavement construction operations that includes provisions for the placement and maintenance of barriers required to protect the pavement from traffic.

419.3.1.2 Paving Plans Submittal

Not later than 20 Business Days prior to commencing the paving Work, Developer shall submit each Paving Plan(s) to ADOT for review and comment.

419.3.2 Pavement Subgrade Materials Requirements

Developer shall ensure and verify that the subgrade materials encountered or imported comply with the resilient modulus (flexible pavement), or other design subgrade support value as evaluated in accordance with the ADOT *Pavement Design Manual* and utilized by Developer for the pavement structural section design.

419.3.3 Asphaltic Concrete Pavement

Developer shall evaluate the underlying new asphaltic concrete pavement surface for smoothness prior to the placement of the surface treatment, when Developer shall place a surface treatment of AR-ACFC on a new asphaltic concrete pavement surface as part of the Project. In that event, Developer shall evaluate the asphaltic concrete pavement for smoothness for each 0.1 lane-mile increment in accordance with the provisions of *Arizona Test Method 829.* Developer shall not perform smoothness testing when the ambient air temperature is less than 40 °F, or during rain or other precipitation. Developer shall perform smoothness testing no earlier than ten Business Days and no later than one Business Day before placement of the asphaltic concrete pavement

final surface course. Developer shall perform smoothness testing on traffic lanes longer than 0.3 mile.

Developer shall repair any segment of asphaltic concrete pavement having an international roughness index (IRI) greater than 43 inches/mile.

Upon completion of any corrective actions, Developer shall retest the 0.1 lane-mile increments containing repaired areas in accordance with the provisions of *Arizona Test Method 829*.

Developer shall repair all existing asphaltic concrete pavement which is damaged during the Construction Work back to the pre-construction condition of the pavement.

419.3.4 Asphaltic Concrete Pavement Longitudinal Joints

The requirement for staggering of longitudinal joints for asphaltic concrete in Sections 406-6, 416-6 and 417-6 of the ADOT Standard Specifications shall not apply when tying into existing asphaltic concrete sections.

419.3.5 Asphalt Rubber-Asphaltic Concrete Friction Course

Developer shall evaluate the AR-ACFC surface treatment for smoothness for each 0.1 lane-mile increment in accordance with the provisions of *Arizona Test Method 829*. Developer shall not perform smoothness testing when the ambient air temperature is less than 40 °F, or during rain or other precipitation. Developer shall perform smoothness testing on traffic lanes longer than 0.3 mile.

Developer shall repair full lane widths in any segment of AR-ACFC having an IRI greater than 43 inches/mile.

Upon completion of any necessary corrective actions, Developer shall retest the 0.1 lane-mile increments containing repaired areas in accordance with the provisions of *Arizona Test Method 829*.

419.3.6 Asphaltic Concrete Mix Design

Developer shall specify the mix design parameters for asphaltic concrete including unit weight, asphalt cement percentage, effective voids range in percent, and ratio of the mix design composite gradation target for the No. 200 US Standard sieve (including mineral admixture) to the effective asphalt content.

419.3.7 Pavement Mix Design

Developer shall prepare Pavement Mix Designs for the Project, in accordance with ADOT Standard Specifications. ADOT and the Developer shall treat Pavement Mix Designs as Shop Drawings and Working Drawings. Not later than 20 Business Days prior to paving, Developer shall submit Pavement Mix Designs to ADOT for review and comment.

419.3.8 Asphaltic Concrete Millings

Milling materials must be obtained from within the Project limits. Milling materials must be minus 1 ½-inch and approved by ADOT for suitability. Screening will not be required; however, ADOTs determination of the suitability of the material shall be final. Bituminous material shall be SS-1 and shall conform to the requirement of Section 1005 of the ADOT Standard Specifications.

Construction requirements shall conform to the requirements of Subsection 205-3 of the ADOT Standard Specifications.

Prior to placing the asphaltic concrete millings for the crossovers, Developer shall scarify, place materials, reshape, regrade and compact the subgrade as directed by ADOT. Prior to the

compaction of the milling materials, an application of SS-1, diluted with 1 part water to 1 part SS-1, shall be applied at a rate of 0.20 gallon per square yard. The SS-1 shall be given time to penetrate and soften the existing asphaltic concrete milling material.

Milling materials shall be placed and compacted in accordance with the applicable requirements of Subsection 203-10 of the ADOT Standard Specifications.

419.4 SUBMITTALS

Table 419-1 reflects a nonexclusive list of Submittals identified in Section CR 419 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 419-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Paving Plans	4	0	1	Not later than 20 Business Days prior to paving	CR 419.3.1.2
Pavement Mix Designs	4	0	1	Not later than 20 Business Days prior to paving	CR 419.3.7

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 420 ENVIRONMENTAL

420.1 GENERAL REQUIREMENTS

Developer shall perform all Construction Work in compliance with the requirements of Section CR 420 of the TPs.

420.2 ADMINISTRATIVE REQUIREMENTS

420.2.1 Standards

Developer shall perform all Construction Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

420.3 CONSTRUCTION REQUIREMENTS

420.3.1 Project Environmental Commitment Requirements

The table provided in TP Attachment 420-1 includes the Project-specific environmental commitments associated with the CE. ADOT has reviewed and approved the environmental mitigation measures for the construction of the Project. These mitigation measures are not subject to change without prior written approval from ADOT in its sole discretion. Developer shall comply with and perform all environmental commitments and requirements set forth in TP Attachment 420-1, except performance of those requirements specifically identified as an ADOT action.

If, at any time, Developer fails to comply with any applicable Laws, including any Environmental Laws, or Governmental Approvals, ADOT may suspend the Work, in whole or in part, under Section 20.2.1 of the Agreement until such time as the errors, deficiencies, or noncompliant situations have been corrected. Developer shall be responsible for any associated monetary fines or any environmental restoration activities required in resolving violations that are the responsibility of Developer.

420.3.2 Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs

420.3.2.1 General

Developer shall minimize the effect of Developer's operations upon the landscape and shall maintain natural surroundings undamaged.

The General Aquifer Protection Permit 1.12 (Arizona Administrative Code 18-9-B301.L) established by the ADEQ requires control of wastewater to an impoundment from washing concrete from trucks, pumps, and ancillary equipment. Developer shall comply with the General Aquifer Protection Permit 1.12 (Arizona Administrative Code 18-9-B301.L).

Developer shall implement the requirements of the AZPDES for erosion and sediment control as specified in the "General Permit For Discharge From Construction Activities to the Waters Of The United States," issued by the ADEQ (hereinafter, the AZPDES *General Permit*).

Developer shall prepare a SWPPP with sufficient erosion and sediment control Best Management Practices (BMPs) to assure that discharges attributable to the Project do not cause or contribute to any increase in pollutants entering surface waters.

Useful information related to stormwater controls and erosion and sediment control measures is presented in the *Fact Sheet For The Issuance Of An AZPDES Construction General Permit*, available from ADEQ, and the ADOT *Erosion and Pollution Control Manual*, available on ADOT's

website at https://azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development/erosion-and-pollution.

Developer shall ensure that the Construction Work includes providing, installing, maintaining, removing, and disposing of erosion and sediment control measures, such as gravel filter berms, dikes, catch basin inlet protection, end of pipe filtering devices, silt fences, dams, sediment basins, earth berms, netting, geotextile fabrics, slope drains, seeding, stream stabilization, and other erosion control devices or methods. Erosion control, as hereinafter referenced, must include control of erosion and the mitigation of any resulting sediment. Erosion control measures may be temporary or permanent. Developer shall prepare and process all documents required in the AZPDES *General Permit*.

Except with respect to the Notice of Intent (NOI), Developer shall provide all signatures required of [or from] Developer by the AZPDES *General Permit*, including those required for the Notice of Termination (NOT), SWPPP, and Inspection reports. The signature must be by a duly authorized representative of Developer, as defined in Part VIII.J.2 of said permit. A responsible corporate officer of the Developer, as defined in Part VIII.J.1 of the AZPDES *General Permit*, must sign the NOI.

Developer shall not start any clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP until ADEQ reviews and approves of the SWPPP (if requested), completion and filing of the NOI in accordance with Section CR 420.3.2.2.3 of the TPs, and implementation of the SWPPP.

420.3.2.2 Stormwater Pollution Prevention Plan (SWPPP)

420.3.2.2.1 General

Developer shall include descriptions of the following in the SWPPP: temporary and permanent erosion control measures; a project description; percent impervious area, including paved areas, rooftops, and other similar surfaces, for both pre-construction and post-construction conditions; inspection schedule; and site specific diagrams indicating proposed locations where erosion and sediment control devices or pollution control measures are required during successive construction stages. Developer may also include an initial schedule detailing the proposed sequence of construction and related erosion control measures in the SWPPP.

Developer shall review the preliminary information, including the erosion control features and phasing, evaluate all SWPPP requirements for adequacy in addressing pollution prevention during construction, and prepare a draft SWPPP, including monitoring plan, for review and approval by ADOT.

Developer shall designate the Erosion Control Coordinator (ECC) as an authorized representative of Developer in accordance with Part VIII.J.2 of the AZPDES *General Permit* to be responsible for finalization and implementation of the SWPPP, as well as all other applicable requirements of the AZPDES *General Permit*. Developer's ECC must be approved as specified in Section GP 110.08.3.15 of the TPs before the draft SWPPP can be finalized and submitted to ADOT.

The SWPPP that includes all information required in the AZPDES *General Permit*, including a site map; identification of receiving waters impacted by the project; a list of potential pollutant sources; inspection schedule; any onsite or off-site material storage sites; additional or modified stormwater, erosion, and sediment controls; procedures for maintaining temporary and permanent erosion control measures; a list of Developer's pollution prevention practices; and other permit requirements stipulated in the AZPDES program as well as other applicable state or local programs. Developer shall coordinate with ADOT on all such additional information.

The draft SWPPP must also identify any potential for discharge into a municipal separate storm sewer system (MS4), including the name of the owner/operator of the system.

Unless otherwise approved by ADOT, Developer shall not expose a surface area of greater than 750,000 square feet to erosion through clearing and grubbing, or excavation and filling operations within the Project ROW, until Developer installs temporary or permanent erosion control devices for that portion of the Project and obtains approval by ADOT.

Developer shall indicate each 750,000 square-foot sub-area in the draft SWPPP, along with proposed erosion control measures for each sub-area. The draft SWPPP must also include the sequence of construction for each sub-area, and installation of the required temporary or permanent erosion control measures.

Developer shall give installation of permanent erosion control measures priority over reliance on temporary measures. Developer shall install permanent erosion control measures and drainage structures as soon as possible in the construction sequencing of the Project. However, except as specified in Part IV, Section B.2 of the AZPDES *General Permit* and approved by ADOT, Developer shall install erosion control measures no later than 14 Days after the temporary or permanent cessation of construction activity for the affected sub-area.

Temporary or permanent sedimentation basins might be required for reducing or eliminating sediment from stormwater runoff. When required, Developer shall complete such basins before initiation of any clearing and grubbing of the Site. Developer shall evaluate the need and attainability of installing sediment basins as described in the AZPDES permit and include the basins in the draft SWPPP as appropriate. The draft SWPPP must also identify and address erosion control at on-Site and off-Site fueling operations, waste piles, material storage sites, dedicated asphalt and concrete plants, Developer-use areas, storage areas, and support activity locations, and other Developer's Temporary Work Areas that Developer and/or others solely for the Project and that the AZPDES *General Permit*. The draft SWPPP must also accommodate all requirements for Developer's pollution prevention practices specified in Section CR 420.3.2.2.4 of the TPs. In addition, the draft SWPPP must specifically identify the erosion control measures proposed by Developer during any vegetation removal and salvaging phases of the Project (such as during timber harvesting or native plant salvaging).

The draft SWPPP must specify the mechanism whereby Developer or ADOT may propose revisions to and incorporate such revisions into the SWPPP during the Term, including review and approval procedure.

Developer shall list the Subcontractors responsible for implementing all or portions of the SWPPP in the draft SWPPP, along with the measures for which such Subcontractors are responsible.

Developer shall submit two copies of the draft SWPPP, including all information specified herein, to ADOT in accordance with Section CR 420.3.2.2 of the TPs, but not later than 14 Days from ADOT's approval of Developer's ECC.

Notice of Intent and Notice of Termination blank forms are available on the internet at https://azdeq.gov/node/2964.

The finalized SWPPP shall meet the terms and conditions of the AZDPES *General Permit* and be compatible with construction sequencing and maintenance of traffic plans.

The Plans must include preliminary erosion control measures and additional information Developer shall include in the SWPPP, as specified in Section CR 420.3.2.2 of the TPs. Prior to ground disturbance activities, NTP2 and submittal of the NOI, Developer shall submit a draft SWPPP to ADOT for approval. When ADOT approves of the draft SWPPP, ADOT and Developer

will sign the finalized SWPPP. After finalizing and signing the SWPPP, Developer shall submit a copy of the SWPPP to ADOT.

Developer shall implement the requirements of the SWPPP. Developer shall not start any clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP until ADOT receives the signed SWPPP, issuance of NTP2, completion and finalization of the NOI in accordance with Section CR 420.3.2.2.3 of the TPs, and implementation of the SWPPP.

Developer shall maintain all related erosion control elements in proper working order throughout the D&C Period. Work under this section also includes Inspections, record-keeping, and implementation of pollution prevention practices as described in Section CR 420.3.2.2.4 of the TPs.

Developer shall update the approved SWPPP whenever a change in design, construction method, operation, procedures for Maintenance During Construction, or other activity might cause a significant effect on the discharge of pollutants to surface waters, or when Developer and/or others propose a change to the personnel responsible for implementing any portion of the SWPPP. Developer shall amend the SWPPP if Inspections indicate that the SWPPP is ineffective in eliminating or significantly reducing pollutants in the discharges. Developer shall make all necessary modifications to the SWPPP within seven days following the Inspection that revealed the deficiency. After amending the SWPPP, Developer shall submit the amended SWPPP to ADOT for approval. ADOT and Developer shall jointly approve and sign each revision to the SWPPP before implementation.

Developer shall keep a copy of the approved SWPPP at the Site during the D&C Period.

ADEQ can notify Developer at any time that the SWPPP does not comply with the permit requirements. Developer shall immediately notify ADOT of any such ADEQ notifications. The notification might identify the provisions of the permit that Developer and/or others are not meeting and parts of the SWPPP that require modification. Within 15 Business Days of receipt of such notification from ADEQ, Developer shall make the required changes to the SWPPP and submit a written certification to ADEQ that Developer has made the requested changes.

Developer' ECC shall ensure that the Erosion Control Coordinator maintains the SWPPP along with completed Inspection forms and other AZPDES records in a three ring binder. The ECC must maintain a current copy of the SWPPP, including all associated records and forms, at the Site during the D&C Period. The SWPPP must be available for inspection by ADEQ, and other entities identified in the AZPDES *General Permit*, and for use by ADOT. Developer shall ensure that the ECC provides copies of any or all of such documents to ADOT upon request. Developer shall provide such copies within three Business Days of the request.

As a condition to Final Acceptance, Developer shall deliver to ADOT the SWPPP (including inspection forms) and all data used to complete the NOI and NOT. Developer shall retain its own records for a period of at least three years from the filing of Developer's NOT.

Developer shall be responsible for all requirements under other environmental statutes or regulations by any condition of the AZPDES *General Permit* or the SWPPP.

420.3.2.2.2 Monitoring Plan

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420.3.2.2.3 Notice of Intent and SWPPP Submittal

Developer shall ensure that a responsible corporate officer of Developer, as defined in Part VIII.J.1 of the AZPDES *General Permit*, registers on the ADEQ site described below.

After ADOT's approval of the SWPPP Developer shall file the NOI electronically through ADEQ's myDEQ website at https://azdeq.gov/mydeq. Developer's submission of the NOI serves as Developer's certification that Developer and its Subcontractors have read and shall comply with all provisions of the AZPDES *General Permit*.

If requested by ADEQ, through filing of the NOI, the Developer shall submit the SWPPP to ADEQ for their review. If SWPPP review is requested, notification from ADEQ is expected to occur within 32 Business Days of submittal as to whether Developer may proceed with Work under the AZPDES *General Permit*, or whether the SWPPP needs revisions. If notification is not received in this period, Developer shall contact ADEQ and verify that the SWPPP has been received and accepted prior to commencement of Work.

If ADEQ determines that revisions are necessary or appropriate, Developer shall make the necessary changes and, after acceptance by ADOT, resubmit the SWPPP to ADEQ for approval. Prior to approval, ADEQ can require that Developer modify the SWPPP to implement specific controls or design criteria. When re-submittal is required, Developer shall not begin SWPPP implementation until ADEQ provides final approval.

Developer should anticipate needing a minimum of seven weeks for the ADEQ review process, during which period Developer shall not start or otherwise perform any clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP.

Prior to any ground disturbing activities, Developer shall contact ADOT to verify the NOI submission. At any time after authorization, ADEQ can determine that Developer's stormwater discharges might cause or contribute to non-attainment of any applicable water quality standards. If ADEQ makes that determination, ADOT expects Developer to receive written notice of the same from ADEQ. In such event, Developer shall develop a supplemental erosion control action plan describing SWPPP modifications to address the identified water quality concerns. If the written notice from ADEQ requires a response, failure to respond in a timely manner constitutes a permit violation. All responses must be in accordance with the AZPDES *General Permit*.

If there is a potential to discharge into a municipal separate storm sewer system (MS4), Developer shall submit a copy of the authorization certificate to the owner/operator of the system. In addition, if Developer is operating under an approved local sediment and erosion plan, grading plan, or stormwater management plan other than the Stormwater Management Plan, Developer shall submit a copy of the authorization certificate to the local authority upon its request.

Developer shall post its NOI and the information required in the AZPDES *General Permit* on the construction site bulletin board throughout the D&C Period. Developer shall also keep a copy of the AZPDES *General Permit* at the Site throughout the D&C Period at all times.

420.3.2.2.4 Pollution Prevention Practices and Requirements

The SWPPP must specify Developer's pollution prevention practices and requirements, including vehicle wash down areas, onsite and offsite tracking control, protection of equipment storage and maintenance areas, methods to minimize generation of dust, and sweeping of highways and roadways related to hauling activities. Developer shall show each planned location of service and refueling areas on the SWPPP's site map. Developer shall also show changes to Developer's pollution prevention practices relating to construction phasing on the SWPPP.

