PUBLIC PRIVATE PARTNERSHIP (P3)
DESIGN-BUILD-MAINTAIN AGREEMENT

for

202 MA 054 H882701C
SR 202L (SOUTH MOUNTAIN FREEWAY)
I-10 (MARICOPA FREEWAY) – I-10 (PAPAGO FREEWAY)

Between

ARIZONA DEPARTMENT OF TRANSPORTATION

and

[DEVELOPER]

VOLUME II

TECHNICAL PROVISIONS

Dated as of: [_____], 2016

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SECTION A
GENERAL PROVISIONS (GP)

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GP 110 CONTRACT ADMINISTRATION

110.01 General

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

110.01.1 Future Compatibility

The Project must be compatible with the improvements of the below noted future projects. Developer shall demonstrate that the Project design allows for the future ultimate configuration connection points when seeking review of the Design Documents.

A. SR 30 Interchange and Avenida Rio Salado/Broadway Road Alternative D

The design of the SR 30 and Avenida Rio Salado system traffic interchange is reflected in the preliminary plans included in the Reference Information Documents (RIDs). Developer shall demonstrate Project design compatibility with respect to the following aspects:

1. Developer shall design the profile of SR 202L and the location of the north abutment of the Salt River Bridge to accommodate the planned undercrossing of SR 30 north of the proposed Salt River bank protection work.
2. Developer shall design the distance between SR 202L northbound (NB) and southbound (SB) roadway centerlines from north of Southern Avenue to north of Broadway Road to accommodate future direct high-occupancy vehicle (HOV) system interchange ramps. The design must allow for direct HOV system ramps for the north-to-west/east-to-south movement and east-to-north/south-to-west movements.
3. Developer shall not design the Project with access ramps to or from SR 202L on the north side of Broadway Road or on the south side of Lower Buckeye Road. The traffic interchanges at those crossroads must be connected by collector-distributors that accommodate, or can be modified within the Schematic Right of Way (ROW) to accommodate, the future work associated with the SR 30 System Interchange project.
4. Developer shall place ramp gores at their ultimate location with respect to the future work associated with the SR 30 System Interchange project.
5. Developer shall design and position retaining walls to accommodate the future work associated with the SR 30 System Interchange project.
6. Developer shall design the minimum vertical clearances for bridges to accommodate the future work associated with the SR 30 System Interchange project.
7. Developer shall design and position drainage systems to not be in conflict with respect to the future work associated with the SR 30 System Interchange project. Where feasible, Developer shall design drainage crossings long enough to accommodate the future work associated with the SR 30 System Interchange project.

B. I-10 Light-Rail Transit Corridor

In 2007, Valley Metro initiated a study of high-capacity transit options within the I-10 (Papago Freeway) corridor. Light rail has been identified as the preferred transit mode and a preferred alignment has been determined. The preferred route connects to the existing light rail service in downtown Phoenix. From downtown Phoenix, the route heads west to I-17 and then north to I-10 along the frontage road that is just west of I-17. At I-10, light rail operates in the freeway median for approximately 3 miles between I-17 and 47th Avenue. The route then transitions via a bridge over the westbound freeway traffic lanes to the north side of I-10. At that point, the route remains on the north side of the freeway until it reaches the existing 79th Avenue Park-and-Ride. The I-10 Light-Rail Transit Corridor is shown in 2014-08 Valley Metro Capitol_I-10 West Advanced Conceptual Engineering.pdf included in the RIDs.

110.01.2 References

110.01.2.1 Applicable Standards

For all portions of the Project within the Maintenance Service Limits, Developer shall design and construct in accordance with the Technical Provisions and Developer shall have the right, but not the obligation, to apply ADOT standards, manuals, and guidelines not already incorporated into the Technical Provisions and in accordance with Section GP 110.01.2.2 of the TPs. For all Non-Maintained Elements to be owned by ADOT, Developer shall design and construct in accordance with ADOT standards, manuals, and guidelines, unless otherwise specified in the Contract Documents. For all other Non-Maintained Elements, Developer shall design and construct in accordance with the applicable Governmental 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 may 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. Requests for Deviation must be in accordance with Section 6.2.4 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 manual, 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, and 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, or maintenance. All references to “as-built and as-built drawings” in the ADOT standards, manuals, and guidelines shall mean record drawings. Developer shall incorporate any safety change to the applicable standards issued by ADOT into the Project. 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.

110.01.2.2 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 NTP2, Developer shall submit the Basis of Design Report to ADOT for approval in ADOT's reasonable discretion. Developer shall immediately amend and prepare an Updated Basis of Design Report, as required to identify new methodologies, manuals, and references are added to the Project. When the Basis of Design Report or Updated Basis Design Report is amended, Developer shall submit an Updated Basis of Design Report to ADOT for approval in ADOT's reasonable discretion.

110.01.2.3 Reference Information Documents

ADOT has undertaken certain planning and preliminary concept work concerning the Project development, which are included in the RIDs.

110.01.3 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 with owning jurisdiction, and the Contract Documents.

110.01.3.1 Basic Configuration

The Schematic Design included in the RIDs conveys the general intent and layout of the Project. The Basic Configuration means those portions of the Schematic Design that depict:

A. The Schematic ROW and control of access limits as set forth in Section DR 440 of the TPs;
B. The number and types of lanes;
C. The approximate location of Shoulders;
D. The approximate location of service interchanges;
E. The approximate location of grade separations;
F. The number of entrance and exit ramps at each service interchange;
G. A bridge, existing or new, at 63rd Avenue
H. The approximate location of the bridges for multiuse crossings;
I. The approximate location and number of ramp lanes at I-10 Papago Freeway system interchange;
J. The approximate location of maintenance roads;
K. The approximate location of frontage roads;
L. A pedestrian overpass at the Elwood Street alignment (mid-mile between Broadway Road and Lower Buckeye Road;
M. A connector road at the Durango Street alignment (just south of the Roosevelt Irrigation District canal) between the northbound and southbound frontage roads; and

N. The avoidance of the environmentally sensitive areas as further described in Section DR 420 of the TPs.

110.01.3.2 Coordination of the Work

Developer shall coordinate the Design Work and Construction Work with all development planning, design, and construction projects that may impact the Work. Developer shall monitor and coordinate Work with such projects, whether performed by ADOT or another Governmental Entity, 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 may impact the Project, and demonstrate full compatibility in horizontal and vertical alignment and other pertinent technical data between the Work and the project's work. The Design Documents must resolve any inconsistencies or design conflicts between the project's work and the Project.

110.01.3.2.1 Future Projects

Each quarter, Developer shall submit an Updated Future Projects List to ADOT. 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 any other project adjacent to or within the Site.

Table 110-1
Future Projects

City of Phoenix – Chandler Boulevard Extension
Western Area Power Administration – Transmission Line Relocation
ADOT – I-10 Pavement Preservation from Dysart Road to I-17 (excluding 75th Avenue to 43rd Avenue)
Salt River Project - 40th Street Utility Relocation
Arizona Public Service - 40th Street Utility Relocations

110.01.4 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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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	4	1	Prior to issuance of NTP2	GP 110.01.2.2
Updated Basis of Design Report	3	4	1	When the Basis of Design Report or Updated Basis Design Report is amended	GP 110.01.2.2
Updated Future Projects List	5	0	1	Quarterly	GP 110.01.3.2.1

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

110.02 Meetings

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 reflects a nonexclusive list of meetings identified in this Section GP 110.02 and is not intended to 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 Maintenance)**	**Frequency**	**Section Reference**
Project kick-off meeting	D&C	Once	GP 110.02.1
Partnering Meetings	D&C	Per Article 22 of the DBMA	Article 22 of the DBMA
Progress meetings	D&C and Maintenance	Monthly	GP 110.02.2
Pre-design coordination meetings	D&C and Maintenance (Capital Improvements)	Once per activity	GP 110.02.3
Technical work group meetings	D&C and Maintenance (Capital Improvements)	As determined by Developer	GP 110.02.4
Aesthetic and Landscaping Task Force	D&C	Weekly during design or as directed by ADOT	GP 110.02.5
Maintenance of Traffic Task Force	D&C and Maintenance	Monthly during design or as adjusted by TF	GP 110.02.6

Table 110-3 Meetings			
Description	**Period (Design and Construction [D&C] and/or Maintenance)**	**Frequency**	**Section Reference**
Utility coordination meetings	D&C	Weekly	DR 430.2.2
Project ROW coordination meetings	D&C	Weekly	DR 470.2.2
Pre-construction coordination meetings	D&C and Maintenance (Capital Improvements)	Once per activity	GP 110.02.7
Maintenance Period kick-off meeting	Maintenance	Once	GP 110.02.8

Developer shall be responsible for scheduling all meetings, developing all meeting agendas, attending all meetings, and providing all meeting facilities and materials for all meetings required by the Contract Documents or as otherwise requested by ADOT. A minimum of 3 Business Days prior to the associated meeting, Developer shall submit a Meeting Notice to ADOT. Developer shall invite ADOT and other parties as determined by ADOT, to all Project-related meetings. Twenty-four hours prior to each meeting, Developer shall submit Meeting Schedules and Agendas to invitees.

For all meetings relating to the Project at which Developer is in attendance (not just those called by Developer or ADOT), Developer shall record Meeting Notes of each meeting. Within 5 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 5 Business Days of receipt of ADOT's comments, Developer shall submit Final Meeting Notes to ADOT.

110.02.1 Project Kick-off Meeting

Developer shall schedule a Project kick-off meeting with ADOT to discuss the Project and to exchange information no more than 10 Business Days after issuance of NTP1. At this meeting, the Parties will also discuss additional topics relevant to the Project, as identified by ADOT or Developer.