Developer shall prevent pollution of streams, lakes, reservoirs and other surfaces and subsurface waters with fuels, oil, bitumen, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals, or other Hazardous Materials. Developer shall not discharge any of these materials into any channels leading to streams, lakes, reservoirs or other surface and subsurface waters. The SWPPP must include the implementation of spill prevention and material management controls and practices to prevent the release of pollutants into stormwater. The SWPPP must also provide storage procedures for chemicals and construction materials, disposal procedures, cleanup procedures, Developer's plans for handling such pollutants, and other pollution prevention measures as required.

Developer shall locate machinery service and refueling areas away from streambeds or washes, and in a manner that prevents discharges into steams or washes.

Developer shall dispose of waste materials from blasting, including explosives containers, offsite in accordance with applicable federal regulations. Developer shall remove from the Site (including Developer's Temporary Work Areas) and dispose of waste materials, such as used cans, oils, machine and equipment parts, paint, Hazardous Materials, plastic and rubber parts, discarded metals, and building materials, according to applicable State and federal regulations.

Where Developer's Work encroaches on a running or intermittent stream, Developer shall construct and maintain barriers between the Work areas and the streambed adequate to prevent the discharge of any contaminants. Developer shall identify in the SWPPP the location of streams that might be subject to such effects and the specific types of barriers proposed for protecting these resources.

Unless otherwise approved in writing by ADOT, Developer shall not ford running streams with construction equipment.

Developer shall not construct temporary bridges, unless authorized by permitting through the applicable Governmental Entity with jurisdiction. Developer shall not operate equipment in running streams.

Developer shall clear streams, lakes, reservoirs and other surface waters of all falsework, piling, debris, or other obstructions resulting from Developer's activities, inadvertently placed thereby or resulting from construction operations, within 24 hours from the time Developer or any of its Subcontractors first observes or is notified of the obstruction.

Developer shall include spill prevention, containment, and counter measures in the SWPPP if the volume of fuel in a single container exceeds 660 gallons, or if the total fuel storage volume at any one site exceeds 1,320 gallons.

In the event of a Release of Hazardous Materials, Developer shall modify the SWPPP as necessary within 14 days of the occurrence. Developer shall modify the SWPPP to include a description of the Release of Hazardous Materials, the circumstances leading to the Release of Hazardous Materials, and the date of the Release of Hazardous Materials.

420.3.2.2.5 Inspections

420.3.2.2.5.1 General

The Erosion Control Coordinator must Inspect the Project at least every seven Days, and within 24 hours after any storm event of 0.50 inches or more. The Inspections must include temporary stabilized disturbed areas, areas used for storage of materials, locations where vehicles enter or exit the Site, and all of the erosion and sediment controls included in the SWPPP. Developer shall monitor rainfall on the Site with a commercially manufactured rain gauge accurate to within 0.10

inches of rain. Developer shall prepare Rainfall Records that include daily rainfall data from the rain gauges. On a weekly basis, Developer shall submit Rainfall Records to ADOT.

For each Inspection, the Erosion Control Coordinator must complete and sign a Compliance Evaluation Report as described in the permit. A sample Compliance Evaluation Report is included in the RIDs. Developer shall retain copies of the completed reports at the Site in the SWPPP file throughout the D&C Period. Following each inspection, Developer shall submit a copy of the Compliance Evaluation Report to ADOT.

420.3.2.2.5.2 Adjustments

When ADOT or Developer notes deficiencies during Inspections, Developer shall take immediate steps to make the required corrections as soon as practical. Developer shall correct deficiencies within the cure period set forth in item 14.1-09 of the D&C Period Noncompliance Event Table. Developer shall correct deficiencies noted between designated Inspections, but not later than four Business Days after observation.

Developer shall correct direct inflows of sediment into a watercourse by the end of the same day or work shift in which observation of the inflow.

420.3.2.2.6 Failure to Comply

ADOT may reject the Erosion Control Coordinator if Developer is not fulfilling the conditions of the AZPDES *General Permit* or the approved SWPPP. ADOT also may reject the Erosion Control Coordinator for failure of Developer to cure any noncompliance with requirements of Section CR 420.3.2.2 of the TPs within the cure period set forth in item 14.1-09 of the D&C Period Noncompliance Event Table.

If Developer fails to comply within such cure period, ADOT may direct Developer to stop all affected Work and propose a new Erosion Control Coordinator as soon as possible. However, Developer shall maintain all erosion and pollution control items specified in the SWPPP at all times. Developer shall not perform any additional Construction Work affected by the SWPPP until ADOT's approval of a new Erosion Control Coordinator.

420.3.2.3 Record of Major Construction and Erosion Control Measures

In addition to completing and signing the original Compliance Evaluation Report, Developer shall record the dates of the following activities, including the erosion control measures associated with these activities:

A. When major grading activities (including clearing and grubbing, excavation, and embankment construction) occur in a particular area or portion of the site.
B. When construction activities cease in an area, temporarily or permanently.
C. When an area is stabilized, temporarily or permanently.

Developer shall note such information within two Business Days after the occurrence of any of the listed activities and shall include a copy of the report in the SWPPP. Within three Business Days after completion or amendment to the Compliance Evaluation Report, Developer shall submit the amended Compliance Evaluation Report to ADOT.

420.3.2.4 Notice of Termination

No later than 15 Business Days after final stabilization in accordance with ADEQ, Developer shall submit the NOT electronically, through ADEQ's myDEQ website at https://azdeq.gov/mydeq.

When the approved SWPPP includes the use of Class II seeding as an erosion control measure, Developer shall maintain seeded areas for 45 days, as specified in the special provisions, and approved by ADOT before Developer's permitted submittal of the NOT. When Developer uses seeding as an erosion control measure in the SWPPP, such seeding cannot be part of the Landscaping Establishment Period.

420.3.3 Developer's Responsibility for Work

Developer shall implement the requirements of the AZPDES for erosion control due to stormwater runoff during construction, as specified in Section CR 420.3.2 of the TPs.

Until the Project Substantial Completion Date, Developer shall have the charge and care of the Site and Project and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from any other cause, whether arising from the execution or from the non-execution of the Work. Developer shall rebuild, repair, restore, and make good all injuries or damages to any portion of the Project or the Construction Work occasioned by any of the above causes before the Substantial Completion Date. If Developer obtains a Certificate of South Segment Substantial Completion, then the foregoing obligations of Developer with respect to the South Segment shall continue only until the South Segment Substantial Completion Date.

In case of suspension of Construction Work from any cause, Developer shall be responsible for the Project and shall prevent, including taking all necessary precautions to prevent, damage to the Project and provide for normal drainage. Developer shall also erect any necessary temporary structures, signs, or other facilities. During such period of suspension of Construction Work, Developer shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings and soddings, and shall protect new tree growth and other important vegetative growth against injury.

420.3.4 Stormwater Management Plan

Developer shall develop and maintain a Stormwater Management Plan that complies with applicable Law and shall obtain all Governmental Approvals in connection therewith. The Stormwater Management Plan must include provisions for control of sedimentation and erosion, runoff, SWPPP, and water quality during the D&C Period and the O&M Period. The ADOT *Erosion and Pollution Control Manual* includes specific guidelines for stormwater management. At the same time as the first Initial Design Submittal, Developer shall submit a Stormwater Management Plan to ADOT for approval.

420.3.5 Prevention of Air and Noise Pollution

Developer shall control, reduce, remove, and prevent air pollution in all its forms, including air contaminants, in the performance of Developer's Work.

Developer shall comply with the applicable requirements of A.R.S. § 49-401 et seq. (Air Quality) and with the Arizona Administrative Code, Title 18, Chapter 2 (Air Pollution Control).

Developer shall comply with all local sound control and noise level rules, regulations and ordinances that apply to the Work.

Developer shall ensure that each internal combustion engine used for any purpose on the Work or related to the Work is equipped with a muffler of a type recommended by the manufacturer. Developer shall not operate any internal combustion engine without its muffler being in good working condition.

Developer shall not burn trash, debris, plant material, wood, or any other waste materials.

420.3.6 Source of Water Supply and Quality Requirements

Unless otherwise specified in the Contract Documents, Developer shall be responsible for furnishing all water required for the Work and shall comply with any federal, state, or local requirements or permitting related to water use, if required.

420.3.7 Archaeological Features

420.3.7.1 Cultural Resources

ADOT directs the attention of Developer to A.R.S. Title 41, Article 4, Archaeological Discoveries, § 41-841, et seq. Such sections make it a felony, punishable by a fine and imprisonment, to investigate, explore, or excavate on State land, in or on prehistoric ruins, ancient burial grounds, fossilized footprints, hieroglyphics, and all other archaeological features of Arizona without permits from the ASM.

Section 6(a) of the Federal Archaeological Resources Protection Act of 1979 specifies that no person is permitted to excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public (Federal) lands or Indian lands unless such activity is pursuant to a permit issued under Section 4 of the Act. Violations of this act are a felony punishable by fine and imprisonment.

While, prior to construction, ADOT will endeavor to identify all cultural resources in the Schematic ROW, Developer might find previously unidentified archaeological, historical or paleontological materials or resources during the construction of the Project. When Developer encounters or discovers archaeological, historical or paleontological materials or resources during any activity related to the construction of the Project, Developer shall cease all further disturbances and activities within 100 feet of the materials or resources (300 feet if the discovery is potential human remains or funerary objects), secure the preservation of those materials or resources, and notify ADOT.

ADOT will direct how to protect the materials and resources. Developer shall not resume Construction Work in the Project area until ADOT directs Developer to do so.

420.3.8 Historic Preservation

ADOT directs the attention of Developer to Title 41, Chapter 4.2, Historic Preservation, § 41-861 et seq. Such sections make it a felony to intentionally possess, sell or transfer any human remain, funerary object or other artifact.

While, prior to construction, ADOT will endeavor to identify all items in the Schematic ROW that require Historic Preservation, Developer might find previously unidentified human remains, funerary objects, or artifacts during the construction of the Project. When Developer encounters or discovers human remains, funerary objects or artifacts during any activity related to the construction of the Project, Developer shall cease all further disturbances and activities within 300 feet of the feature, secure the preservation of those items, and notify ADOT.

ADOT will direct how to protect the items. Developer shall not resume Construction Work in the Project area until ADOT directs Developer to do so.

420.4 SUBMITTALS

Table 420-1 reflects a nonexclusive list of Submittals identified in Section CR 420 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum

and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 420-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Draft SWPPP	3	0	1	Prior to issuance of NTP 2, and filing of the NOI	CR 420.3.2.2
SWPPP	5	0	1	After finalizing and signing the SWPPP	CR 420.3.2.2
Amended SWPPP	3	0	1	After amending the SWPPP	CR 420.3.2.2
NOI	3	0	1	After the SWPPP has been approved by ADOT and prior to filing with ADEQ	CR 420.3.2.2.3
NOI and Authorization Certificate	5	0	1	Prior to any ground disturbing activities	CR 420.3.2.2.3
Rainfall Records	5	0	1	On a weekly basis	CR 420.3.2.2.5.1
Compliance Evaluation Report	5	0	1	Following each Inspection	CR 420.3.2.2.5.1
Amended Compliance Evaluation Report	5	0	1	Within 3 Days of completion or amendment to the Compliance Evaluation Report	CR 420.3.2.3
Notice of Termination	5	0	1	Concurrent with the filing of the NOT to ADEQ	CR 420.3.2.4
Stormwater Management Plan	3	0	1	At the same time as the first Initial Design Submittal	CR 420.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 425 PUBLIC INFORMATION

425.1 GENERAL REQUIREMENTS

During the D&C Period, Developer shall perform all public information work in compliance with the requirements of Section CR 425 of the TPs.

425.2 PUBLIC INVOLVEMENT PROGRAM

Developer acknowledges and agrees the stakeholder characteristics of the Project require the Developer, in close coordination with ADOT, to engage in a high degree of personal contact with property owners, residents, tourism agencies, traveling public, commercial transporters, local agencies and others. Personal contact by Developer shall be made possible by a "real time" public involvement (PI) program that must provide rapid responses to public questions, input and concerns. Developer also acknowledges and agrees that an exceptional awareness of the importance of the Project's PI program and close coordination with ADOT are required of Developer to ensure the communications effort in support of the Project is effective and successful as the D&C Work advances.

Allocation of PI program responsibilities between ADOT and Developer are reflected in Table 425-1. All documents are to be made available to FHWA for information and review as part of ADOT's partnership with FHWA.

Table 425-1
Public Involvement Program Responsibility Matrix

Activity	ADOT	Developer
Project-Specific PIP	Prepare, implement, update and revise quarterly or as needed. The Project-Specific PIP will comply with the ADOT PIP. ADOT will lead reevaluation of PIP every six months.	Review, contribute to and support the Project-Specific PIP and update as determined by ADOT. Developer shall participate in reevaluation of PIP every 6 months.
Project Collateral and notification	Using ADOT developed templates, create Project materials, including but not limited to: public outreach notifications, brochures, notification materials, graphics, PowerPoint presentations, maps, mailers, newspaper ads, scripts, and other collateral as needed to implement the PIP. Manage and document notification and collateral distribution process. Distribute materials through project website, social media, app, news media and government officials.	Developer shall keep ADOT informed daily of construction work and traffic changes to assist the program for community awareness and to avoid major congestion or other planned or unplanned site-specific impacts (included but not limited to utility interruptions, traffic incidents). Developer to provide information to ADOT at least 15 Business Days prior to restrictions or Closures. Developer to provide accurate and current content for outreach materials and support ADOT in preparation of outreach materials. Developer will distribute final materials to stakeholder database and all other impacted audiences, as needed, at least five Business Days prior to restrictions or Closures. Developer will go door-to-door to notify as necessary.

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
QA/QC	Develop and implement QA/QC process on all Project Collateral.	Developer to provide accurate and current content for outreach materials. Submit QA/QC form proving Developer conducted internal QA/QC process prior to submitting outreach materials to ADOT. All content must comply with the most-recent versions of the ADOT PIP and *Guide to Graphic and Editorial Standards for the Arizona Department of Transportation and Associated Press (AP) Style*, and be free of grammatical, spelling, style, punctuation, factual and other errors. Developer will produce deliverables that are easy for target audiences to read and understand and that avoid complicated or technical language. Deliverables must clearly and concisely explain restrictions, Closures, detour routes and other necessary and important design and construction information in alignment with the most current average reading level in the United States.
Reputation Management Plan	Review and approve, oversee and evaluate implementation, insert into PIP	Develop, maintain, and implement plan to be utilized in the event a Developer action negatively impacts ADOT reputation among Project stakeholders.
Crisis Communications Plan	Review and approve; insert into PIP	Develop and implement Crisis Communications Plan.
Weekly PI Team Meetings	Attend and participate.	Lead; prepare and submit agenda 24 hours prior to meeting; provide summary of discussion and action items 48 hours following meeting.
Weekly Developer MOT meetings	Attend and participate.	Attend and participate; take notes; track action items.
Community events	Develop master list of potential events, coordinate and participate in a minimum of four events per quarter during D&C Period and provide all branded event collateral. Meet with universities and high tourism areas between March and July and as needed during high construction activity periods to ensure ongoing communication.	At ADOTs request, Developer will provide supplemental Project Collateral related to design modifications, Project Schedule and impacts, and coordinate with Project team to resolve outstanding inquiries or complaints obtained at events. A minimum of one staff from Developer PI team will attend and actively participate in community events in person or virtually.

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
Inquiry response including but not limited to verbal, telephone, email, online, and mail	Review and approve responses.	24-hour Project information management and maintenance where: • Developer shall set up and maintain Project hotline and third-party answering service. • Manage ADOT project inbox • Receive, process, and respond to mailed inquiries • Log all inquiries, comments, and input in all formats Monitor, log, respond, within 24 hours of receipt.
Stakeholder Management System	Develop and provide Stakeholder Management System for all Project contacts, inquiries, submittals and public information Project Collateral.	Update Stakeholder Management System; submit bi-weekly Stakeholder Inquiry Reports; log in Stakeholder Management System within 48 hours of their occurrence and update as needed. If Stakeholder Management System is offline or unavailable for any reason, Developer will track all inquiries and interactions in another format to be uploaded into Stakeholder Management System when it becomes available.
Government Relations	Lead tours and establish tour procedures for elected and other officials from Government entities. Provide information, materials, safety, and equipment to be available for tours.	Support ADOT by assisting in the resolution of elected official inquiries and facilitating tours by coordinating with ADOT staff to oversee and maintain all safety protocols for ADOT and elected officials. Developer will immediately notify ADOT if contacted by any elected and other Government officials.
Media Relations	Lead tours and establish tour procedures for news media and plan and provide tours and safe interview locations in coordination with ADOT Communications and other appropriate ADOT personnel. Provide information, materials, and personal safety equipment for tours and planned media events.	At ADOT's request, provide detailed information to ADOT five days prior to scheduled media release; support ADOT media efforts by assisting in the resolution of media inquiries and facilitating media tours by coordinating with ADOT staff to oversee and maintain all safety protocols for ADOT and the media. Developer will also produce information, maps and graphics for media kits. Developer will

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
		immediately notify ADOT if contacted by any news media.
Stakeholder meetings	Manage notifications, prepare for, plan, set up, attend, conduct and document summary of meetings. Note: must comply with all pandemic health and safety guidance provided by the CDC when planning, providing, and attending in-person meetings.	At ADOTs request, Developer will provide supplemental Project Collateral related to design modifications, construction schedule and impacts, and coordinate with Project team to resolve outstanding inquiries or complaints. A minimum of one staff from Developer PI team will attend and actively participate in stakeholder meetings in person or virtually.
Community Presentations	Maintain presentation request database, coordinate logistics, provide Project support/materials and presentations, attend, present and document summary of presentations.	At ADOTs request, Developer will provide supplemental Project Collateral related to design modifications, Project Schedule and impacts, and coordinate with Project team to resolve outstanding inquiries or complaints. A minimum of one staff from Developer team will attend and actively participate in stakeholder meetings in person or virtually.
Public Open Houses (4)	Identify meeting locations, manage logistics; host virtual meeting website.	Develop all meeting Collateral (first draft submitted 30 days prior to event) and present the design overview and construction schedule. A minimum of three staff, including the PI Manager from Developer PI team will attend and actively participate in open houses in person or virtually. Log and address public inquiries. Draft and submit Public Open House Summary within 30 days of each event(s).
Construction Operations Survey	Develop, conduct and manage Construction Operations Survey, produced every six months, and associated processes for implementation; distribute electronically	Provide detailed construction information to assist in the development of the survey.
Title VI of the Civil Rights Act, the Americans with Disabilities Act and other applicable and required federal nondiscrimination regulations including but not limited to	Develop activities/techniques as part of the PIP to meet needs of all populations identified in the Project-Specific PIP.	Developer to comply with the ADOT and Project-Specific PIP to ensure all audiences are effectively reached and engaged.