110.02.2 Progress Meeting

Developer shall participate in monthly progress meetings or meetings held at the request of ADOT to review and discuss the status of the Project. 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 monthly progress 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 issue must be resolved 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 with ADOT to familiarize the designers and ADOT's review personnel with the design concepts, issues, status, and review procedures. Developer shall conduct a pre-design coordination meeting the earlier of 10 Business Days prior to any Design Work associated with NTP1 or NTP2.

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 may 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 a TWG Report 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 5 Business Days after each TWG meeting, Developer shall submit TWG Reports to ADOT.

110.02.5 Aesthetic and Landscaping Work Force

Developer shall establish an aesthetic and landscaping (A&L) task force as noted in Section DR 450.2.2.2 of the TPs. The A&L task force must be established and convene for an initial meeting the earlier of 10 Business Days prior to any aesthetic or landscaping activities associated with NTP1 or 30 days after issuance of NTP2. Developer shall schedule and chair A&L task force meetings weekly throughout the duration of the design of the aesthetics and landscaping, unless otherwise directed by ADOT. The A&L Task Force will continue to meet as necessary throughout the Construction Period.

110.02.6 Maintenance of Traffic Work Force

Developer shall establish a maintenance of traffic (MOT) task force as noted 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 10 Business Days prior to the first MOT task force meeting, Developer shall submit MOT Task Force Invitees List to ADOT for review and comment. The MOT task force must be established and convene for an initial meeting the earlier of 10 Business Days prior to any maintenance of traffic activities associated with NTP1 or 30 days after issuance of NTP2.

Developer shall schedule and chair MOT task force meetings once a month from NTP1 to Substantial Completion. The meeting schedule and frequency may be adjusted upon the agreement of the MOT Task Force members.

110.02.7 Pre-Construction Coordination Meetings

Developer shall schedule a pre-construction meeting on any new construction activity as identified in the Project Schedule or with any new personnel with ADOT at least 10 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 and discuss their Safety Management Plan and Environmental Management Plan. Developer shall discuss their construction schedule and identify the early construction elements.

110.02.8 Maintenance Period Kick-off Meeting

Developer shall schedule a Maintenance Period kick-off meeting with ADOT to discuss the Project Maintenance Period and to exchange information no more than 10 Business Days after issuance of the Maintenance NTP. Developer shall discuss additional topics relevant to the Maintenance Period, as identified by ADOT or Developer, at the meeting.

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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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 of3 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 meetings	GP 110.02
Meeting Notes	4	1	1	Within 5 Business Days after the meeting	GP 110.02
Final Meeting Notes	4	1	1	Within 5 Business Days of receipt of ADOT's comments.	GP 110.02
TWG Report	5	1	1	Within 5 Business Days after each TWG meeting	GP 110.02.3
MOT Task Force Invitees List	4	2	1	At least 10 Business Days prior to the first MOT Task Force meeting	GP 110.02.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

110.03 Submittals Prior to Notice to Proceed

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 NTP2 and the Maintenance NTP in accordance with Sections 6.6.3 and 7.4 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 NTP2 or the Maintenance NTP.

Table 110-5
NTP Submittals

No.	Description	Level of Review*	Required Prior to NTP2	Required Prior to Maintenance NTP	Section Reference
1	Project Management Plan (PMP)	2			GP 110.04
	• Project Administration	2	X		GP 110.04.1
	o Document Management Plan	2	X		GP 110.04.2
	o Site Documentation Plan	2	X		GP 110.04.3
	• Quality Management Plan (QMP)	2			GP 110.07.2.1
	o Volume I – QMP General Requirements	2	X		GP 110.07.2.1.1
	o Volume II – Professional Services Quality Management Plan (PSQMP)	2	X		GP 110.07.2.1.2
	o Volume III – Construction Quality Management Plan (CQMP)	2	X		GP 110.07.2.1.3
	o Volume IV – Maintenance Quality Management Plan (MQMP)	2		X	GP 110.07.2.1.4
	• Environmental Management Plan	2	X		DR 420.2.3
	• Public Involvement Plan	2	X		CR 425.2.2
	• Safety Management Plan	2	X		GP 110.09.2.1
	• Maintenance Management Plan	2		X	MR 400.1
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 110.10.2.1.7
6	Submittal Schedule	2	X		GP 110.10.2.1.7

Table 110-5 NTP Submittals					
No.	**Description**	**Level of Review***	**Required Prior to NTP2**	**Required Prior to Maintenance NTP**	**Section Reference**
7	Basis of Design Report	3	X		GP 110.01.2.2
8	Stormwater Pollution Prevention Plan (SWPPP)	3	X		CR 420.3.1
9	Transportation Management Plan (TMP)	4	X		DR 462.2.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

Developer shall provide written notification to ADOT prior to performing any Work in the Project ROW. ADOT is under no obligation to receive or review Submittals of Design Documents until approval of the Professional Services Quality Management Plan (PSQMP) in accordance with Table 110-5 above.