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
Limited English Proficiency and Environmental Justice		
ADOT Project website	Develop and host the site; provide templates/specifications; manage all information updates; upload content provided by Developer, including text and graphics and provide timely updates with an adherence to deadlines for information, especially information that changes quickly. All content must be 508c compliant and comply with the ADOT PIP. Site will accommodate Project information from a mobile device.	Support ADOT and provide Project information promptly, including but not limited to Plans, Project Schedule updates, Project information and other information/graphics. Developer to provide accurate and current content to ADOT to upload to website. Submit QA/QC form proving Developer conducted internal QA/QC process prior to submitting materials and information to ADOT. All content must be 508c compliant, comply with the most-recent versions of the ADOT PIP and *Guide to Graphic and Editorial Standards for the Arizona Department of Transportation and Associated Press (AP) Style*, and be free of grammatical, spelling, Style, punctuation, factual and other errors. Developer will produce deliverables that are easy for target audiences to read and understand and that avoid complicated or technical language. Deliverables must clearly and concisely explain restrictions, Closures, detour routes and other necessary and important design and construction information in alignment with the most current average reading level in the United States.
Project photography and videography	ADOT to use Project photos and videos on Project website, other websites, online communications and all social media applications.	Share Project progress photographs and videos at ADOT's request throughout construction. Developer will coordinate with ADOT to accommodate onsite visits to comply with safety regulations.
Social media	Manage accounts; prepare graphics.	Provide supplementary content as requested by ADOT including timely responses to questions or comments.
Translation and interpretation of all Project materials and information	ADOT shall translate and provide interpretation for all materials and information that will be provided to the public and stakeholders as needed or in compliance with the translation requirements including ADA and results of the Limited English Proficiency and Four-Factor Analyses	Provide ADOT with accurate and current content for outreach materials to be translated in a timely manner. Developer will go door-to-door to share information as necessary.

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
	on file with the ADOT Civil Rights Office. Without limiting the foregoing, translation of the following: brochures, flyers, mailers, newspaper ads, meeting/event signage, printed materials, explanations of diagrams or maps, and all materials available for attendees at any meetings. ADOT to provide interpreter as needed.	
Groundbreaking coordination	• Lead coordination meetings to discuss logistics, needs and other topics. • Oversee traffic operations and maintenance of traffic prior to, during and after event. • Coordinate and lead preparation meetings with first responders. • Develop, review, and distribute Project Collateral. • Coordinate with media and government agencies. • Outfit attendees with personal protective equipment • Develop and share social media content. • Attend first responder briefings.	• Attend coordination meetings to discuss logistics, needs and other topics, as determined by ADOT • Coordinate with Developer team to accommodate media event • Oversee and maintain all safety protocols prior to and during event.

Flex Lanes opening outreach	• Lead coordination meetings to discuss design, operation and schedule of Flex Lanes opening.
	• Public education
	  ○ Identify, lead and coordinate education and outreach opportunities.
	  ○ Identify, lead, produce and distribute Project Collateral, including graphic design, videography, and visualization tasks.
	  ○ Coordinate with media and PSA networks.
	  ○ Develop and share social media content
	• Agency outreach
	  ○ Coordinate and lead agency briefings.
	  ○ Provide Project Collateral to agencies.
	• Public safety
		• Participate in coordination meetings to discuss design, operation and schedule of Flex Lanes opening.
		• Support ADOT in the development, review and distribution of Project Collateral
		• Coordinate with Developer construction team to provide ADOT daily updates from Developer no later than 60 days prior to intent to open.
		• Public education
		  ○ Participate in and review education and outreach development, and review and distribution of Project Collateral, as determined by ADOT.
		  ○ Coordinate with Developer design and operations team for input, feedback and review on all Project

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
	○ Coordinate and lead meetings with first responders and towing companies.	Collateral prepared by ADOT for accuracy. • Agency Outreach ○ Attend and participate in agency briefings, as determined by ADOT. • Public Safety ○ Participate in meetings with first responders and towing companies, as determined by ADOT. • Business outreach ○ Distribute notice to stakeholders and local businesses via business walks and email distributions.

425.2.1 ADOT Public Involvement Plan

Developer shall follow the principles of the ADOT PIP and incorporate its guidelines throughout the D&C Period. All outreach content must comply with the most-recent versions of the ADOT PIP and *Guide to Graphic and Editorial Standards for the Arizona Department of Transportation and Associated Press (AP) Style*, and be free of grammatical, spelling, style, punctuation, factual and other errors.

The Developer shall coordinate with ADOT in implementing the PI program built on the following principles:

A. Public involvement activities must be directly linked to Project milestones, technical activities and, as appropriate, decision making;

B. Adequate opportunities for timely public involvement;

C. Reasonable access to technical and policy information must be available to the public throughout the D&C Period;

D. Demonstrate explicit consideration and response to public input;

E. Review the effectiveness of the PIP quarterly to ensure full and open access is being provided to all who are interested or who could be interested in the Project; and

F. Provide timely information to the public, Government Entities and other stakeholders, including those representing other local jurisdiction concerns as directed by ADOT. Must also provide timely information to ADOT for the agency's communication with the media, its internal audience, and other groups interested or affected by this project.

425.2.2 Project-Specific Public Involvement Plan

425.2.2.1 Goals and Objectives

Developer shall review, contribute to and support the ADOT-developed Project-Specific PIP, [to be included in the RIDs] to fulfil the following goals, objectives and activities:

A. Develop public understanding of the Project;

B. Outline the Project public involvement team, QA/QC process, and compliance with the PIP and all federal nondiscrimination regulations;

C. Actively provide opportunities for engaging in two-way information sharing and encourage participation from a broad range of community representatives, including business owners/operators, residents, community leaders and community organizations throughout the D&C Period;

D. Engage with stakeholders in necessary formats including but not limited to virtual and online formats to ensure that robust, meaningful, and inclusive engagement continues during the Pandemic and in compliance with Pandemic Law;

E. Develop and maintain accountability, credibility, and accessibility of ADOT and Developer with Project stakeholders;

F. Provide support to ADOT in its efforts to inform the media and maximize potential for informed traditional and new media coverage in a timely manner and in accordance with 24/7 media deadlines while recognizing the needs of different media outlets;

G. Allow a two-way flow of information and successful implementation of the Project among the project team;

H. Provide proactive and timely construction updates for ADOT to share publicly through all appropriate outreach tools to ensure traveling public and other impacted stakeholders are informed well in advance of construction or other project-related impacts;

I. Provide timely and appropriate communications and information in response to all crisis situations;

J. Reduce the probability of Project delays by preventing unnecessary disruptions and delays for motorists and neighboring properties;

K. Identify issues of concern for Project stakeholders prior to NTP2 and revisit needs throughout the Project, so issues may be addressed and/or mitigated;

L. Work closely with ADOT and Project stakeholders to keep them apprised of the Project Schedule and progress achieved to ensure their issues and concerns are addressed professionally and promptly by the appropriate staff;

M. Provide Project Collateral to ADOT and Stakeholders;

N. Investigate and resolve concerns and, in consultation with ADOT, provide direct responses to public comments regarding construction activities within the Site;

O. Ensure access to and from residences, businesses, schools, rest stops, and other properties within the Project;

P. Ensure safe movement of construction equipment, personnel, and materials to and from work zones, in a manner least disruptive to others;

Q. Minimize noise, light, and dust pollution and provide prompt, reasonable mitigation as necessary;

R. Avoid encroachment on private properties adjacent to the Site;

S. Maximize effectiveness of traffic control schemes;

T. Coordinate with concurrent activities on other projects in area adjacent to the Project, including the Interstate 10 Broadway Curve Improvement Project;

U. Follow the guidelines and best practices delineated by the International Association of Public Participation;

V. Solicit and consider the needs of those traditionally underserved by existing transportation systems to ensure that their involvement in decision-making helps prevent disproportionately high and adverse impacts upon such individuals and ensures that they receive a proportionate share of benefits of the Project. Traditionally underserved populations include, but are not limited to, low-income and minority households, disabled populations, and Native Americans;

W. Ensure that tight deadlines are met so that information may be effectively communicated to the public, stakeholders, the traveling public, and the media; and

425.2.2.2 Description of Activities

The Developer shall support the Project-Specific PIP in its entirety to accomplish the goals, objectives and activities described in Section CR 425 of the TPs, as follows:

A. Notify ADOT of activities and implement processes for preparing and distributing public information, including:
   1. Notice of traffic, Utility, or other service disruption, including timing and method of such notification in accordance with the Contract Documents;
   2. General construction progress updates;
   3. Process for contributing information as needed to all project information platforms and the development of Project Collateral;
   4. Support the development of Project Collateral in collaboration with ADOT;
   5. Distribution of Project information using Project Collateral templates (branded print and digital updates, alerts, notices, etc.), which will be provided by ADOT; and
   6. Public and stakeholder meetings (in-person or virtual), including timing and method of meeting notification;

B. Schedule of activities and timely notification thereof (to be distributed across ADOT platforms, e.g., website updates, collateral production, public meetings, summary reports, and public comment/contact and response logs);

C. Participation in community activities such as community and neighborhood celebrations and fairs, public/business organization events and homeowners' association meetings. This also includes organization of and participation in business walks, as determined by ADOT;

D. Creation of special event and holiday travel outreach plans. This includes outreach to major tourist attractions in central and northern Arizona (seasonal and non-seasonal);

E. 24-hour Project information management and maintenance where:
   1. Developer shall answer hotline calls Monday through Friday during regular business hours;
   2. Developer to use a third-party answering service for after-hours hotline calls; and
   3. Third-party answering service must determine urgency of inquiry; if urgent, Developer must respond and resolve issue in accordance with the PIP

F. Developer shall maintain the ADOT-owned Project e-mail account that connects to the ADOT-owned Stakeholder Management System;

G. Follow recommended strategies and techniques for addressing the communication needs of all populations, including Title VI populations, members of the disabled community and culturally diverse populations based on the limited English proficiency four factor analyses;

H. Support ADOT media relations procedures regarding media tour support, media event support, determining safe locations for media interviews, messaging, outreach materials, and media kits.;

I. Develop a Crisis Communications Plan that requires Developer to call or email ADOT within a half hour after becoming informed of any Emergency, Incident or other crisis affecting the Project requiring unexpected Closures or utility service disruptions;

J. Maintain ADOT-owned stakeholder database; and

K. Procedures for logging, responding to and documenting stakeholder and public comment, contact and inquiry.

425.2.2.3 Reputation Management Plan

Prior to NTP 2, the Developer shall create a multi-faceted, multi-lingual Reputation Management Plan to implement immediately if any employee, consultant, representative, or agent of Developer engages in any action that results in a negative impression of ADOT, its employees, or the Project and/or offends the public and/or stakeholders during the course of the D&C Work. The Reputation Management Plan shall be subject to ADOT review and approval in ADOT's good faith discretion. The Reputation Management Plan shall identify strategies and tactics that Developer will utilize, including paid advertising, press releases and/or statements, and other remediation tools, as well as the appropriate timeframe over which these strategies and tactics are to be employed. ADOT may require, in its sole discretion, that Developer immediately remove the individual(s) involved in the action from the Project. Developer shall not be entitled to an increase to the Contract Price, a Completion Deadline adjustment or any other Claim arising out of the preparation or implementation of the Reputation Management Plan. The need for implementation of the Reputation Management Plan may be determined at ADOT's sole discretion.

425.2.2.4 Crisis Communications Plan

Prior to NTP 2, the Developer shall create a Crisis Communications Plan. The Crisis Communications Plan shall be subject to ADOT review and approval in ADOT's good faith discretion. The Crisis Communications Plan shall set forth how Developer will respond to a crisis that affects the Project, which includes Emergencies and Incidents within the Project ROW, a sudden, catastrophic event that materially impairs the ability to use the freeway, materially and adversely impacts construction activities, requires Closures of an unusual or more frequent nature than normal, or otherwise creates a health or safety hazard. The Crisis Communications Plan shall include Developer's plan to support ADOT's dissemination of information on an expedited basis, including via messaging systems to motorists, to the media, and through social media to make the public aware of the crisis within 30 minutes of the crisis occurring.

425.2.2.4.1 Emergency Communication and Management

Developer shall take all actions indicated in the Crisis Communications Plan as and when required by circumstances addressed by the Crisis Communications Plan. Developer shall prepare a written report documenting the circumstances and actions taken and submit it to person(s) identified in the Crisis Communications Plan within 24 hours of the inception of such circumstances.

425.2.2.5 Weekly Public Involvement Meetings

Developer shall attend meetings as described in the PIP, including construction progress meetings to inform the community of its progress and to entertain comments and address concerns from the community. These meetings must be attended by the Public Relations Manager and, as appropriate, other Developer representative(s) with subject matter expertise.

On a weekly basis, the Public Relations Manager shall schedule and lead a weekly meeting with ADOT to provide a construction status report and a Traffic Report detailing upcoming anticipated impacts to traffic, as well as supporting graphics for both. Developer shall draft and send ADOT a meeting agenda for review 24 hours prior to the meeting and provide a summary of the meeting discussion and list of action items within 48 hours after the meeting.

Developer, in coordination with ADOT, shall ensure the subjects of community relations and community impact from construction operations are included on the agenda of each construction progress meeting.

Developer shall ensure that the Public Relations Manager participates in any other public involvement-related meetings that may be called as needed at the direction of and in coordination with ADOT.

Developer shall provide ADOT access to all Project meetings associated with traffic control planning by Developer.

425.2.2.6 Public Inquiries

Developer shall process and respond to all other inquiries, whether received verbally, by phone, by email, through the website, U.S. postal mail or other means, within 24 hours of receipt and provide inquiry reports or other notification regularly, as defined in the PIP.

Developer shall set up and manage a new Project telephone hotline. Subject to ADOT review and approval, Developer shall assign appropriate staffing to answer hotline calls Monday through Friday during regular business hours. Developer shall use a third-party answering service all other times. Third-party answering service must determine urgency of inquiry; if urgent, Developer must respond and resolve issue immediately. Developer shall develop appropriate messages and response protocols for after-hours callers, and log, respond to and document calls in accordance with the PIP.

Developer shall maintain the ADOT Project e-mail account through which the public can submit inquiries. Developer shall monitor the Project e-mail daily, draft responses for ADOT's review and approval and respond to messages within 24 hours. All messages and responses shall be documented in accordance with the PIP.

425.2.2.7 Media, Elected Officials and Key Stakeholders

Developer shall not communicate or schedule meetings with elected officials, news media, or key stakeholders identified by ADOT. Any requests for communications or meetings with elected officials shall be forwarded by email and a telephone call to the appropriate ADOT personnel (in accordance with the PIP) within two hours. ADOT will exclusively control coordinating the resolution of issues or complaints from the following:

A. Government Entities
B. Elected officials
C. High-profile businesses/tourism/university representatives
D. Media
E. Other key stakeholders, as determined by ADOT

Developer shall not speak to the media, elected officials or key stakeholders about the Project without prior authorization from ADOT. Developer shall immediately direct all questions from the media or elected officials to ADOT and copy news@azdot.gov. ADOT will exclusively control interfacing with the media and elected officials; however, Developer shall provide information, materials, public outreach notification(s) and/or a designated representative to be available for

media interviews as determined by ADOT. Unauthorized communication by Developer staff may require Developer to replace its employee(s) with an alternate staff member(s) possessing equivalent experience and approved by ADOT.

Not later than five Business Days prior to a scheduled media release, Developer shall submit Project details to ADOT to prepare a media release. Developer shall provide Project information and support to ADOT for response to all news media inquiries and events in a timely manner and within 24/7 media deadlines.

Developer shall comply with established procedures and processes to facilitate tours of the Site by media and elected officials. Developer shall ensure that ADOT always accompanies media and elected officials on the Site or in Project offices. Developer's support shall include providing water, media kits, personal protective equipment (PPE), safety escorts, transportation (to/from Project Office) lighting and safe locations for media and elected officials during live shots or on-site interviews.

425.2.2.8 Notification

Developer shall keep ADOT informed of Construction Work and traffic changes to assist the program for community awareness and to avoid major congestion or other site-specific conflicts. Developer shall:

A. Provide a minimum seven Business Day advance notice to ADOT of any traffic changes (other than Closures).

B. If construction activities that require notification have changed, Developer shall (re)notify public of changes within one hour from the time they are informed of any changes.

C. Provide information as requested for weekly construction status reports and traffic control reports in coordination with ADOT. Developer-provided information must discuss the next seven calendar days of traffic control schemes, locations and types of construction, potential impacts to traffic and the date and time for such impacts. Developer-provided information must form the basis for weekly email newsletters to be shared with the public which ADOT will distribute.

D. Provide day-to-day coordination and notification to affected property owners, businesses, and residents regarding disruptions attributable to the Construction Work scheduled in their areas.

E. Developer shall comply with the timing of notifications outlined in the Project-Specific PIP.

F. Distribute alerts to affected stakeholders through electronic distribution including providing information for ADOT's Project website and printed alerts via canvassing no later than seven Business Days prior to the start of the impact. Electronic distribution shall also occur through email using the Project stakeholder database.

G. Provide supplemental Project Collateral to ADOT. All such Project Collateral must follow the ADOT-developed templates and be provided in a format that can be used on ADOT's Project website and social media channels. Developer shall adapt these to optimal size and resolution for use on various mediums.

H. Provide an outreach plan for scheduled Closures that includes a description of actions to be taken and materials to be used to provide notice to the public. The initial plan and supporting graphics must be provided to ADOT no later than 30 days prior to the start of the impact, with the public receiving notice a minimum of seven Business Days prior to impact.

I. Developer PI team shall notify ADOT 15 Business Days prior to Major Closures and 10 Business Days prior to other restrictions to aid in the development of massaging and notification of Project stakeholders.

J. At ADOT's direction, hold construction briefings with businesses, schools, or any others whose access will be impacted, and provide them with printed information regarding the impact, schedule, any detours, and other relevant and useful information, a minimum of seven Business Days prior to the impact.