110.04 Project Management Plan

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 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. Developer shall ensure that the PMP complies with Federal Highway Administration (FHWA) guidance for a project management plan for major projects. PMP elements are specified throughout the TPs.

An acceptable structure of the PMP is outlined in Table 110-6. Developer may propose an alternative structure for the PMP, provided that the proposed alternative PMP outline and content 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
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 – Maintenance Quality Management Plan	GP 110.07.2.1.4

Table 110-6 Elements of the Project Management Plan		
PMP Chapter	**PMP Chapter Title**	**Section Reference**
3	Environmental Management Plan	DR 420.2.3
4	Public Involvement Plan	CR 425.2.2
5	Safety Management Plan	GP 110.09.2.1
6	Maintenance Management Plan	MR 401.1

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, other 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 10 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.

ADOT may audit and monitor the activities described in the PMP to assess Developer's performance. All commitments and requirements contained in the PMP must be verifiable.

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 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 6 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.
H. Site Documentation Plan: Discuss the process and procedures to document the existing features within the Site and documenting construction progress in accordance with Section GP 110.11 of the TPs.

Prior to issuance of NTP2, Developer shall submit the Project Administration Chapter of the PMP 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 otherwise provided in the Contract Documents or directed by ADOT, Developer shall provide ADOT and ADOT's designated representatives access to the EDMS records throughout the Term. At Substantial Completion, 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, nonconformance 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.

Developer shall provide ADOT with 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. As part of the Project Administration Chapter of the PMP, Developer shall submit a Document Management Plan to ADOT for approval in ADOT's good faith discretion.

110.04.3 Site Documentation Plan

Developer shall prepare a Site Documentation Plan that:

A. Describes its policies, procedures, and staffing to document the existing Site condition required in Section GP 110.11.1 of the TPs.
B. Describes its policies, procedures, and staffing to document the existing Site condition required in Section GP 110.11.2 of the TPs.

Prior to issuance of NTP2, Developer shall submit the Site Documentation Plan to ADOT for approval in ADOT's good faith discretion.

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, all Submittals must be submitted 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 110.10.2.1.1 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 of the PMP	2	2	1	Prior to issuance of NTP2	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 of the PMP	GP 110.04.2
Site Documentation Plan	2	0	3	Prior to issuance of NTP2	GP 110.04.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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. Developer shall maintain and post the current and updated versions of the below noted documents at a conspicuous location(s) at the Site:

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 listed in the Project Specifications;
C. EEO Policy of the Contractor and Subcontractors greater than $10,000;
D. List of safety officers for the Contractor and major Subcontractors; and
E. The Notice of Intent for Storm Water Discharges (EPA form 3510-618-98).

Developer will post the following postings at the collocated office and field offices:

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

Additional offices required for the Project are identified in other sections of the TPs.

110.05.2 Collocated Office Requirements

Developer shall provide and maintain all office and other building space, including office space for ADOT, and all facilities, equipment, and parking for vehicles necessary to design, construct, and maintain the Project. ADOT office space must accommodate a staff size of approximately 60 people composed of ADOT, ADOT representatives, and guests. Developer shall provide

sufficient space in Developer's construction office for simultaneous occupancy by both design and construction personnel. Developer shall collocate with ADOT into a Project collocated office.

110.05.2.1 Location

Except where noted elsewhere in the Contract Documents, Developer shall continue to be collocated with ADOT until 90 days after Final Acceptance to facilitate Project coordination and daily communication. 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 3 miles of the Schematic ROW. ADOT facilities area must be a separate area than the Developer facilities area, unless otherwise specified in the Contract Documents.

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 card access with locking doors running on time zone/holiday schedules for entry doors, as well as other designated areas (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 prior authorization.
D. Lighting and electricity. Developer shall provide all interior spaces with overhead lighting complying with Occupational Safety and Health Administration (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 data outlets and one voice RJ-45 outlet) per room, and one outlet (comprising two data outlets and one voice RJ-45 outlet) 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.). Developer shall install all data/voice outlets near power outlets. All data and voice cabling must use Category 5e 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 provide a minimum of a 100 megabits per second (Mbps) switched Ethernet connection and must be capable of being assigned to a designated virtual local area network (VLAN). Developer shall

provide the capability to assign each data outlet to have an independent VLAN. Developer shall provide patch cables long enough to safely reach 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 ADOT-provided computer equipment to be installed and operated.

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

L. 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.

M. 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; these spaces may be shared with Developer's office space/staff. All office space must be accessible 24 hours a day, 7 days a week, including holidays. Instead of access to a common break room, Developer shall provide a 200-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.

N. HVAC. Developer shall provide electrical, 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. Server room 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.

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

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

Q. 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 may be directed by the applicable Governmental Entity's fire marshal.

R. Insurance. Developer shall obtain and maintain insurance covering the use of the Project office by Developer and ADOT, in accordance with the terms of the underlying property

use agreement with the property owner; and Developer shall ensure that the insurance coverage and limits are not less than that required by the Contract Documents.

S. 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.

T. 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 internet connectivity. Developer shall equip the reception area, offices, cubicles, and work areas with lighting, trash receptacles, desks, chairs, and multistation telephones connected on four telephone lines.

B. Offices.
   1. Developer shall provide six enclosed office rooms of 12 feet x 12 feet (144 square feet) each. All offices must have a small round meeting table with four chairs, two extra chairs for visitors, a file cabinet, a book shelf, and lockable doors.
   2. Developer shall provide 12 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 book shelf, and lockable doors.

C. Cubicles. Developer shall provide 60 total cubicle area spaces for administrative staff (nominally 80 square feet each). Developer may provide power supply and data and communication lines to cubicles through power pole drops.

D. Conference rooms. Developer shall provide three enclosed conference rooms, one to seat at least 24 people and accommodate at least 50 people, and two to seat at least 12 people and accommodate at least 24 people each. All conference rooms must have dimmable lighting. Developer shall provide each conference room with a conference room table and chairs. Developer shall also provide 10 additional chairs alongside walls. Developer shall provide a 4-foot x 8-foot dry erase board 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. The reception area must include a telephone switch board.

F. Work room. Developer shall provide a work room (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 ADOT office space.

G. Storage and filing. Developer shall provide one lockable space for storage and filing, nominally 10 feet x 15 feet (150 square feet).

H. Server room. Developer shall provide one computer server room (100 square feet) that has limited and controlled access and is locked 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, and at least three dedicated isolated ground 20-amp power circuits and one dedicated isolated ground 30-amp circuit. Developer shall locate all patch panels (phone and data) within the designated server room. Developer shall maintain server room temperature with a dedicated air-conditioning/cooling system, as described above. Developer shall provide

uninterruptable power supply (UPS) system in the server room capable of providing spike and brown out protection for all Developer and stakeholder server room equipment.

I. 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 and kitchen cabinets and drawers.

J. Parking area. Developer shall provide a parking area for ADOT for at least 100 vehicles (85 staff/15 visitors). The parking area must be reasonably level (all-weather surface and all-weather access). The parking area must include an additional lockable fenced parking area to accommodate 25 ADOT vehicles.

K. 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.

L. 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 those 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

If ADOT office space, related facilities, or fixtures are destroyed, damaged, or stolen during the Term, except when such damage or Losses are a direct result of willful misconduct of ADOT, its personnel, or consultants, Developer must, at its cost and within 10 Business Days after the occurrence of such destruction or damage, 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) required for normal office operations, replacement must occur within 2 Business Days. If Losses or damage occurs as a direct result of the willful misconduct of ADOT or its personnel or consultants, Developer shall replace the affected facilities within the timeframes specified herein, and ADOT will reimburse Developer for actual, reasonable, and documented costs incurred.

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 NTP2, Developer shall submit a Collocated Office Layout Plan to ADOT for review and comment.

Developer shall make the ADOT office space in the collocated office available for occupancy as a condition of issuance of NTP2. The ADOT office space in the collocated office must be available for ADOT's use until 90 days beyond Final Acceptance.

110.05.3 Field Offices Requirements

Developer shall provide a minimum of two field offices approximately 6,000-square-foot each, for ADOT's use. ADOT field office(s) must be adjacent to each of Developer's field offices. Developer shall provide field offices for ADOT's field construction staff. Each field office must

accommodate the anticipated ADOT field construction staffing level of 30 field personnel. Developer shall make ADOT field offices available for occupancy as a condition of issuance of NTP2. The ADOT field offices must be available for ADOT's use until 90 days beyond Final Acceptance.

110.05.3.1 Location

Developer shall provide field offices at a minimum near the I-10 (Papago Freeway) and the I-10 (Maricopa Freeway) connections.

110.05.3.2 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 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 data outlets and one voice RJ-45 outlet) per room, and one outlet (comprising two data outlets and one voice RJ-45 outlet) 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.). All data/voice outlets must be installed near power outlets. All data and voice cabling must use Category 5e unshielded twisted pair (UTP) with plenum rating. Developer shall place a minimum of two duplex National Electrical Manufacturers Association (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 100 megabits per second (Mbps) switched Ethernet connection and must be capable of being assigned to a designated VLAN. Developer shall provide the capability to assign each data outlet to have an independent VLAN. Developer shall provide patch cables long enough to safely reach 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 ADOT-provided computer equipment to be installed and operated.
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. Exterior maintenance. Developer shall maintain the exterior areas of office spaces, including access to parking areas.

L. 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 filed office layout plans from all applicable Governmental Entities.

M. 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; these spaces may be shared with Developer's office space/staff. All office space must be accessible24 hours a day, 7 days a week, including holidays. Instead of access to a common break room, Developer shall provide a 200-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.

N. HVAC. Developer shall provide electrical, 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. Server room 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.