425.2.2.9 Stakeholder Pre-Construction Briefings

At ADOT's request, following issuance of NTP 1 Developer shall accompany ADOT and other designated Project representative(s) to preconstruction briefings to be held with primary stakeholders, including the general public; adjacent neighborhoods; communities and residential areas; schools including K-12, junior and community colleges and universities in central and northern Arizona; businesses; places of worship; nonprofit organizations; governmental officials and staff; news media; major tourist attractions in central and northern Arizona; and other stakeholders. In conjunction with ADOT, Developer shall become familiar with Project stakeholders and allow these stakeholders to become familiar with Developer, thus allowing each an opportunity to gain a greater mutual understanding of the challenges to be faced by each other throughout the D&C Period.

425.2.2.10 Public Open House

At least 30 days prior to commencement of Construction Work, Developer shall plan, develop Project Collateral for and participate in up to four public open houses (virtual if necessary, to comply with Pandemic Law) with the Project team and key stakeholders, property owners and tenants. If consistent with restrictions under Pandemic Law, the meetings will take place in locations within five miles of the Project area that are selected to maximize convenience for potential attendees. Developer shall develop all meeting Project Collateral and support ADOT in presenting the design overview and construction schedule. Developer shall introduce stakeholders to the Project, describe anticipated phasing, Closures and methods to be used to communicate traffic changes, alerts and restrictions and answer questions about the Project. At the meetings, Developer shall address community concerns and provide information on its construction approach and Emergency plan. Developer shall assist ADOT in meeting all ADA, 508c and Title VI requirements relating to the public open houses. Developer shall process and prepare for ADOT review and approval responses to all public input received at the public open houses.

425.2.2.11 Reporting and Tracking

Developer shall track all communications and activities, coordinate responses with ADOT, provide a record of response times to such communications and conduct a review of actions taken in response, as described in and consistent with the PIP. Developer shall use the following tracking mechanisms:

A. Developer will upload all contacts, inquiries, meeting materials, event summaries, field meetings and/or additional interactions with Project stakeholders and other Project Collateral to the Stakeholder Management System.

B. Developer shall prepare and submit a bi-weekly Stakeholder Inquiry Report to ADOT for review and comment every other Friday. The Stakeholder Inquiry Report must include all community and agency-initiated inquiries. The Stakeholder Inquiry Report must include a record of the nature of the inquiry and timeline of all follow up responses. The Stakeholder Inquiry Report must include tables and graphs to visually summarize the number, type, topic and other factors of the inquiries. Developer will log interactions within 48 hours of

their occurrence and will update the Stakeholder Management System as needed until inquiry has been resolved. If the Stakeholder Management System is offline or unavailable for any reason, Developer will track all inquiries and interactions in another format to be uploaded into the Stakeholder Management System as soon as it becomes available.

C. Developer shall provide ADOT with detailed construction information to assist ADOT in the development of a Construction Operations Survey every six months, with the last to be submitted after the end of the D&C Period. ADOT shall print up to 1,000 copies of each Construction Operations Survey and make them available to the public and other stakeholders in select areas throughout the Project area. Each Construction Operations Survey is intended to measure customer satisfaction with the Project regarding traffic control, dust control, noise control, access interference, encroachments onto private property, advance warnings of potential construction impacts on daily routines, and the reliability of information emanating from the Project. ADOT will disseminate surveys in areas affected by Construction Work, with the Project locations to be surveyed and based on magnitude of Construction Work (i.e., where magnitude of Construction Work has the greatest potential for adverse impacts to properties or the traveling public). ADOT shall poll residents, schools, businesses and motorists affected by construction using a methodology agreed to with ADOT in the PIP. ADOT shall provide survey results within 30 days after the close of the survey.

425.3 SUBMITTALS

Table 425-2 reflects a nonexclusive list of Submittals identified in Section CR 425 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals and Governmental Entities. Unless otherwise indicated, Developer shall submit all Submittals in both electronic format and hardcopy format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 425-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Reputation Management Plan	2	2	1	Prior to issuance of NTP 2	CR 425.2.2.3
Crisis Communications Plan	2	2	1	Prior to issuance of NTP 2	CR 425.2.2.4
Weekly Public Involvement Meetings	4		1	Agenda due 24 hours prior to meeting; meeting summary due 48 hours after meeting	CR 425.2.2.5
Traffic Alerts, Restrictions and Closures for ADOT Media	3		1	Submit Project information five Business Days prior to ADOT media release	CR 425.2.2.8
Public Open House	4	0	1	Draft collateral due 30 days prior to open house; summary due 30 days after open house	CR 425.2.2.10

Table 425-2 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Stakeholder Inquiry Report	4	2	1	Inquiry report due bi-weekly on Friday; log stakeholder interactions within 48 hours	CR 425.2.2.11

*Levels of Review

1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 430 UTILITIES

430.1 GENERAL REQUIREMENTS

Developer shall perform all Utility Adjustment Work in compliance with the requirements of the Agreement and Section CR 430 of the TPs.

430.2 ADMINISTRATIVE REQUIREMENTS

430.2.1 Standards

Developer shall perform all Utility Adjustment Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

430.2.2 Water and Sewer Lines

430.2.2.1 Developer Qualifications for Water and Sewer Lines

Developer shall ensure that any personnel of either Developer of a Subcontractor assigned to perform any Work on water or sewer lines have experience doing work for and are familiar with the requirements of the water/sewer owner/operator.

430.2.2.2 Sewage Discharge Prevention Plan

Developer shall prepare a Sewage Discharge Prevention Plan (SDPP) that describes the Construction Work that might affect active sanitary sewer lines and the methods Developer plan to prevent breakage and spills of such sanitary sewer lines. Construction Work that might affect an active sanitary sewer lines includes any of the following:

A. Any Construction Work that interrupts, diverts, relocates, plugs, or abandons a sewer line or service connection, or any brace, or tie into a sewer line or service connection.
B. Any Construction Work crossing beneath the pipe, at any angle, regardless of vertical separation.
C. Any Construction Work crossing over the pipe, at any angle, within two feet of the top of pipe.
D. Any Construction Work located parallel to the pipe within the following areas:
    1. For the area from the bottom of the pipe to two feet above the top of the pipe, any Work within two feet horizontally of the pipe wall.
    2. For the area below the bottom of the pipe, any Work located below an imaginary line beginning at the pipe springline and progressing downward at a slope of 1.5 feet vertically to 1.0 feet horizontally.

The SDPP must include the following for each location where Construction Work activity involves an active sanitary sewer line:

A. Description of the proposed Construction Work in general, including the reasons for the Work, scope, objectives, locations, dates, and estimated times that Developer shall conduct the Construction Work. Include Project Plan sheets detailing the proposed Work, and indicating the peak flow rates of active sewer lines, determined as specified.
B. Determination for all existing sanitary sewer pipes of whether the lines are active or abandoned and the peak flow rates of lines in service, as provided by the respective Utility Company.
C. List the personnel (crew foreman, superintendent, and manager) that are proposed to perform the Construction Work (include phone numbers).

D. Description of the Construction Work in step-by-step detail for each location, including excavation plans and how Developer shall identify and protect both the new and existing structures and utilities.

E. Detailed listing of any hardware, fittings, pipe plugs, flex couplings, tools, and materials needed to accomplish the Construction Work, and note the status of these items (on-hand, to be fabricated with expected availability date, on order with expected delivery date, etc.). Include any manufacturer's specifications or recommendations, especially for any pipe plugs, sewer line fittings, and patching materials.

F. List all major equipment Developer shall use to perform the Construction Work. Include in this item any pumps that Developer shall use to perform the Construction Work and the rated capacity of the pumps at the anticipated suction head.

G. List all equipment Developer shall use in the event of an unplanned release and specify how Developer shall use the equipment. Developer shall specify the locations of standby pumps in this item. The plan must indicate that Developer shall provide for delivery to the Site and placement into service of all standby equipment that Developer shall use in the event of an unplanned release within two hours of identification of any unplanned flow.

H. List the safety equipment Developer shall use, and describe any unique safety procedures. Cite the applicable OSHA standards covering the work.

I. Describe any contingency plans Developer shall implement in the event of unplanned releases and/or damage to existing facilities. List all personnel and Subcontractors that are responsible for responding to unplanned releases or damaged lines. Provide qualifications for all such personnel and Subcontractors, including education, formal training, and relevant experience.

J. Description of how Developer shall protect the public during the Work, and include or cite any applicable traffic control plans.

K. Description of how Developer shall secure, monitor, and remove temporary plugs or flow control devices.

The SDPP must include any diagrams or sketches for clarity. At least 15 Business Days prior to any Construction Work involving an active sanitary sewer line, Developer shall submit the SDPP to ADOT for review and comment. Developer shall submit the SDPP to the associated Utility Company concurrent with the Submittal to ADOT. Developer shall modify the SDPP as necessary throughout construction to include any new or revised information relevant to the items listed above. Developer shall resubmit the SDPP to ADOT for review and comment when changes occur.

430.2.2.3 Repairing Damaged Water and Sewer Lines

When the operations of Developer result in damage to any Utility line or service connection, Developer shall assume full responsibility for such damage.

Should an unplanned breakage occur in an active sewer line resulting from Developer's operations, Developer shall immediately notify ADOT, and begin repairs to halt any flows and restore normal service, in accordance with the procedures described in the approved SDPP. Developer shall also immediately notify the affected utility company and ADEQ. Developer shall be responsible for repairing the damaged pipe, restoring any interruptions in service, and cleaning up the affected areas within 24 hours of the beginning of the spill.

Developer shall be responsible for all actions and costs to repair any breakage, in accordance with requirements of the broken line's owner/operator, and to clean up the site per applicable

Laws and regulations, including those of the EPA, OSHA, ADEQ, and all other Governmental Entities specifications.

430.3 CONSTRUCTION REQUIREMENTS

430.3.1 Utility Adjustment Work by Developer

Developer shall perform the Utility Adjustment Work in accordance with the requirements of the applicable Utility Company and the ADOT *Guideline for Accommodating Utilities on Highway Rights-of-Way*. All materials for Utility Adjustment Work must comply with Buy America, as more particularly provided in Section 7.4.5(a)(iv) of the Agreement. Developer shall perform all Utility Adjustment Work and shall protect and work around existing Utilities to avoid damage to all Utilities. Until Substantial Completion, Developer shall be the Arizona 811 field locator and shall perform all requirements as prescribed in A.R.S. §§ 40-360.21 through 40-360.29 for all underground facilities that Developer installs for the Project.

Unless otherwise required by a city- or county-owner, Developer shall perform all adjustments to city- or county-owned water, sanitary sewer, and storm drain facilities, and shall obtain approval of the Adjustments from the appropriate Governmental Entities. Developer shall perform all other Utility Adjustments to the extent required or permitted by Utility Companies.

Developer shall perform well relocation and abandonment Work in accordance with the requirements of the Arizona Department of Water Resources.

430.3.1.1 Inspection

Developer acknowledges and agrees that each Utility Company, through its Representative, has the right to inspect the Utility Adjustment Work performed on its Utilities by Developer to ensure the location, alignment, and grade are in accordance with the approved Utility plans and the Utility Company's requirements. Developer shall provide access to the Site to allow for the Utility Company's inspection. Developer shall leave the installation exposed for inspection by the Utility Company or expose the Utility or Utilities for inspection by the Utility Company if Developer or others cover the installation prior to the Utility Company's inspection and approval. Developer shall contact the respective Utility Company at least five Business Days in advance to request an inspection of installed facilities.

430.3.1.2 Approval

Developer shall obtain a written acceptance of the Utility Adjustment Work from the Utility Company directed to ADOT. If the Utility Company is unwilling to provide a written acceptance, Developer shall prepare a Utility Work Acceptance Request that describes the Utility Adjustment Work and the request to the Utility Company to accept the Utility Adjustment Work. Developer shall submit a copy of the Utility Work Acceptance Request to ADOT as a notification of completion of the Utility Work, if the Utility Company is unwilling to provide a written acceptance. Developer shall schedule a meeting with the Utility Company and ADOT to resolve the matter. Notwithstanding ADOT's acceptance of a Utility Work Acceptance Request, or issuance of a Certificate of South Segment Substantial Completion, Certificate of Project Substantial Completion or Certificate of Final Acceptance, if the Utility Company is not satisfied with the Utility Adjustment Work, Developer shall remain responsible for completion or re-work of the Utility Adjustment to the satisfaction of the Utility Company.

430.3.1.3 Access Responsibilities during Construction

Developer shall take all appropriate measures to make certain that all Utilities and all broadband fiber installed pursuant to the ADOT Broadband Initiative for I-17 remain fully operational during all phases of Construction Work, including coordinating with Utility Companies to develop a plan

so Utility Companies can access their facilities for maintenance and repair during the Construction Work. Developer shall construct any replacement access roads prior to disruption of the existing access roads.

430.3.1.4 Utility Record Drawings

Developer shall request and receive from Utility Companies, or alternatively prepare, Utility Record Drawings for each Utility Adjustments performed by Developer. To the extent that Developer prepares Utility Record Drawings, they shall be in the format and with the information, data and details required by each Utility Company, even if the same varies from ADOT's format, information, data and details for the Project Record Drawings. Without limiting the foregoing, the Utility Record Drawings must show the location of, and label as such, all abandoned Utilities, and must indicate the installation horizontal and vertical control of all facilities installed, with size and materials noted. Developer shall submit Utility Record Drawings to the associated Utility Company as required by the Utility Company. Developer shall request a Letter of Acceptance of the Utility Adjustment Work from the Utility Company after submittal of the Utility Record Drawings to the Utility Company. Within 10 Business Days of receipt, Developer shall submit to ADOT the original Letter of Acceptance of the Utility Adjustment Work from the Utility Company together with the Utility Record Drawings. Developer shall incorporate the Utility Record Drawings into the Project Record Drawings.

430.3.2 Utility Adjustment Work by Utility Companies

Developer shall coordinate with Utility Companies to develop a plan so Utility Companies can access the Site to perform Utility Adjustments. Developer shall Inspect all Utility Work performed by the Utility Companies and/or their contractors and subcontractors within the Site to verify compliance with the Contract Documents. Developer shall Inspect and approve the construction performed by each Utility Company to verify that the construction complies with the requirements of the Contract Documents and the approved plans and permits for such construction.

Developer shall provide a written Developer construction inspection approval letter to the Utility Company after Utility Record Drawings have been received from the Utility Company. Developer shall prepare a Utility Adjustment Package that includes Developer's construction inspection approval and Utility Record Drawings. Within ten Business Days of delivering the written Developer construction inspection approval letter to the Utility Company, Developer shall submit a Utility Adjustment Package to ADOT.

Developer shall immediately notify ADOT in writing upon discovering or learning that a Utility Company has failed to comply with the Contract Documents in its performance of Utility Adjustment Work.

430.3.3 Utility Abandonment

ADOT will permit Utility abandonment in accordance with Chapter 5 of ADOT's *Guideline for Accommodating Utilities on Highway Rights-of-Way*. Developer shall document Utility abandonments as follows:

A. Letter from the Utility Company to ADOT (or ROW owner) stating intent to abandon facilities within ROW;
B. Developer letter stating that the abandonment is in accordance with the governing agency's policy for abandoning Utilities within public ROW;
C. Utility plan showing the location, limits, method of abandonment and ROW ownership; and
D. ROW Owner and Utility signature block for approval.

430.4 SUBMITTALS

Table 430-1 reflects a nonexclusive list of Submittals identified in Section CR 430 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 430-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Sewage Discharge Prevention Plan	4	0	1	At least 15 Business Days prior to any Work involving an active sanitary sewer line	CR 430.2.2.2
Utility Work Acceptance Request	5	0	1	If the Utility Company is unwilling to provide a written approval	CR 430.3.1.2
Letter of Acceptance with Utility Record Drawings	5	0	1	Within 10 Business Days of receipt	CR 430.3.1.4
Utility Adjustment Package	5	0	1	Within 10 Business Days of receipt	CR 430.3.2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3.(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 440 ROADWAY

440.1 GENERAL REQUIREMENTS

Developer shall perform all roadway Construction Work in compliance with the requirements of Section CR 440 of the TPs.

440.2 ADMINISTRATIVE REQUIREMENTS

Developer shall arrange for and provide a training course for the equipment components for barrier gate equipment that is not currently in use by ADOT. The course must be of adequate duration to cover the subject matter and must have an instructor competent in the technical aspects of the equipment installed. The training course must provide training to up to 12 ADOT personnel.

Developer shall prepare barrier gate training material that includes a syllabus, training materials, and a schedule for the equipment training course. Reference materials must include the course outline, material describing the course, and operations and maintenance manuals with any additional information needed to adequately describe the subject of the course. Training materials must not be subject to any copyright. Prior to the proposed start of equipment training, Developer shall submit the barrier gate training material to ADOT for review and comment. Developer shall schedule the training no sooner than ten Business Days after addressing ADOT comments on the barrier gate training material.

440.3 CONSTRUCTION REQUIREMENTS

Prior to installation, Developer shall submit barrier, barrier gate, end treatment, and crash cushion certifications to ADOT for review and comment. The certifications must confirm that the proposed barriers, barrier gates, barrier end treatments, and crash cushions comply with the requirements of AASHTO *Manual for Assessing Safety Hardware (MASH*) unless otherwise stated within Section DR 440 of the TPs. Developer shall not install barriers, barrier gates, barrier end treatments, or crash cushions prior to resolution of any ADOT comments on the certifications.

Developer may salvage and reuse existing 12’-6” sections of undamaged W-Beam guardrail removed from locations impacted by construction.

Developer shall salvage and deliver to the ADOT Cordes Junction maintenance facility existing precast concrete barrier impacted by construction of the Flex Lanes. Developer shall notify ADOT ten Business Days prior to the salvage and delivery of the barrier.

440.4 SUBMITTALS

Table 440-1 reflects a nonexclusive list of Submittals identified in Section CR 440 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 440-1 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Barrier Gate Training Material	4	0 for review and comment; 12 for final	1	In sufficient time for ADOT review and comment and finalization at least ten Business Days before training course commences	CR 440.2
Barrier, Barrier Gate, End Treatment, and Crash Cushion Certifications	4	2	1	Prior to installation	CR 440.3
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(a) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

End of Section

CR 445 DRAINAGE

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End of Section

CR 450 AESTHETICS AND LANDSCAPING

450.1 GENERAL REQUIREMENTS

Developer shall perform all landscape design, aesthetics design, and erosion control Construction Work in accordance with Section CR 450 of the TPs.