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

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

Q. 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 may be directed by the applicable Governmental Entity's fire marshal.

R. Insurance. Developer shall obtain and maintain insurance covering the use of the Project office by Developer and ADOT, in accordance with the terms of the underlying property use agreement with the property owner; and Developer shall ensure that the insurance coverage and limits are not less than that required by the Contract Documents.

S. 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.

T. 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 will apply. Each ADOT field office space must include the following elements:

A. General. Developer shall wire all offices, cubicles, conference rooms, and work areas for power, telephone, and internet connectivity. Developer shall equip all offices, cubicles, and work areas with lighting, trash receptacles, desks, chairs, and multistation telephones connected on four telephone lines.

B. Offices. Developer shall provide four enclosed office rooms of 12 feet x 12 feet (144 square feet) each. All offices must have a small round meeting table with four chairs, two extra chairs for visitors, a file cabinet, a book shelf, and lockable doors.

C. Cubicles. Developer shall provide 15 total cubicle area spaces for administrative staff (nominally 80 square feet each), Developer may provide power supply and 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 10 additional chairs along side walls. Developer shall provide a 4-foot x 8-foot dry erase board in each conference room.

E. Work room. Developer shall provide a work room (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. Server room. Developer shall provide one computer server room (100 square feet) that has limited and controlled access and is locked 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, and at least three dedicated isolated ground 20-amp power circuits and one dedicated isolated ground 30-amp circuit. Developer shall locate all patch panels (phone and data) within the designated server room. Developer shall maintain server room temperature with a dedicated air-conditioning/cooling system, as described above. Developer shall provide UPS system in the server room capable of providing spike and brown out protection for all Developer and stakeholder server room equipment.

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 and kitchen cabinets and drawers.

I. Parking area. Developer shall provide parking area for at least 55 vehicles (50 staff/5 visitors) at each field office. The parking area must be reasonably level (all-weather surface and all-weather access). The parking area must include an additional lockable fenced parking area to accommodate 25 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(s) at each location must be in good and serviceable condition, at least of the same quality as those 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

If ADOT field office space(s), related facilities, or fixtures are destroyed, damaged, or stolen during the Term, except when such damage or Losses are a direct result of willful misconduct of ADOT, its personnel, or consultants, Developer shall, at its cost and within 10 Business Days after the occurrence of such destruction or damage, 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) required for normal office operations, replacement must occur within 2 Business Days. If Losses or damage occurs as a direct result of the willful misconduct of ADOT or its personnel or consultants, Developer shall replace the affected facilities within the timeframes specified herein, and ADOT will reimburse Developer for actual, reasonable, and documented costs incurred.

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.

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 NTP1. Hardware must comply with all applicable quality control (QC) standards of the OEM.

Developer shall prepare an Equipment Demobilization Plan providing 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 Substantial Completion, Developer shall submit the Equipment Demobilization Plan to ADOT for approval in ADOT's reasonable discretion.

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

Developer shall provide, install, and maintain the following for all ADOT office spaces:

A. Telephone. Developer shall provide at least one touch-tone telephone for each personal 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. If a VoIP solution is provided, the telephone desk set must have the ability to pass through data traffic on a second data network port; the pass-through port may count as one of the data network outlets if performance requirements are met.

B. Computers. Developer shall provide 30 computer workstations at the collocated office for ADOT and ADOT representative use. Each computer workstation must include the minimum hardware and software as follows:
   1. 24 inch color flat panel monitor
   2. Quad-core processor
   3. 4 GB Ram
   4. 160 GB hard drive
   5. DVD/CD RW drive
   6. Windows 7 operating system
   7. 2010 Microsoft Office Professional (MS Word, Excel, PowerPoint, Outlook, etc.)
   8. Bentley's MicroStation V8i
   9. Bentley's InRoads Suite SS2 or newer
   10. Adobe Acrobat Professional

   Developer shall install all software used by Developer for design and construction on a minimum of two of the 30 Developer provided computer workstations and must be able access the EDMS. Developer shall provide network software licenses or a minimum of two licenses each of such software for ADOT's use. All computer workstations and software will remain the property of Developer.

C. Tablets. Developer shall provide ADOT with 60 tablets capable of running a mobile operating system such as iOS or Android and must be able to access the EDMS. The tablet screen must be a minimum of 9.7" with a minimum storage capacity of 16 GB. The tablets must connect to a long term evolution network, with a data plan connection. The tablet must be able to share content such as portable document format (PDF) files or spreadsheets between devices. Developer shall provide a ruggedized case appropriate for field use for all tablets. Developer shall ensure that the tablets are in a fully set-up state and include applications capable of performing the following:
   1. Accessing ADOT Outlook webmail;
   2. Accessing, viewing, and editing Microsoft Word files;
   3. Accessing, viewing, and editing Microsoft Excel files;
   4. Accessing, viewing, and annotating PDF files;
   5. Merging and splitting PDF files;
   6. Connecting to and viewing files on ADOT's file transfer protocol server; and
   7. Basic calculations using a built-in calculator.