450.2 ADMINISTRATIVE REQUIREMENTS

450.2.1 Standards

Developer shall perform all aesthetics and landscaping Construction Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

450.2.2 Meetings

450.2.2.1 Preconstruction Coordination Meeting

Developer shall conduct an aesthetics and landscaping preconstruction coordination meeting prior to constructing any aesthetics and landscape elements for the Project. The aesthetics and landscaping construction coordination meeting must include all personnel involved in the design and construction of the aesthetics and landscaping for the Project.

450.3 CONSTRUCTION REQUIREMENTS

450.3.1 Structures

450.3.1.1 Design of Formliners

Prior to fabrication, Developer shall provide photographic evidence that the selected formliner fabrication method, if such method is used, will produce the desired finished appearance and is suitable for the intended purpose of this Project. Photographs from a minimum of three previous projects shall be included. Prior to fabrication, Developer shall develop a sample of the formliner for ADOT review and comment. The formliner developed for review must be full scale as detailed in the plans and specifications.

As part of this process, two ADOT representatives shall visit the formliner manufacturer's facility once during the production of the master molds and formliners. During the visit, the ADOT representatives will be given the opportunity to make decisions on the acceptability of the quality and character of aesthetic features produced from the fabrication molds. Developer shall make modifications as directed by ADOT. If COVID restrictions, or similar, preclude a visit, Developer may propose to satisfy the requirements of this section by providing photographs, videos, or alternative fabrication methods of the work products. Such methods shall provide sufficient detail to physically represent the final appearance of the aesthetics. The approval of these alternative methods for formliner approval are at the sole discretion of ADOT.

Developer shall identify the visit to the formliner manufacturer's facility in the Project Baseline Schedule.

450.3.1.1.1 Formliner Fabrication

All materials used in the creation of the formliners shall be free from defects affecting the accuracy of shape, strength, rigidity, relief, and texture of the aesthetics treatments.

Prior to fabrication, Developer shall submit shop drawings for all formliner work for review and comment by ADOT. The shop drawings shall show the location of construction joints; use of special forming materials, if required; type and location of form ties, layout, and repetition of custom formliners; location of background materials; patterns and seams; methods of sealing

forms at formliner joints; and pour rates and form work pressures. All seams and cuts shall be located as noted on the approved shop drawings. Developer shall not create seams or cut through any pattern face unless approved by ADOT.

ADOT will review the shop drawings for conformance with the approved Plans.

450.3.1.2 Structure Aesthetic Mockups

Developer shall prepare full-size Mockups with cement finish and paint colors of the Aesthetic Theme elements for walls as required. The Mockup size for the noise walls and retaining walls shall be for each material fabrication type used. The minimum length of each type shall be 20 feet, capturing the full accent rustication along the wall including the tapered ends shown in TP Attachment 450-2. The height shall be the full height of the intended noise and retaining walls. For elements with varying height, the height may be the average height of the element.

At least 60 Business Days prior to construction of walls, Developer shall submit Mockups to ADOT for review and comment. The Mockups do not need to include the full cross section depth of the element on which it will be placed in the finished construction. Developer shall place Mockups for each new rustication pattern within the Project Limits, oriented in a similar manner as the final constructed structures they represent, which shall remain in place for the duration of the construction of the structures associated with the aesthetics.

450.3.1.3 Aesthetic Feature Construction

Developer shall ensure that the minimum cover is maintained over reinforcing steel. Cover is measured from the deepest point of the rustication to the outside of the nearest reinforcement bar. No twisted wire ties are permitted in areas with rustication. Changes to reinforcing or structural dimensions are not allowed.

Developer is responsible for the design and adequacy of the formwork and any falsework or shoring required for support of the Mockups.

450.3.1.4 Paint

Developer shall submit to ADOT for its review and approval the name of the paint manufacturer along with the manufacturer's specifications for mixing and applying paint. Paint shall be pigmented water-repellent acrylic paint or an equal that meets the requirements of Section 1002-2.04 of the ADOT Standard Specifications.

450.3.1.4.1 Painting New Walls

Developer shall paint the exposed structural surfaces of new walls as specified in Section 610-3.05 of the ADOT Standard Specifications. Paint shall extend to two feet below finished grade or to the top of foundations.

New wall painting shall conform to the color requirements in TP Attachment 450-2 and to the following:

A. Concrete and masonry main structural surfaces: base color, flat finish;
B. Handrails on walls: base color, semigloss finish; and
C. Accents: regardless of material, accent color, gloss finish

450.3.1.4.2 Paint Draw Downs

Developer shall prepare Paint Draw Downs that include samples of each color that Developer shall use. At least 40 Business Days prior to painting, Developer shall submit Paint Draw Downs to ADOT for review and comment. The number of Paint Draw Downs could be as many as 20.

After color choices have been narrowed down to four choices, Developer shall prepare sample boards (3' x 3') of each color proposed. Board materials must be light enough in weight for Developer to transport to locations on Site and have a surface coating that resembles the finished surface(s) of the built features. ADOT may require Developer to provide more than one set of samples and more than one site visit may be required.

450.3.1.4.3 Paint Quality

All paint shall resist chipping, flaking, fading, staining, and chalking. All paint shall conform to the requirements of Section 1002-2.04 of the ADOT Standard Specifications.

Developer shall be responsible for allowing block or concrete materials aesthetic elements sufficient time to cure after construction to avoid efflorescence through the paint. Developer shall be required to treat, prepare, and repaint all elements that show any sign of efflorescence up to the Project Substantial Completion Date, at no additional cost to ADOT.

450.3.2 Planting

The Work under this section consists of furnishing and planting trees and cactus at the locations shown on Developer-approved final landscape Plans. This section shall also include the salvaging, transporting, and replanting of all designated plant material (trees, saguaro, and accents, as defined in Section DR 450.2.3 of the TPs) in accordance with Section 806-3 of the ADOT Standard Specifications, these TPs, and the approved Salvage Operation Plan (see Section CR 450.3.2.4 of the TPs).

The Work shall also include the machinery, equipment, labor, and materials to install the plant materials at the final planting locations, including excavating and backfilling and the preparation, modifications, and implementation of the Plant Inventory, Salvage Operation Plan, Noxious and Invasive Species Control Plan, and the Soils Management Plan.

The Work shall also include mixing and applying chemical solutions, herbicides, fertilizers, and amendments; the maintenance of the salvaged plant material; warranty of workmanship; the storage and protection of all planted and unplanted salvaged plant material and other materials; bracing; guying; staking; and wrapping; cleanup of the Project and nursery(ies) areas; and disposal of unwanted and deleterious materials.

450.3.2.1 General

Developer shall install plants in such a manner as to provide optimum growth and health of the plants. Developer shall plant all plants as specified in the landscape Plans prior to Project Substantial Completion.

Eighty-five percent of the salvaged native plants must survive the salvage, storage, and replanting process. Mortality above 15 percent at the end of the D&C Period shall be replaced at a one for one rate with nursery stock for the number lost over 15 percent prior to commencement of the Landscaping Establishment Period. Replacement sizes are as shown in Section CR 450.3.4.5 of the TPs.

Developer shall repair, restore, or replace all existing landscape and aesthetic improvements that are damaged or disturbed to their existing condition prior to construction and in accordance with the approved landscape Plans.

Developer shall maintain all existing landscaping and irrigation to remain in place in a manner as to provide optimum growth and health of the plants for the duration of the Work, including the Landscaping Establishment Period.

If fill slopes that will ultimately be planted are built using boulder or large rock material, these slopes must receive a native soil surface layer to a minimum depth of 12 inches ~~and~~ that will support seeding. Developer shall provide a 1,000-square-foot sample area of the native soil placement for approval by ADOT. Pits for containers larger than 24 inches shall be excavated to the depth of the detail shown in the landscape and aesthetics details in the RIDs and backfilled with the native soil as specified.

Developer supplied trees, exclusive of those salvaged, must be multi-trunk as shown in Developer's approved Landscape Plans. Multi-trunk formation must consist of two to five trunks originating from the soil line at the base of the tree.

Developer shall review the Plant Availability List submitted under Section DR 450.3.5.1. of the TPs and provide confirmation of continued plant availability and anticipated nursery source(s) a minimum of 60 Days prior to the start of landscaping activities. Developer shall provide documentation from a minimum of five sources of unavailability and seek alternative means, including contract growing, for securing the required plant material as directed by ADOT. ADOT will provide Developer with comments on the proposed alternatives and, following further discussion with Developer, determine the approach preferred for implementation (including substitution, change of species, or deletion and redistribution of planting percentages).

ADOT's review and comment regarding the Plant Availability List by ADOT does not relieve Developer of the responsibility for providing plantings that will pass the inspection required in Section 806 of the ADOT Standard Specifications. Prior to starting the irrigation trenching or plant pit excavation, Developer shall lay out the planting pits in accordance with the approved landscape Plans. All plants scheduled to be salvaged shall be excavated, side boxed or bare rooted, and removed from their in-situ locations prior to initiation of clearing and grubbing or any other ground disturbing activities in the plant salvage locations.

No planting shall occur until a complete, fully functioning temporary irrigation system for the location's temporary irrigation zone is installed, tested, and approved.

Salvaged trees and cacti shall be staked/braced in accordance with the approved Salvage Operations Plan (see Section CR 450.3.2.4 of the TPs). Nursery stock shall be staked/braced in accordance with the approved planting details. Bracing materials shall not cause conditions that may be detrimental to the plants (i.e., bruising or scarring the cambium layer or skin, providing opportunities for fungus and bacteria at the contact areas, etc.).

All planting areas shall be graded to facilitate proper watering of the plant materials.

All applicators of pesticides and herbicides shall have a current and valid applicator's card from the State of Arizona Structural Pest Control Commission.

Developer shall dust all bare root cacti with 85-95 percent pure soil sulfur.

450.3.2.2 Seed Availability

At least 60 days prior to seeding activities, Developer shall provide written confirmation that the source(s) for the seed has been secured. If any of the seed is expected to be unavailable prior to the time specified for seeding, the Developer shall notify ADOT at this same time.

450.3.2.3 Native Plant Requirements

Developer shall comply with the requirements of the Arizona Native Plant Law and the A.R.S. § 3-901, et seq. Developer shall provide the Arizona Department of Agriculture at least 60 Business Days' notice prior to any clearing operations. Developer shall not transport native plants, as

defined by such statutes, from the land and shall not offer them for sale without the written permission of the Arizona Department of Agriculture.

Developer shall send notice to:

Assistant Director
Arizona Department of Agriculture
State Office Building, Room 414
1688 West Adams Street
Phoenix, Arizona 85007

Developer shall install plants in such a manner as to provide optimum growth and health of the plants. Developer shall plant all plants as specified in the aesthetics and landscape Plans.

450.3.2.4 Salvage Operation Plan

Developer shall prepare a Salvage Operation Plan that details the processes for plant salvage, nursery setup and operation, and replanting of salvaged plants. Developer shall salvage healthy, salvageable native trees (including ironwood, mesquite, and blue and foothills palo verdes) with a single trunk diameter or combined trunk diameter of between three and ten inches, measured six inches above natural grade at the root location; saguaro spears between four and 12 feet in height; and accents as defined in Section DR 450.2.3 of the TPs. Developer may salvage larger plants at their discretion. All other plants in construction areas not salvaged for use on the Project are subject to the requirements of Arizona Revised Statutes, Title 3, Chapter 7 and related regulations (Arizona Native Plants). Developer shall salvage enough healthy specimens to meet the density requirements indicated in DR Table 450-1.

The Salvage Operation Plan must include the following:

A. Cover page;
B. Timing of salvage operations for optimum success rate;
C. Anticipated phasing schedule for salvage and replanting of plant materials;
D. Details on how Developer shall accomplish:
    1. Field pruning;
    2. Side boxing;
    3. Boxing support and bottoming;
    4. Transporting boxed materials to the nursery;
    5. Salvaging and transporting saguaros and cacti with attention given to the amount of root area that will be included in salvage based on plant size;
    6. If moving will be conducted for plants such as saguaros, describe the proposed methodology; and
    7. Disposal method for plant material that is not salvaged.
E. Nursery details, including:
    1. Anticipated nursery location(s);
    2. Security measures for nursery site(s);
    3. Plant irrigation materials and watering schedules at the nursery(ies); and
    4. Maintenance and inspection requirements; and
F. Methods and details for replanting boxed trees, saguaros, and accents.

At the same time as the submittal of the Plant Inventory, Developer shall submit the preliminary Salvage Operation Plan to ADOT for review and comment. Developer shall provide the final Salvage Operation Plan at least 40 Days prior to beginning plant salvage operations.

450.3.2.5 Soils Management Plan

The goals of the Soils Management Plan are to identify the site soil conditions, use of in-situ soils for planting, and identification and disposition of soils detrimental to plant growth. Developer may use in-situ soils for the planting backfill. Materials of a white and gray chalky appearance found in the Project area are not acceptable for planting. These materials shall not be used within the top 24 inches of the surface.

Developer shall prepare a Soils Management Plan for ADOT review and comment containing the following elements:

A. Cover page;
B. Details on how Developer shall implement:
    1. Use and location of in-situ soils;
    2. Mitigation of detrimental soil location(s) and containment methodology;
    3. Borrow material testing, as required:
        i. Per Section 804 of the ADOT Standard Specifications;
        ii. Per Table 450-1 below.
    4. Borrow source location(s), as required;
    5. Soils testing laboratory analyses and amendment recommendations, as required; and
    6. Sampling map showing where test samples were taken, minimum of five samples per borrow site (see Section CR 450.3.2.6 of the TPs).

Developer shall submit the Soils Management Plan no more than 60 Business Days after grading operations are complete.

450.3.2.6 Borrow Material Soil Testing Requirements

If the Developer uses off-site sources of borrow materials, Developer shall conduct soils sampling in accordance with the requirements of the U.S. Department of Agriculture, Natural Resource Conservation Service.

Developer shall evenly distribute the samplings throughout the borrow location(s). Boring samples must vary in depth from one foot to six feet below site grade. Developer shall have a certified laboratory analyze the samples in compliance with Section 804 of the ADOT Standard Specifications and the agronomic testing per Table 450-1 below.

Table 450-1
Agronomic Testing Requirements

Agronomic-based saturated paste determinations of:
pH
soluble salts
sodium adsorption ratio
Ammonium Acetate extraction of:
estimated exchangeable sodium percent
Sample Analysis of:
organic matter
Nitrate
bicarbonate phosphorus

Table 450-1 Agronomic Testing Requirements
Potassium
Sulfur
DTPA soluble zinc
Iron
Manganese
Copper
Boron
gypsum requirement
Gravel

From this sampling, Developer shall have an agronomist analyze and determine the necessary amendments and/or added compost necessary for optimum plant growth. Amended borrow soil must comply with the soil characteristics shown in Table 804-1 of the ADOT Standard Specifications. Amendments shall be pre-mixed with borrow material prior to placement.

450.3.3 Irrigation

Developer shall install a fully functional temporary irrigation system to all plant material within the Project area. ADOT may consider alternative methods of temporary irrigation. Developer shall provide shop drawings for products and products to be used.

Developer shall test non-potable water, if used, for its suitability for seeding/planting with the water quality-related concerns of salinity, pathogens and contaminants. Developer shall submit to ADOT for its review and comment the source of water, potable or non-potable, along with testing results, prior to use.

Developer shall install irrigation system(s) in accordance with all applicable national, state, and local plumbing and health and safety codes, if applicable.

Developer shall irrigate all plants through the end of the Landscaping Establishment Period to promote sustained growth and health of all plants. Developer shall maintain, repair, make replacements, and operate the system from the first planting through the end of the Landscaping Establishment Period.

During the second half of the Landscaping Establishment Period, Developer shall begin to wean plants off supplemental water. Prior thereto Developer shall submit to ADOT for review and comment, a weaning schedule.

450.3.4 Landscaping Establishment

Developer shall maintain and establish the landscape elements for a period of 18 months after Project Substantial Completion (the “Landscaping Establishment Period”) to promote sustained growth and health of all plants and in accordance with Section 807 of the ADOT Standard Specifications. The landscape shall be maintained in a condition free of noxious and invasive species at all times, including all unwanted plant growth, trash, debris, and litter, in accordance to the Noxious and Invasive Species Control Plan and the following list of activities.

The landscaping establishment Work must include the following:

A. plant replacement in accordance with Section CR 450.3.4.5 of the TPs.
B. care of all salvaged and installed plant materials as part of the Project in accordance with accepted horticultural practices;

C. supplying and applying irrigation water sufficient to keep the installed plants in a healthy condition;

D. repairing, adjusting or replacing bracing;

E. repairing public or weather damage to all landscape areas;

F. furnishing and applying sprays, dust and/or cages to combat vandalism, disease, insects and other pests;

G. noxious weed control;

H. pruning; and

I. reconfiguring, modifying, maintaining, repairing, replacing and operating the temporary drip water distribution system as specified by Developer, to meet the landscape establishment needs of the Project.

Developer has the option of maintaining the nursery during the Landscaping Establishment Period.

Developer shall remove the tree ties and stakes at the end of the Landscaping Establishment Period or as directed by ADOT. All trees must stand erect on their own without stakes when brought to the Site. If a tree cannot stand on its own upon removal of nursery stakes, Developer shall remove and replace the tree.

Developer shall be responsible to keep a log during the Landscaping Establishment Period. The log shall contain a record of the time and date of field inspections, watering time durations and dates, fertilizer applications, repairs, replantings, and other operations conducted by Developer. Developer shall submit the format for recording these activities to ADOT for approval prior to undertaking the work.

As part of its traffic control for the landscaping establishment work within the clear zone, Developer shall provide a crash attenuator truck or other protection.

450.3.4.1 Plant Protection

Developer shall provide protections for all landscape plants, which protections must include eradication or control of insects, mites, fungi, and non-fungus diseases and protection from foraging animals. Developer may only apply appropriate insecticide, miticide and fungicide with the prior approval of ADOT. Developer shall not employ insecticides, fungicides and miticides during the D&C Period that cause the extermination of any landscape plant material, or cause damage to the growth characteristics such that plants might not be able to recover in a normal manner.

Developer shall ensure that chemical stains do not cause damage to any portion of the Site or improvements including landscape plant materials. If staining or damage nevertheless occurs, Developer shall make repairs or replacements at Developer's expense and to the satisfaction of ADOT. Application of chemicals must be in such a manner to not cause injury to the personal health of anyone working on the Project, observing, or passing by. Developer shall ensure that no puddles or pools of water that might contain toxic amounts of chemicals remain after completion of operations. Developer shall not allow chemicals to fall on or migrate to areas other than the work site. Developer shall follow all laws and local codes regarding application methods and personnel.

450.3.4.2 Establishment Irrigation

During each watering cycle during the Landscaping Establishment Period, Developer shall supply water to a minimum depth of 12 inches to all saguaros and trees (regardless of species).

Developer shall provide adequate water to each installed plant to maintain optimum health through the completion of its applicable Landscaping Establishment Period.

450.3.4.3 Establishment Inspections

ADOT will perform visual inspections in the presence of Developer once every 30 days during the Landscaping Establishment Period, unless ADOT and Developer agree to other arrangements in writing. Developer shall modify the maintenance practices and water delivery to the plants to maintain optimum growing conditions.

During the Landscaping Establishment Period, Developer shall provide the necessary care to keep all plant material equal in health and vigor under the use of standard horticultural practice to combat detriments, including rodents, mammals, pest, disease, bacteria, mites, fungi, nutrient deficiency, harmful exposure to sunlight, and drought conditions. In addition to inspecting salvage plant material for damage to its appearance in health and/or vigor resulting from any of the previously mentioned detriments, ADOT will also inspect the salvage plant material and new plant material for symptoms that indicate poor health. Poor health symptoms include items such as the following: wrinkled, loose or damaged cambium layers; evidence of transplant 'shock' (i.e., leaf drop and discolored foliage); no observable improvement to the condition of the salvage or new plant material after it has received adequate irrigation or rain; change in color not consistent with color changes to identical species existing in the given area; and failure to leaf out when identical specie of the existing area are consistently found in leaf. ADOT will use the foregoing criteria to determine if both the salvage and new plant material is in close conformity in health and/or vigor and determined unacceptable. Within the cure period set forth in TP Attachment 500-1, Developer shall replace the unacceptable or dead stock plant materials per Section CR 450.3.4.4 of the TPs.

Transporting of any plant materials for the Landscaping Establishment Period activities must comply with all State and local requirements. Developer shall be responsible to obtain all necessary permits and tags for transporting plant materials on public roadways; ADOT will not make any separate payment to Developer for the permits. Developer shall make permits and tags available to ADOT upon request.

450.3.4.4 Planted Stock and Seeding Establishment

All trees must stand erect on their own at the end of the Landscaping Establishment Period.

Developer shall maintain the seeded areas on the Project, including any erosion repair, reseeding and/or restoration, as directed by ADOT.

450.3.4.5 Plant Replacement

Every 60 days during the Landscaping Establishment Period, Developer shall provide, where required, plant replacements. The replacement size must be at least 15 gallon for trees; five gallon for agaves and yuccas; ocotillos at four or more canes and six- to eight-feet tall; six inches minimum to two feet high for barrels; and six feet high for saguaros, unless otherwise required by ADOT. Developer acknowledges that the D&C Work includes plant material replacement.

Developer shall remove and replace all dead or unhealthy plant stock as directed within 21 days from the date of Inspection. Developer shall notify ADOT in writing when Developer has completed the replacement work.

450.3.4.6 Plant Survivability

If nursery stock is needed on the Project, it must have a survivability rate of 100 percent at the end of the Landscaping Establishment Period. Plants that Developer salvages and replants must have a minimum survivability rate of 85 percent at the end of the Landscaping Establishment

Period. If the success rate drops below these minimums, Developer shall provide and plant replacement plants of the same species to bring the total number of plants back to these minimums. The replacement size must be as shown in Section CR 450.3.4.4 of the TPs.

450.4 SUBMITTALS

Table 450-2 reflects a nonexclusive list of Submittals identified in Section CR 450 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 450-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Formliner Shop Drawings	4	2	1	Prior to fabrication	CR 450.3.1.1
Mockups	4	21	0	At least 40 Business Days prior to construction of the associated Element	CR 450.3.1.2
Paint Draw Downs	4	5	0	At least 40 Business Days prior to painting	CR 450.3.1.4.2
Seed Availability	4	2	1	At least 60 days prior to landscaping activities	CR 450.3.2.2
Preliminary Salvage Operation Plan	4	2	1	At the same time as the Plant Inventory	CR 450.3.2.4
Final Salvage Operation Plan	4	2	1	At least 40 business days prior to commencing salvage operations	CR 450.3.2.4
Soils Management Plan	4	2	1	No more than 60 business days after grading operations are complete	CR 450.3.2.5
Irrigation Shop Drawings	4	2	1	At least 60 days prior to landscaping activities	CR 450.3.3
Irrigation Water Source	4	2	1	At least 60 days prior to landscaping activities	CR 450.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 455 STRUCTURES

455.1 GENERAL REQUIREMENTS

Developer shall perform all structures Construction Work in compliance with the requirements of Section CR 455 of the TPs.

455.2 ADMINISTRATIVE REQUIREMENTS

455.2.1 Standards

Developer shall perform the structures Construction Work in accordance with the Applicable Standards, including standards, manuals, and guidelines listed in Table 400-1.

455.3 CONSTRUCTION REQUIREMENTS

455.3.1 Bridge Material Properties

Normal weight non-prestressed concrete must have the minimum strengths, f'c, at 28 days, as shown in Table 455-1.

Table 455-1
Minimum Concrete Strength

Components	f'c (ksi)
Decks (except barriers)	4.5
Bridge concrete barriers, approach slabs, and protective pavement systems	4.0
Substructures (abutments, piers, foundation, and drilled shafts)	3.5
All other class 'S' concrete	3.0

Normal weight prestressed concrete members shall have a maximum 28-day compressive strength (f'c) of 9,000 psi. Developer shall determine the initial compressive strength at release (f'ci) is at their discretion.

Normal weight cast-in-place post-tensioned box girder bridges shall have a maximum 28-day compressive strength (f'c) of 6,000 psi. Developer shall determine the initial compressive strength at release (f'ci) is at their discretion.

455.3.2 Structure Shop Drawings and Working Drawings

A Professional Engineer must prepare as well as seal and sign Shop Drawings and Working Drawings, which include drawings for falsework, shoring, soldier piles, cofferdams, temporary bridges, and other major temporary support structures.

Developer shall prepare MSE Wall Drawings that include the design and construction requirements of the MSE wall. MSE Wall Drawings are considered Shop Drawings and Working Drawings. Developer shall submit MSE Wall Drawings to ADOT for review and comment not less than ten Business Days prior to implementation.

The following Shop Drawings and Working Drawings, if applicable, must become part of the Record Drawings structure drawings:

A. Post-tensioning details;

B. Expansion joint details;
C. Proprietary bearing details;
D. Proprietary retaining wall details;
E. Proprietary sound barrier wall details;
F. Precast and stay-in-place deck panels;
G. Precast girder; and
H. Other Shop Drawing and Working Drawings for atypical structures as specified in the special provisions.

455.3.3 Falsework and Forms

Developer shall design and construct falsework and forms in accordance with the following:

A. AASHTO *Guide Specifications for Bridge Temporary Works;*
B. AASHTO *Construction Handbook for Bridge Temporary Works; and*
C. AASHTO *LRFD Bridge Construction Specifications.*

Developer shall prepare Falsework Drawings that includes the design and construction requirements of the falsework and forms. Falsework Drawings are considered Shop Drawings and Working Drawings. Not less than ten Business Days prior to implementation, Developer shall submit Falsework Drawings to ADOT.

455.3.4 Steel Fabrication

Developer shall use lap splices or mechanical connectors for all reinforcing steel splices and connections. Developer shall not allow or permit welding of reinforcing steel.

455.3.5 Concrete

Developer shall not conduct concrete pours over live traffic.

When there is no overlay with AR-ACFC in accordance with Section 402-5 of the ADOT Standard Specifications, Developer shall saw longitudinal grooves on bridge decks, approaches, and concrete pavement protective systems.

455.3.6 Removal of Asphalt Overlays

Developer shall remove the asphalt overlay from the surface of the bridge deck and approach slabs of widened bridges.

Developer shall verify the depth of asphalt overlay at the end of every approach slab and at each end of bridge between two and four feet from each barrier face and at the crown point/centerline (three locations at end of every approach slab and each end of bridge).

Developer shall verify the depth of asphalt overlay on each bridge deck at evenly spaced intervals (not to exceed 50 feet longitudinally) between the ends of bridge and at each interval between two and four feet from each barrier face and at the crown point/centerline (three locations at every interval).

Developer shall remove the existing asphalt overlay by cold milling to within ½ inch of the concrete deck or thin bond epoxy overlay. Removal of the remaining ½ inch of asphalt overlay shall be performed by any one or combination of the following methods:

A. Scraping with a loader equipped with a smooth edged bucket (no teeth);
B. Diamond grinding; and
C. Cold milling.

Cold milling equipment must be able to meet the following requirements:

A. Remove asphalt to a depth of ¼ inch;
B. Provide a surface relief of at most ¼ inch; and
C. Provide a 5/32 inch grade tolerance.

455.3.7 As-Built Load Rating Report

Developer shall prepare an As-Built Load Rating Report(s) based on as-built condition in accordance with the AASHTO *Manual for Bridge Evaluation* and shall include both inventory and operating ratings of the "as-built" structures. At the same time as the Record Drawing Submittal, Developer shall submit the As-Built Load Rating Report(s) to ADOT for review and comment.

455.4 SUBMITTALS

Table 455-2 reflects a nonexclusive list of Submittals identified in Section CR 455 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 455-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Falsework Drawings	5	0	1	Not less than 10 Business Days prior to implementation	CR 455.3.3
As-Built Load Rating Report(s)	4	0	1	At the same time as the Record Drawing Submittal	CR 455.3.7

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 457 BRIDGE HYDRAULICS

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End of Section

CR 460 TRAFFIC

460.1 GENERAL REQUIREMENTS

Developer shall perform construction of all pavement markings, signs and lighting in compliance with the requirements of Section CR 460 of the TPs.

460.2 ADMINISTRATIVE REQUIREMENTS

460.2.1 Standards

Developer shall perform construction of all pavement markings, signs and lighting in accordance with the relevant requirements of the standards, manuals, and guidelines listed in Table 400-1.

460.3 CONSTRUCTION REQUIREMENTS

460.3.1 Pavement Marking

Temporary pavement marking must comply with the FHWA MUTCD*,* ADOT *Arizona Supplement to the MUTCD,* and the ADOT *Traffic Control Design Guidelines*. Developer shall not place pavement markings on the final pavement surface course unless it is the final pavement marking at its final location. Temporary pavement markings, if used, must not leave ghost markings on the final pavement surface.

460.3.2 Signs

Prior to removing existing sign structures, Developer shall remove all sign lighting fixtures, exposed conduit, and wiring to the nearest pull box serving the structure. Developer shall install graffiti shields on all new or impacted signs on bridges on I-17 in accordance with ADOT *Traffic Signing and Marking Standard Drawings*.

Developer shall coordinate with Grand Canyon State Logo Signs, a program of ADOT, for any existing signs that require relocation for the construction of the Project or are damaged as a result of construction of the Project. Developer shall salvage and deliver to the Grand Canyon State Logo Signs vendors facility existing signs impacted by construction of the Project. Developer shall notify Grand Canyon State Logo Signs ten Business Days prior to the salvage and delivery of the signs. Grand Canyon State Logo Signs is responsible for contracting the fabrication and installation of the specific service logo signs.

460.3.3 Lighting

Developer shall maintain existing lighting levels during construction where existing lighting exists. Developer shall individually fuse all luminaires.

Developer shall record Global Positioning System (GPS) positions for each pull box in accordance with the ADOT Standard Specifications. Developer shall prepare a Pull Box Location Report that includes the GPS positions for all pull boxes. Developer shall submit the Pull Box Location Report to ADOT for review and comment.

Developer shall attach an ADOT-provided maintenance unit device decal 42 inches above the base plate at 45 degrees in the direction of oncoming traffic on each electrical cabinet and lighting pole. Developer shall prepare and submit a written Maintenance Unit Device Decal Request to ADOT. ADOT will make unit device decals available for pickup at ADOT Traffic Operations, 2104 S. 22nd Avenue, Phoenix, AZ 85009, within 30 days of receipt of the Maintenance Unit Device Decal Request. Developer shall install all maintenance unit device decals on all equipment prior to opening to traffic.

Developer shall attach a permanent metal tag to the pole above the hand hole stating the manufacture's name, pole type per the plans, ADOT pole drawing number (if applicable), shaft length, and gage number. Pictures of sample metal tags are included in the RIDs.

460.4 SUBMITTALS

Table 460-1 reflects a nonexclusive list of Submittals identified in Section CR 460 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.1 of the TPs:

Table 460-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Pull Box Location Report	4	0	1	In accordance with the ADOT Standard Specifications	CR 460.3.3
Maintenance Unit Device Decal Request	5	0	1	As determined by Developer	CR 460.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b).2 of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 462 MAINTENANCE OF TRAFFIC

462.1 GENERAL REQUIREMENTS

Developer shall perform all maintenance of traffic during the Construction Work in compliance with the requirements of Section CR 462 of the TPs.

462.2 ADMINISTRATIVE REQUIREMENTS

462.2.1 Standards

Developer shall perform all maintenance of traffic during the Construction Work in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

462.3 CONSTRUCTION REQUIREMENTS

462.3.1 General

Developer shall manage traffic in accordance with the procedures and guidelines specified in the FHWA *MUTCD*, the ADOT *Arizona Supplement to the MUTCD*, the ADOT *Traffic Control Design Guidelines,* and the Developer's Traffic Control Plans.

Developer shall not close lanes on the mainline, ramps, or local roadways, without the prior approval of the TMP by ADOT.

All Closures shall be in accordance with Section CR 462 of the TPs.

462.3.2 Temporary Traffic Control Devices

All temporary traffic control devices must comply with Section 701 of the ADOT Standard Specifications.

Developer shall Inspect and maintain all traffic control devices a minimum of two times a day.

462.3.2.1 Signs

Developer shall provide advance signing notifying all users of any proposed Closure a minimum of five Business Days prior to the proposed Closure. The advance signing must include the Closure dates and duration. Developer shall provide advance notification through PCMS for all Closures and for each direction of traffic that is affected. Developer shall provide advance signing notification as noted in Table 462-1.

Table 462-1
Advance Signing Notification

Event	Advance Notification
Major weekend restrictions	Five Business Days
Construction phase changes	Five Business Days
Lane restrictions or Closures of ramps and crossroads	Five Business Days
Lane restrictions with detour implications or if traffic delays are expected	Five Business Days

The text for all temporary guide signs must be at least ten inches in height.

Developer shall cover all signs that are in conflict with the Work during construction. Developer shall ensure that any modifications to the existing signing system during construction include an exit sign at the exit gore and a minimum of one advance notice exit sign. If such signs are temporary signs, the temporary signs must remain in place until Developer installs the permanent signs.

462.3.2.2 Temporary Guardrail, Barrier, Attenuators, and Glare Screen

Developer shall use temporary guardrail or barrier and attenuators to protect the travelling public from, at a minimum, the following:

A. Fixed objects within the roadside recovery area as described in Section 303.2 of the ADOT *Roadway Design Guidelines*;

B. Drop-offs greater than two inches that are not in accordance with the traffic control treatment of longitudinal joint and edge drop-off guidelines;

C. Slopes that warrant barrier as described in Figure 303.2 of the ADOT *Roadway Design Guidelines;*

D. Separate opposing travel lanes where posted speeds are greater than 45 mph; and

E. Separate work zones.

Developer shall install glare screens when barriers separate opposing lanes of traffic and are less than 42 inches in height.

462.3.3 Arizona Department of Public Safety

Developer may request DPS officers to be on-Site for Closures. Developer shall submit a request for DPS services directly to DPS. Developer shall be responsible for providing for public safety notwithstanding the presence of DPS at the Site.

End of Section

CR 466 INTELLIGENT TRANSPORTATION SYSTEM

466.1 GENERAL REQUIREMENTS

Developer shall perform all intelligent transportation system (ITS) Construction Work in compliance with the requirements of Section CR 466 of the TPs.

466.2 ADMINISTRATIVE REQUIREMENTS

466.2.1 Standards

Developer shall construct the ITS in accordance with the Applicable Standards, including the standards, manuals, and guidelines listed in Table 400-1.

466.2.2 ITS Preactivity Meetings

Developer shall conduct ITS preactivity meetings prior to construction.

466.3 CONSTRUCTION REQUIREMENTS

466.3.1 General

Developer shall maintain or exceed the level of ITS functionality during construction to provide freeway management, incident detection, and traveler information to the public. The maximum disruption of service for all ITS elements must be no longer than 24 continuous hours, except the broadband fiber installed pursuant to the ADOT Broadband Initiative for I-17, which is governed by Section CR 430.3.1.3 of the TPs. The maximum disruption of service for an individual ITS element must be no longer than 72 continuous hours, except the broadband fiber installed pursuant to the ADOT Broadband Initiative for I-17, which is governed by Section CR 430.3.1.3 of the TPs.

466.3.2 ITS Elements

466.3.2.1 ITS Backbone Communication Network

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466.3.2.2 Dynamic Message Signs

DMS must be Daktronics Vanguard® VF-2420-96x400-20-RGB.

466.3.2.3 Closed Circuit Television Cameras

CCTV cameras for roadway must be Bosch MIC-7522-Z30W.

466.3.2.4 Node Buildings

If Developer plans to enter a node building, Developer shall prepare and submit to ADOT for its approval a written Node Building Access Request. The Node Building Access Request shall include the date and time Developer needs access to the node building, node building number, purpose of the requested access, and a description of the Work Developer shall perform in the node building. Developer shall submit the Node Building Access Request to ADOT at least five Business Days prior to commencing any planned Work within an existing node building.

466.3.3 Temporary ITS Devices

Developer may use solar powered ITS devices for temporary service until permanent power is installed. Power supply for temporary ITS devices must be uninterrupted. Developer shall remove temporary ITS devices prior to Final Acceptance.