   Developer shall provide a single computer capable of running Windows 7 or OS X 10.9 in order to administer the tablets in the ADOT office space in the collocated office. Developer shall provide the tablets and computer to ADOT concurrent with proving occupancy to the collocated office to ADOT. All tablets and software will remain the property of Developer.

D. File server. The file server solutions must utilize a non-proprietary, industry standard compliant operating system capable of supporting real-time electronic data storage, compatible to ADOT server operating systems. At initial installation, the proposed system must operate at no more than thirty-five percent (35%) of capacity (for processor, memory, disk, and input/output performance). Parallel processing is not required, but the system must continue processing without server failure should any one component fail.

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 have a warranty with a 3-year next business day on-site service agreement.

E. Internet. Developer shall provide a symmetrical business class Internet service.

F. Printer services. Developer shall provide and maintain the following printers:

1. Two office monochrome network printers for the ADOT office space in the collocated office and each field office. Monochrome printers must comply with or exceed the following: internal memory 64 megabytes (MB); print quality up to 1,200 by 1,200 dots per inch (dpi); paper trays must include 100-sheet multipurpose tray, 250-sheet input tray, 500-sheet input tray; up to 35 pages per minute (ppm); and connectivity universal serial bus (USB), parallel, Ethernet; duplex printing capability and paper handling 3-inch x 5-inch to 11.7-inch x 17.7-inch.
2. Two office color network printers for the ADOT office space in the collocated office and one for each field office facility. Color printers must comply with or exceed the following: internal memory 160 MB; print quality true 600 x 600 dpi; paper trays will include 100-sheet multipurpose, 500-sheet feeder; 27 ppm black and white and, 27 ppm color; connectivity Ethernet 100BaseTX/10BaseT; and duplex printing capability and paper handling 3-inch x 5-inch to 11-inch x 17-inch.
3. Full-scale color plotter at the collocated office capable of handling 36-inch roll plots, 36-inch x 24-inch plots, and 11-inch x 17-inch plots.

G. Copier services. Developer shall provide and maintain two multifunction devices/copiers for the ADOT office space in the collocated office and one each for each field office. The multifunction devices/copiers must comply with or exceed the following: a monthly duty cycle of 150,000; print/copy speed, full color – 45 ppm, monochrome – 45 ppm (letter, portrait); print copy resolution – 1,800 dpi equivalent by 600 dpi; scan speed (letter) – full color 78 operations per minute (opm) at 300 dpi, 55 opm at 600 dpi, and monochrome 78 opm at 300 dpi, 65 opm at 600 dpi; scan resolution – 200 dpi, 300 dpi, 400 dpi, and 600 dpi; scan file formats – TIFF, PDF, compact PDF, JPEG, XPS, compact XPS; internal memory – 2 gigabytes (GB); internal hard drive – 250 GB; paper copy size, tray 1 and 2 (universal cassette) – 5.5 inches x 8.5 inches to 12 inches x 18 inches, tray 3 and 4 (fixed cassette) – 8.5 inches x 11 inches, 5.5 inches x 8.5 inches, 4 inches x 6 inches, bypass tray – 4 inches x 6 inches to 12 inches x 18 inches, 8 inches x 13 inches; original document size – up to 11 inches x 17 inches (scanning/copying), up to 11 inches x 17 inches full bleed on 12-inch x 18-inch paper (printing); duplex printing capability; automatic document feeder; and facsimile capability. Developer shall furnish copier stand with storage shelves and provide paper and toner for copying machine as needed.

H. Wide area network (WAN). Developer shall provide a minimum of one 50 Mbps circuit dedicated to ADOT from the Project computer room to its enterprise data or network centers at the collocated office and 20 Mbps circuit at field offices. Developer shall provide Ethernet handoff at each end of the circuit and obtain, install, and operate the links. Developer shall provide all security measures necessary to secure the Internet connection from outside intrusions and data losses.

I. 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 VAC power for the additional network equipment with a minimum of four power outlets of style NEMA 5-15R 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).

J. Wireless local area networks (WLAN). Developer shall provide a minimum of two 802.11n WLAN in the collocated office and one each in each field office facility. Each WLAN must provide a unique service set identification (SSID) to separate the network traffic. The first WLAN is for the collocated office usage and protected using current WLAN best practices. Developer shall provide the Project WLAN for Developer and ADOT personnel. Developer shall provide a second WLAN for visitor access only to the Internet and with no access to any Project, ADOT, or Developer's network data. The wireless network must provide Internet access for tablets and computers via Wi-Fi for uploading and downloading information.

K. Conference rooms. Developer shall provide an audio visual (AV) 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.

L. 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. Twenty Business Days following the issuance of NTP2, Developer shall submit the Computer Disaster Recovery Plan to ADOT.