466.3.4 Testing

Developer shall test the ITS, including the existing ITS Elements, for the fully operational ITS for the Project. Developer shall perform the tests in accordance with ADOT guidelines. ADOT will conduct subsystem tests in accordance ADOT guidelines. Developer shall prepare ITS Testing Documentation that includes all test results as identified in this Section CR 466.3.4 of the TPs. Prior to Substantial Completion, Developer shall submit all ITS Testing Documentation to ADOT for approval.

466.3.5 Certificates

Developer shall prepare and obtain ITS Certifications as required by ADOT. Prior to Final Acceptance, Developer shall submit all ITS Certifications to ADOT.

466.3.6 Record Drawings

Developer shall prepare Record Drawings for the ITS in accordance with Section GP 110.10.2.7.4 of the TPs.

466.3.7 Training

Developer shall arrange for and provide a training course for the equipment components for equipment that is not currently in use by ADOT. The course must be of adequate duration to cover the subject matter and must have an instructor competent in the technical aspects of the equipment installed in the nodes. The training course must provide training to up to 12 ADOT personnel.

Developer shall prepare ITS Training Material that includes a syllabus, training materials, and a schedule for the ITS equipment training course. Reference materials must include the course outline, material describing the course, and operations and maintenance manuals with any additional information needed to adequately describe the subject of the course. Training materials must not be subject to any copyright. Prior to the proposed start of ITS equipment training, Developer shall submit the ITS Training Material to ADOT for review and comment. Developer shall schedule the training no sooner than ten Business Days after addressing ADOT comments on the ITS Training Material.

466.4 SUBMITTALS

Table 466-1 reflects a nonexclusive list of Submittals identified in Section CR 466 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs.

Table 466-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Node Building Access Request	3	0	1	A minimum of 5 Business Days prior to any planned Work within an existing node building	CR 466.3.2.4
ITS Testing Documentation	3	0	1	Prior to Substantial Completion	CR 466.3.4

Table 466-1 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
ITS Certifications	5	0	1	Prior to Final Acceptance	CR 466.3.5
ITS Training Material	4	12	1	Prior to the proposed start of ITS equipment training	CR 466.3.7

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

CR 470 RIGHT-OF-WAY

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End of Section

SECTION D

OPERATIONS AND MAINTENANCE REQUIREMENTS (OMR)

TABLE OF CONTENTS

OMR 200 REFERENCES

200.1 GENERAL REQUIREMENTS

Developer shall perform O&M Work during the O&M Period in accordance with this Section D of the TPs. Developer shall perform any design and construction for O&M Work in accordance with the requirements in the following TPs:

A. Section A - General Provisions
B. Section B - Design Requirements
C. Section C - Construction Requirements

200.2 APPLICABLE STANDARDS

For Applicable Standards, refer to Sections GP 110.01.1.1 and OMR 200.2.1 of the TPs.

200.2.1 Modification to Standards for Certain O&M Work

A. For Routine Maintenance, Developer shall replace materials, equipment, parts, and facilities using standards required at the time of original construction of the Project in accordance with the General Provisions (GPs), Design Requirements (DRs), and Construction Requirements (CRs) of the TPs, as ADOT may change the same pursuant to Section 10.4 of the Agreement. When materials, equipment, parts, or facilities required by those provisions are commercially unavailable, Developer shall propose to ADOT, for its approval, a new standard that is commercially available and as comparable as possible. Developer shall comply with the requirements set forth in Section GP 110.01.1.1 of the TPs to obtain ADOT approval of the new standards.
B. Developer shall use devices and systems to control traffic for temporary traffic control in accordance with then-current ADOT Standard Specifications, including ADOT standard specifications, standard drawings, and ADOT engineering directives, including all then-currently approved statewide and regional modifications.

End of Section

OMR 201 COOPERATION WITH ADOT

Developer shall accommodate ADOT activities in the O&M Limits and in the Project area, including:

A. ADOT operations activities, such as litter removal, Incident and Emergency management, vehicle recovery, patrols, surveillance, inspections, and other operations;

B. Traffic control and MOT activities related to ADOT programmed maintenance and ADOT operations;

C. Related Transportation Facilities and Adjacent Work;

D. Patrol of the Flex Lanes;

E. Flex Lanes Direction Changes; and

F. Third party infrastructure improvements and maintenance, including encroachment permits and adjustment of utilities.

Developer shall review plans and/or construction documents that may affect the Project within the O&M Limits, prepared by ADOT or third parties, for improvements in the O&M Limits that others are to construct. Work by third parties must be coordinated through ADOT.

End of Section.

OMR 400 OPERATIONS AND MAINTENANCE WORK

400.1 GENERAL REQUIREMENTS

Developer shall establish a program to ensure a safe and reliable system and shall operate and maintain the Flex Lanes with the main objectives of maximizing public safety, level of service, and system reliability. Developer shall coordinate, plan, and perform the O&M Work required under the Contract Documents, and as described in TP Attachment 500-1, in a manner that provides safe conditions for motorists and its workforce.

Throughout the O&M Period, Developer shall be responsible for and shall perform all O&M Work for the Project except as follows (unless added by Supplemental Agreement):

A. Notification of Flex Lanes Direction Change for Emergencies or Incidents (i.e. non-scheduled Flex Lanes Direction Changes);

B. Determination that Flex Lanes are clear and ready to be opened to traffic as part of a Flex Lanes Direction Change;

C. Confirmation that gates are fully open or closed, as appropriate;

D. Performance of regularly scheduled weekly, as well as holiday, operation of the Flex Lanes System to make Flex Lanes Direction Changes;

E. Performance of unscheduled operation of the Flex Lanes System to make Flex Lanes Direction Changes in response to Emergencies, Incidents or Closures of travel lanes;

F. Operation of CCTV cameras, DMS text displays, and Flex Lanes Guide Signs displays;

G. Programmed capital maintenance;

H. Traffic management unrelated to Developer's maintenance activities;

I. Arrangements for police services or freeway service patrol for Emergencies;

J. Litter and dead animal removal and disposal;

K. Incident and Emergency response (provided that Developer shall repair damage to the Project from Incidents and Emergencies or from actions to respond to and clear Incidents and Emergencies);

L. Weed control and landscaping, except Developer's obligations during the Landscaping Establishment Period in accordance with Section CR 450.3.4 of the TPs;

M. Clearance of drainage facilities;

N. Sweeping;

O. Snow and ice removal;

P. Maintenance of pavement markings damaged from causes other than Incidents and Emergencies or actions to respond to and clear Incidents and Emergencies;

Q. Maintenance of fencing and associated gates damaged from causes other than Incidents and Emergencies or actions to respond to and clear Incidents and Emergencies;

R. Maintenance of pavement edges and unpaved shoulders damaged from causes other than Incidents and Emergencies or actions to respond to and clear Incidents and Emergencies;

S. Maintenance, repair and replacement of DMS;

T. Management of Hazardous Materials spills occurring during the O&M Period;

U. Maintenance of improvements outside of the O&M Limits; and

V. Public information and communications, except to the extent of Developer's responsibilities under the Contract Documents with respect to Closures.

For clarity, Developer shall be responsible for maintaining any slopes (cut or fill) constructed by Developer within or along the O&M Limits whether they are to the inside or outside of the existing general purpose lanes.

During normal operations, the Flex Lanes must be open to northbound travel starting Monday morning and continuing until Saturday night. The Flex Lanes must be open to southbound travel starting Sunday through Monday morning. ADOT, by written notice to Developer, may modify this schedule to account for holidays. ADOT may also modify the direction of the Flex Lanes in the event of an Emergency, Incident or Closure.

Developer shall propose additional requirements for Elements in Developer's design not addressed in TP Attachment 500-1 that fit within the existing maintenance reference categories. Developer shall prepare an updated TP Attachment 500-1 that includes the proposed additions, proposed Performance Requirements, Inspection intervals and type, temporary and permanent repair response times, Measurement Records and Targets for the subject Elements. No later than 90 days prior to Substantial Completion, Developer shall submit the updated TP Attachment 500--1 to ADOT for approval. ADOT may add additional requirements for Elements not addressed in TP Attachment 500-1 based on Developer's design, as more particularly set forth in Section 17.1.2 of the Agreement.

The Schematic Design identifies the O&M Limits assuming no changes or additions to the Project ROW from that shown in the Schematic ROW. Developer shall adjust the O&M Limits to encompass changes or additions to the Project ROW from that shown for the Schematic ROW. The O&M Limits for the O&M Period must be as shown on the Final Design Documents as described in Section GP 110.10.2.6.7 of the TPs and as updated prior to Substantial Completion.

400.1.1 Developer O&M Responsibilities

Developer shall establish and maintain an organization that effectively manages all O&M Work in the manner set forth in the approved Operations and Maintenance Management Plan (OMMP) and in accordance with the requirements of Section OMR 400.2.1 of the TPs and the Contract Documents. Developer shall:

A. Establish an operations and maintenance organization, including management, coordination, reporting, Inspection, design, construction, documentation, quality, traffic management, operations, maintenance, and repair functions;

B. Prepare and update the OMMP, including supplementary plans as required in Section OMR 400.2.1 of the TPs as elements of the PMP as set forth in Section GP 110.04 of the TPs;

C. Provide Monthly O&M Work Reports and Annual O&M Work Reports as provided in Section OMR 400.3.3 of the TPs;

D. Participate in annual review of O&M Work jointly with ADOT;

E. Update SWPPP for O&M Work and keep on-site through the duration of the O&M Period;

F. Deliver the Project at the end of the O&M Period in the condition required by the Contract Documents;

G. Provide evidence of insurance coverage and bonds for O&M Work in accordance with the Agreement;

H. Provide and maintain a secure web–accessible database of Elements, Routine Maintenance and Non-Routine Maintenance, asset condition, and other pertinent information;

I. For a period of six months after Project Substantial Completion, provide an operations staff member in the TOC to train and shadow ADOT staff in the performance of regularly

scheduled weekly, as well as holiday, operation of the Flex Lanes System to make Flex Lanes Direction Changes (Developer staff only needs to be present during the duration of the Flex Lane Direction Change process as outlined in the Operations Manual);

J. For a period of six months after Project Substantial Completion, be available via call or in person to assist ADOT staff in the TOC in the performance of unscheduled operation of the Flex Lanes System to make Flex Lanes Direction Changes in response to Emergencies, Incidents or Closures of travel lanes;

K. Conduct Inspections of the Project and Elements within the Project as set forth in Section OMR 400.3.1 of the TPs and in TP Attachment 500-1;

L. Respond to Notifications from ADOT and other entities regarding Project deficiencies as set forth in TP Attachment 500-1;

M. Make Emergency repairs, temporary repairs, and permanent repairs to the Project in accordance with the Contract Documents;

N. Minimize the risk of damage, disturbance, or destruction of third party property during the performance of O&M Work;

O. Coordinate with ADOT and third parties with statutory duties or functions in relation to the Project, and permit ADOT and such third parties to perform such duties and functions;

P. Perform maintenance and repair of the Flex Lanes System and all components thereof in order for the Flex Lanes System to operate as intended. Such components shall include the fiber, fiber optic communications, power conductors to field devices and conduits that Developer installs in the Flex Lanes portion of the Project; the CCTV cameras, including those at Flex Lanes gates; the Flex Lanes Guide Signs; the vehicle arresting barriers; the Flex Lanes gates; the loop detectors; the battery backup system; the new physical equipment that Developer installs at the Sunset Pont node building; the roadside network communication system; the Flex Lanes controllers; and all software Developer supplies to run the Flex Lanes controllers;

Q. Perform ordinary maintenance and repair of the roadway and structures, including the slopes and embankments, within the O&M Limits;

R. Repair damage to the Project from Incidents and Emergencies or from actions to respond to and clear Incidents and Emergencies and provide details of actual costs to ADOT for each Incident or Emergency. Such work includes repair or replacement, as necessary, of the median barriers, including median barrier gates, between the Flex Lanes and SB general purpose lanes, regardless of the side of the barrier or gates that may be affected;

S. Perform all other Non-Routine Maintenance Work;

T. Perform O&M Work in accordance with the provisions of the OMMP and the Contract Documents;

U. Provide qualified field and supervisory personnel to perform the Inspections, Routine Maintenance, Non-Routine Maintenance Work; and all required related activities;

V. Promptly investigate reports or complaints regarding Project maintenance received from all sources; and

W. Prepare, provide to ADOT, and implement a Flex Lanes Transition Plan in accordance with Section 26.15 of the Agreement.

In carrying out the O&M Work, where there is a requirement for design, Developer shall ensure that the Project is restored either to the original design used for the construction of the Project or to a different design that is in accordance with the Contract Documents.

Developer shall provide all O&M Work reporting from issuance of the Certificate of Project Substantial Completion to the next following June 30th and annually (July 1 through June 30)

thereafter. All references in Section D of the TPs to an annual period, or a one year or two year period, shall be measured from and including July 1st.

400.1.2 Submittal Review Periods During the O&M Period

During the O&M Period, Developer shall comply with the Submittal requirements in Section GP 110.10 of the TPs, unless otherwise specified in the Contract Documents. The Category A review period specified in Table 110-13 in Section GP 110.10.2.5.3 of the TPs is 20 Business Days during the O&M Period, unless otherwise specified in the Contract Documents.

400.2 ADMINISTRATIVE REQUIREMENTS

400.2.1 O&M Period Project Plans

400.2.1.1 Operations and Maintenance Management Plan

The OMMP is a chapter in the PMP that addresses the O&M Work activities during the O&M Period.

Developer shall prepare an OMMP that addresses or includes the following:

A. Operations organization;
B. Maintenance organization;
C. Coordination responsibilities and lines of communication;
D. Coordination with others and response to Notifications;
E. Establishment of a Maintenance Information System (MIS);
F. Required certifications, training, and expertise for different classifications of Work;
G. Qualifications and availability of personnel;
H. Staffing plan;
I. Dedicated O&M Work staff, qualifications, requirements, hiring, availability, personnel policies, adjustments to staff, and adequacy in meeting requirements of O&M Work, including response times and nature of the O&M Work;
J. Personnel requirements establishing the required certifications and training for the different classifications of Work:
K. Dedicated O&M Work equipment fleet, adjustments to fleet mix, and adequacy in meeting requirements of O&M Work, including response times and nature of the O&M Work;
L. An O&M Work Plan and an O&M Work Schedule, which must include (i) Developer's plan and schedule for performing its Routine Maintenance responsibilities throughout the O&M Period, (ii) a schedule and log format for preventive maintenance of the components of the Flex Lanes System throughout the O&M Period, and (iii) the timing, frequencies, scope and nature of such maintenance activities to meet the Performance Requirements throughout the O&M Period;
M. Process for preparing and submitting associated TCPs in accordance with Section 8.4 of the Agreement;
N. Remediation of Nonconforming Work (can be within the OMQMP);
O. Inspections;
P. Process for initiating and performing Non-Routine Maintenance Work;
Q. The format and outline of all reports; and
R. Process for initiating and performing O&M Work during and in response to Incidents and Emergencies as set forth in Section OMR 400.4 of the TPs.

Developer shall submit the following plans with the OMMP:

A. Operations and Maintenance Safety Management Plan (OMSMP) in accordance with Section OMR 400.2.1.2 of the TPs;

B. OMQMP in accordance with Section OMR 400.2.1.3 of the TPs;

C. Environmental Management Plan for the O&M Period in accordance with Section OMR 400.2.1.4 of the TPs; and

D. Operations Manual in accordance with Section OMR 400.2.1.5 of the TPs.

Developer shall submit the draft OMMP, final OMMP, and revisions thereto; and each of these is subject to the submission, review and approval process set forth in Section 10.2 of the Agreement.

400.2.1.2 Operations and Maintenance Safety Management Plan

Developer shall conduct all O&M Work in a safe manner. Developer shall prepare an OMSMP that specifically addresses safety for O&M Work. The OMSMP must be a supplement to the Safety Management Plan described in Section GP 110.09 of the TPs; and must adopt all of the requirements of the Safety Management Plan that may be applicable to the O&M Work. In addition, the OMSMP must address the following topics as they relate to the O&M Work:

A. Safety of the travelling public and workers during Flex Lanes Direction Changes;

B. Safety of the travelling public and workers during Inspections;

C. Safety of the travelling public and workers during Routine Maintenance and Non-Routine Maintenance;

D. Safety of the travelling public and workers during O&M Work performed during or as a result of Incidents or Emergencies.

Concurrent with the OMMP Submittal, Developer shall submit the OMSMP to ADOT for approval in ADOT's good faith discretion.

400.2.1.3 Operations and Maintenance Quality Management Plan

Developer shall perform O&M Work in accordance with the OMQMP. The OMQMP is a volume of the QMP described in Section GP 110.07 of the TPs.

The OMQMP must address, in addition to the requirements in Section GP 110.07.2.1.4 of the TPs, the following topics as they relate to the O&M Work:

A. Administration and document control;

B. Operation and maintenance of the Flex Lanes System;

C. Inspections;

D. O&M Work performed during or as a result of Incidents or Emergencies; and

Concurrent with the OMMP Submittal, Developer shall submit the OMQMP to ADOT for approval in ADOT's good faith discretion.

400.2.1.4 Environmental Management Plan

Developer shall prepare an Environmental Management Plan for the O&M Period that specifically addresses the subject matters (and only the subject matters) set forth in subsections G, J, K and R of Section DR 420.2.3 of the TPs. Concurrent with the OMMP Submittal, Developer shall submit the Environmental Management Plan to ADOT for approval in ADOT's good faith discretion. Developer shall comply with the Environmental Management Plan throughout the O&M Period.

400.2.1.5 Operations Manual

Developer shall develop an Operations Manual for the Flex Lanes System operations. The Operations Manual must address the following topics as they relate to the operation of the Flex Lanes System:

A. Schedule for regular, weekly and holiday Flex Lanes Direction Changes;
B. Procedures for scheduled and unscheduled Flex Lanes Direction Change;
C. Allocation of responsibilities for Flex Lane Direction Change among ADOT groups such as Northwest District and TSMO;
D. Flex Lanes System configuration;
E. Gate operation;
F. VAB operation;
G. Flex Lanes Guide Signs operation;
H. Hardware and software functionality;
I. Equipment controls, status indications, and alarms; and
J. Means for dealing with equipment failures.

Concurrent with the OMMP Submittal, Developer shall submit the Operations Manual to ADOT for approval in ADOT's good faith discretion.

400.2.2 Maintenance Establishment

Developer shall provide maintenance organization staff, facilities, and equipment to manage and perform Routine Maintenance and Non-Routine Maintenance Work.

400.2.2.1 Maintenance Organization

Developer's maintenance organization must provide for the following:

A. Management;
B. Administration;
C. Document control;
D. Reporting;
E. Safety;
F. Quality;
G. Environmental compliance;
H. Maintenance of traffic (MOT);
I. Inspections;
J. Routine and preventative maintenance practices;
K. Communications;
L. Maintenance and repairs following Incidents;
M. Maintenance and repairs following Emergencies;
N. Staffing / personnel; and
O. Equipment.

400.2.2.2 Qualifications of Personnel

Developer's maintenance personnel must comply with the requirements in this Section OMR 400.2.2.2 of the TPs. The following list of qualifications is not exhaustive.

A. All personnel must be properly qualified for the duties they are performing and Developer must provide adequate supervision of such personnel.
B. The O&M Manager must comply with the requirements of Section GP 110.08.3.4 of the TPs.
C. Maintenance workers working on traffic, lighting, and other electrical systems must have the relevant International Municipal Signal Association and/or American Traffic Safety Services Association certifications.
D. Elements may require Specialty Inspectors. Developer shall comply with current FHWA guidance, ADOT guidance, and Good Industry Practice in furnishing Specialty Inspectors for such Elements.

400.2.2.3 Maintenance Facilities

Developer shall provide maintenance support facilities for the Project. See Section 7.5 of the Agreement for information regarding the use of ADOT property for the maintenance offices and yards. ADOT may make available to Developer portions of ADOT property in the Project area to establish an equipment storage yard, laydown area, maintenance shop, or office facility. Any such use must be in accordance with Section 7.5 of the Agreement.

400.2.2.3.1 Maintenance Office

Developer shall house Developer's maintenance management within a 30-mile distance of the O&M Limits. Developer shall provide secure on-site or off-site data storage for the MIS. Developer shall provide staff performing management, coordination, communications, information management systems, and document control duties. Front-office function (i.e. public accommodation at the office) is not required.

400.2.2.3.2 Maintenance Yard

Developer shall provide a maintenance yard(s) within a 30-mile distance of the O&M Limits for equipment, supplies, materials, staff parking, and other staff facilities.

400.2.3 Operations Establishment

Developer shall provide operations organization staff to provide the operations services.

400.2.3.1 Qualifications of Personnel

Developer's operations personnel must comply with the requirements in this Section OMR 400.2.2.2 of the TPs. The following list of qualifications is not exhaustive.

A. All personnel must be properly qualified for the operation duties they are performing and Developer shall provide adequate supervision of such personnel.
B. The O&M Manager must comply with the requirements of Section GP 110.08.3.4 of the TPs.

400.2.4 Coordination Responsibilities

Developer shall process maintenance communications and Notifications from ADOT concerning Noncompliance Events, Defects or other deficiencies, and need for Routine Maintenance or Non-Routine Maintenance Work. Developer shall respond to these communications with:

A. Acknowledgement of receipt of communications;
B. Planned response, including in accordance with TP Attachment 500-1 to the extent applicable;
C. Report of progress of response;
D. Final quality documentation of any O&M Work; and

E. Final disposition and closeout of Project maintenance and repairs needed due to Incidents and Emergencies.

Developer shall provide 24-hour emergency contact information for the responsible in-charge individual and at least one alternate.

400.2.5 Maintenance Information System

400.2.5.1 Content

Developer shall develop a Maintenance Information System (MIS) database that includes 1) data and reporting of O&M Work and Project condition, and 2) storing documents related to O&M Work. The MIS must include:

A. The maintenance requirements in TP Attachment 500-1;
B. An inventory of Elements;
C. Project conditions for which response is required in accordance with TP Attachment 500--1;
D. Required and achieved response times;
E. Prioritization and delivery of Notifications;
F. All Incidents and Emergencies with respect to which Developer receives notice or of which Developer otherwise becomes aware, including routing, timelines, responsibilities, and final disposition;
G. Noncompliance Events and Noncompliance Points reporting requirements, as more particularly set forth in Section 19.2.1 of the Agreement;
H. All elements identified in ADOT's feature inventory system. Available information regarding ADOT's feature inventory system is included in the RIDs; and
I. Other pertinent characteristics.

400.2.5.2 MIS Architecture

Developer shall prepare an MIS Architecture that includes the following:

A. MIS processes and rules;
B. MIS structure in a work breakdown structure (WBS);
C. Proposed hardware and software technical data;
D. Flow charts of the work-flows for the Notifications and work orders; and
E. Other required processes.

Concurrent with the OMMP Submittal, Developer shall submit the MIS Architecture to ADOT for approval. During the O&M Period, Developer may propose changes to the MIS Architecture and prepare an updated MIS Architecture. No later than 20 Business Days prior to implementing the update to the MIS, Developer shall submit the updated MIS Architecture to ADOT for approval.

400.2.5.3 Timeliness for MIS Reporting

Developer shall enter data and other information on O&M Work activities and asset conditions into the MIS in real time upon discovery, including Noncompliance Events in accordance with Section 19.2.1(a) of the Agreement. Developer shall regularly update such MIS data and other information as required to maintain current information in the MIS.

Developer shall place other documents related to O&M Work in the MIS within five Days after origination and shall complete QC of such documents within ten Days after origination.

400.2.6 Intelligent Transportation Systems

ADOT shall retain primary access to and control of all DMS, CCTV, and vehicle detection systems placed on and data/video generated from the O&M Limits.

400.2.7 Closures

During the O&M Period, Developer shall comply with the Closure requirements specified in Section DR 462.3.3 of the TPs, except as follows:

A. Closures are not permitted on the northbound I-17 general purpose lanes, ramps or shoulders at any time except during the periods set forth in Table 400-1where necessary for the maintenance of the Flex Lanes System.
B. Closures of cross roads are not permitted at any time.
C. Full Closures of the southbound general purpose lanes between Sunset Point and Coldwater Road are not permitted at any time. If there is a Closure of a southbound general purpose lane, a Flex Lanes Direction Change must be implemented to provide additional travel lanes in the southbound direction. Any Closure of a southbound general purpose lane is permitted only during the periods set forth in Table 400-1.
D. Full Closures of the Flex Lanes are permitted only during the periods set forth in Table 400-1.

Table 400-1
Allowable Closure Periods

Nighttime Closures
7:00 p.m. Mon to 6:00 a.m. Tues
7:00 p.m. Tues to 6:00 a.m. Wed
7:00 p.m. Wed to 6:00 a.m. Thurs
7:00 p.m. Thurs to 6:00 a.m. Fri

400.2.8 Special Event Restrictions

During the O&M Period, if ADOT determines there is a need to further restrict partial or full Closures for special events, it shall be done through an ADOT-Directed Change or Directive Letter.

400.3 INSPECTIONS AND REPORTING

400.3.1 Inspections by Developer

Developer shall carry out Inspections as indicated in this Section OMR 400.3.1 of the TPs and in TP Attachment 500-1. Inspections, by Element, at annual frequency must be spaced at least 11 months apart and no more than 13 months apart. Inspections, by Element, at two-year frequency must be spaced at least 22 months apart and no more than 26 months apart. Developer shall deliver to ADOT not less than seven days' prior notice of any Inspection except Inspections described in clause A below. For each Inspection, Developer shall contemporaneously record an entry into the MIS, which entry must include the results of the Inspection and any corresponding actions required of Developer.

A. If Developer finds a Defect or other deficiency, whether through Inspections or otherwise or ADOT identifies a Defect or other deficiency by notice to Developer, Developer shall

enter the information into the MIS and shall schedule a prompt Inspection of the applicable Element consistent with the applicable repair response time set forth in TP Attachment 500-1.

B. Developer shall conduct Inspections pertaining to Incidents and Emergencies as set forth in Section OMR 400.4 of the TPs.

400.3.2 Surveillance and Inspections by ADOT

ADOT and third parties may conduct Surveillance and inspections of the O&M Limits or Elements. ADOT will make reasonable efforts to communicate and coordinate with Developer concerning ADOT and third-party inspections. Developer shall accommodate any such activities, including ADOT requests to uncover Work, in accordance with terms of the Agreement.

ADOT will perform the FHWA required bridge inspections and will share the bridge inspection reports with Developer. ADOT inspections of bridges will serve to discharge the regulatory requirements for bridge Inspections; however, Developer shall still be responsible for undertaking Inspections of bridges as set forth in TP Attachment 500-1.

400.3.3 Reporting and Meetings

A. Monthly O&M Work Report – Developer shall prepare a Monthly O&M Work Report of the previous month's O&M Work. The report must be compatible with ADOT maintenance management systems. The report must include a description of the particulars of all Incidents and Emergencies (whether requiring a Flex Lanes Direction Change or not), nature of the repairs, detailed cost information of the repairs (as further described in Section 15.6.4 of the Agreement), need for follow-up with permanent repairs, and lessons learned from the Incident or Emergency. On or prior to the 15th of each month during the O&M Period, Developer shall submit a Monthly O&M Work Report of the previous month's O&M Work to ADOT through the MIS. The foregoing monthly reporting obligation shall survive the end of the Term with respect to months preceding the end of the Term.

B. Annual O&M Work Report – On or prior to July 31st of each year during the O&M Period, Developer shall prepare and submit to ADOT an Annual O&M Work Report. The report must include (i) an electronic tabular summary of all O&M Work carried out in the previous year, (ii) the information on Non-Routine Maintenance Work performed in the immediately preceding year as set forth in Section 10.3.10 of the Agreement, and (iii) a signage retroreflectivity report documenting the results of the related Inspections. The Annual O&M Work Report must be compatible with, and Developer shall format it to the requirements of, ADOT's then current maintenance management system. Developer shall submit an Annual O&M Work Report to ADOT through the MIS. The foregoing annual reporting obligation shall survive the end of the Term with respect to the year preceding the end of the Term.

C. O&M meeting – Developer shall participate in-person or via telephone or video conference in O&M meetings with ADOT. These meetings will be scheduled monthly for the first six meetings and then at a mutually agreed to schedule (such as quarterly) in addition to the Annual O&M Work meeting.

D. Annual O&M Work meeting – Developer shall participate in-person or via telephone or video conference in an annual O&M Work meeting with ADOT. The Parties shall mutually schedule the meeting in the third quarter of every year during the O&M Period. Developer shall prepare and provide an agenda for this meeting. The meeting must address (i) for the current year, the results, safety, MOT/TCP issues, management, Incidents and Emergencies for which O&M Work were required, Incidents and Emergencies for which

Flex Lanes Direction Change was required, and (ii) for the forthcoming year, process improvement, changes to the OMMP, and planned activities.

E. Updates to OMMP and supplementary plans – Developer shall update the OMMP, OMSMP, OMQMP and Environmental Management Plan at least annually and as may be more frequently required during the O&M Period. At least 30 Days prior to the annual O&M Work Meeting, Developer shall submit draft updates of such Project Plans to ADOT for approval in ADOT's good faith discretion. The OMMP update must include an update to the O&M Work Plan and O&M Work Schedule that includes proposed revisions to the planned activities and schedule for the forthcoming year. Developer shall prepare updated OMMP, OMSMP, OMQMP and Environmental Management Plan that address and resolve ADOT's comments. Within 15 Days after the annual meeting, Developer shall submit final updated plans to ADOT for approval in ADOT's good faith discretion.

F. Update to Operations Manual – Developer shall update the Operations Manual during the six-month period of operations support and training to ADOT TOC staff. At least 30 days prior to the end of the six-month period, Developer shall submit a final manual to ADOT for approval in ADOT's good faith discretion.

G. Submit Quarterly Safety & Claims Report in accordance with Section GP 110.09.2.1.12.2 of the TPs.

400.4 INCIDENTS AND EMERGENCIES

ADOT will respond to Incidents and Emergencies on or affecting the Project during the O&M Period and take actions to clear debris, vehicles, animals, etc. to allow the road to re-open.

Within one hour after Developer receives Notification or otherwise becomes aware of an Incident or Emergency, Developer shall mobilize an Inspection team to provide, and shall begin providing, an Inspection of the Element in question or affected Project area.

Within two hours after Developer receives Notification or otherwise becomes aware of an Incident or Emergency, Developer shall mobilize needed resources to begin, and shall begin, effecting repairs of damage to the Project caused by the Incident, Emergency or by actions of third parties responding to and clearing the Incident or Emergency.

Developer shall complete temporary and permanent repairs in accordance with TP Attachment 500-1.

400.5 ROUTINE PREVENTATIVE MAINTENANCE

Routine preventative maintenance, which is part of Routine Maintenance, consists of periodic system checks, minor refurbishments, cleaning, and repairs that prevent unexpected downtime and improve reliability of Elements. Developer shall prepare checklists for the Elements and undertake routine preventative maintenance in accordance with the schedule set forth in the OMMP. Developer shall perform routine preventative maintenance on all Elements. The routine preventative maintenance must address at least the Elements shown in TP Attachment 500-1.

400.6 CONTROL OF O&M WORK

Developer shall comply with the following:

A. Report status of O&M Work in the MIS.

B. Provide notification of O&M Work through the MIS system and in accordance with other ADOT practices.

C. For O&M Work during or resulting from Incidents or Emergencies, follow the communication protocols set forth in the OMMP.

D. Make suitable record entries in the MIS on the final disposition and successful completion of O&M Work (including closure of any related Nonconforming Work process).

400.7 SUBMITTALS

Table 400-2 reflects a nonexclusive list of Submittals identified in Section OMR 400 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 400-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Updated TP Attachment 500-1	3	0	1	No later than 90 Days prior to the date set forth in the Project Schedule for Substantial Completion	OMR 400.1
Draft OMMP	2	0	1	No later than 90 days prior to the date set forth in the Project Schedule for Substantial Completion	OMR 400.2.1.1
Final OMMP	2	0	1	No later than 30 days prior to the date set forth in the Project Schedule for Substantial Completion	OMR 400.2.1.1
OMSMP	2	0	1	Concurrent with the OMMP Submittal	OMR 400.2.1.2
OMQMP	2	0	1	Concurrent with the OMMP Submittal	OMR 400.2.1.3
Environmental Management Plan	2	0	1	Concurrent with the OMMP Submittal	OMR 400.2.1.4
Operations Manual	2	0	1	Concurrent with the OMMP Submittal	OMR 400.2.1.5
MIS Architecture	3	0	1	Concurrent with the OMMP Submittal	OMR 400.2.5.2
Updated MIS Architecture	3	0	1	No later than 20 Business Days prior to implementing the update to the MIS	OMR 400.2.5.2

Table 400-2 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
ITS Connection Request	5	0	1	No later than 20 Business Days prior to Developer's access to view ITS cameras	OMR 400.2.6
Monthly O&M Work Report	5	0	1	On or prior the 15th of each month during the O&M Period	OMR 400.3.3
Annual O&M Work Report	5	0	1	On or prior to July 31 during the O&M Period	OMR 400.3.3
Updated OMMP, OMSMP, OMQMP and Environmental Management Plan	2	0	1	Draft no later than 30 days prior to the annual meeting; final no later than 15 days after the annual meeting More frequently as required during O&M Period	OMR 400.3.3
Updated Operations Manual	2	0	1	No later than 30 days prior to the end of the six-month operations support and training period	OMR 400.3.3
Quarterly Safety & Claims Report	5	0	1	Each quarter by the 20th of the month after the quarter ends	OMR 400.3.3

*Levels of Review

1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement)
2. Good faith discretion approval (Section 5.1.3(b) of the Agreement)
3. Reasonableness approval (Section 5.1.4 of the Agreement)
4. Review and comment (Section 5.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)

End of Section

OMR 500 NONCOMPLIANCE EVENT REPORTING

500.1 GENERAL REQUIREMENTS

Developer shall perform all Noncompliance Event reporting in compliance with Section 19.2.1 of the Agreement.

End of Section

OMR 501 HANDBACK REQUIREMENTS

501.1 GENERAL REQUIREMENTS

Developer shall perform O&M Work required to deliver the Project to ADOT at the end of the O&M Period in a condition that complies with this Section OMR 501 of the TPs.

Prior to the end of the O&M Period, Developer shall diligently perform and complete all Work and improvements necessary to render all O&M Elements in a condition at the end of the Term that (a) is free from Defects and Nonconforming Work and (b) complies with all applicable Performance Requirements set forth in TP Attachment 500-1.

If any component of the Flex Lanes System, except for the battery backup, does not meet such standards and ADOT determines that the component cannot achieve and sustain compliance with such standards through maintenance and repair, then Developer shall be obligated to replace such component before the end of the Term with a replacement of equal or better quality and functionality. For this purpose, "sustain compliance" means a period after the end of the Term equal to the greater of (a) the reasonably expected remaining design life of the component or (b) 18 months.

Battery backup for the Flex Lanes System must have a five year warranty at the end of the Term or be replaced with equal or better quality.

501.2 O&M PUNCHLIST

Approximately 90 to 60 days prior to the end of the O&M Period, ADOT will schedule, and Developer and ADOT will jointly conduct, an Inspection of the O&M Elements in TP Attachment 500-1 for the purposes of:

A. Determining and verifying the condition of the O&M Elements; and

B. Determining the Work necessary to be performed and completed prior to the end of the Term to satisfy the standards set forth in Section OMR 501.1 of the TPs.

The Parties shall jointly prepare a punch list documenting the maintenance, repair, improvements and replacements required by the end of the O&M Period.

ADOT may, but is not obligated to, allow minor call outs or final resolution of ongoing minor issues to continue for up to 30 Days after the end of the O&M Period.

501.3 SUBMITTALS

Table 501-1 reflects a nonexclusive list of Submittals identified in Section OMR 501 of the TPs and is not intended to be an all-inclusive or exhaustive listing of Submittals. Developer shall determine and submit all Submittals as required by the Contract Documents, Governmental Approvals, and Governmental Entities. Developer shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Developer shall submit the following to ADOT in the formats described in Section GP 110.10.2.2 of the TPs:

Table 501-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
O&M Punch List	4	0	1	Between 60 and 30 days prior to the end of the O&M Period	OMR 501.2

Table 501-1 Nonexclusive Submittals List					
Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 5.1.3(a) of the Agreement) 2. Good faith discretion approval (Section 5.1.3(b) of the Agreement) 3. Reasonableness approval (Section 5.1.4 of the Agreement) 4. Review and comment (Section 5.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 5.1.6 of the Agreement)					

End of Section