M. Non-disruptive operations. During normal business hours, network downtimes must not be due to hardware or software system improvements and/or repairs. Developer shall schedule all maintenance and repairs to provide a minimum of 1 day advance written notice to ADOT.

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 NTP2, Developer shall submit the Network Administration Plan to ADOT for review and comment.

110.05.4.3 Project Vehicles

Developer shall not permit and shall prevent parking of Project vehicles and vehicles belonging to Developer's staff on the freeway, freeway on-/off-ramps, crossroads, work zones, under any tree's defined dripline, local streets, and outside the ADOT ROW, unless authorized by ADOT. 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 dripline of a tree is defined as 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 at no additional cost to ADOT. 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. If the tree(s) impacted by such action show any signs of decline or stress during the Work, Developer shall replace trees with like kind, size, and character.

Developer's light duty on-road vehicles that are on-site must have the Project Logo and Developer's name visibly displayed on both sides of the vehicle. Developer's Project vehicles must be equipped with appropriate safety equipment and warning lights according to all Laws. Prior to issuance of NTP2, Developer shall prepare and submit a full-size sample Vehicle Project Logo that is to be affixed to all Developer's Project vehicles to ADOT for review and approval by ADOT, in ADOT's sole discretion.

110.05.5 Construction and Maintenance Yards

Developer shall be responsible for obtaining all approvals, permits, and Governmental Approvals for obtaining locations for construction and maintenance yards for the Project. Developer shall not locate construction yards adjacent to residential areas.

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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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	2	1	Prior to issuance of NTP2	GP 110.05.2.6
Equipment Demobilization Plan	4	2	1	30 Business Days prior to Substantial Completion	GP 110.05.4.1
Computer Disaster Recovery Plan	5	2	1	20 Business Days following the issuance of NTP2	GP 110.05.4.1
Network Administration Plan	4	2	1	Within 30 Business Days following issuance of NTP1	GP 110.05.4.2
Vehicle Project Logo	1	2	1	Prior to issuance of NTP2	GP 110.05.4.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 Work, and 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 Project Schedule reflects the following information:

A. Activity Identification. Activities must be assigned consistent descriptions, identification codes, and sort codes. Sort code schemes (a) are subject to ADOT's prior consent, (b) must group activities using meaningful schemes defined by Developer and ADOT, and (c) must designate lead responsibility for each activity, and (d) 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 Work being performed by Disadvantaged Business Enterprise (DBE) firms as separate CPM activities.

B. Cost Allocation. Allocate Price and commodity quantities throughout the Project activities in the Project Schedule. Accurately reflect Developer's cost allocation for each Project

activity. All Work must be represented by cost resource-loaded Project activities. Do 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. 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. Do not use calendar dates or constraints to logically begin or complete any Project activity unless calendar dates are shown in the TPs or other relevant Contract Documents. 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 not for the exclusive use or benefit of either ADOT or Developer, but must be used in the best interest of completing the Project within the Term. If the dates in any Monthly Progress Schedule Submittal forecast any slippage or overrun of the Term, Developer shall indicate such slippage or overrun by reporting negative Float.
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 Contract 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 Developer's schedule Submittal. In the event that Float sequestering is identified, Developer shall revise the schedule appropriately.
4. Developer shall impose, code, and separately identify all contract time(s) and milestones in all Monthly Progress Schedule Submittals in conformance to the Milestone(s) and Contract Time(s) set forth in the Contract Documents. Developer shall impose no other date restraints in the Schedule, unless an explanation of their bases is provided and is acceptable to ADOT.
5. ADOT will consider extensions of time for performance of the Work required under the Agreement only to the extent that the equitable time adjustment for activities affected by any condition or event which entitles Developer to a time extension exceed the Float along the path of the activities affected at the time of NTP of a Supplemental Agreement or commencement of any delay or condition for which an adjustment is warranted under the Contract Documents.
6. If Developer is delayed in performing the Work, Developer shall absorb any related delay, disruption, interference, hindrance, extension, or acceleration costs, however caused, except as otherwise provided in Article 14 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 to be used, 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. Developer shall show actual progress and not calculated progress in the Monthly Progress Schedule. Developer shall incorporate logic changes and Work changes into the Monthly Project Schedule. Each Monthly Project Schedule Submittal must clearly and individually define the progression of the Work within the applicable timeframe by using separate Project activities.

H. Resources. Indication of 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, not total number of crews, and shall assign applicable activities for major construction equipment to be used by Developer and Subcontractors 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 submittal process outlined in this Section GP 110.06.2.3for 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. Hard copies of the schedule on full-size (24 inches x 36 inches) color plot sheets
B. Electronic version of the schedule in both native (including activity data, logic, and coding) and PDF format on IBM PC compatible electronic media
C. Schedule Narrative in accordance with Section GP 110.06.2.4 of the TPs
D. Look-Ahead Schedule in accordance with Section GP 110.06.2.9 of the TPs
E. Recovery Schedule, as needed, in accordance with Section GP 110.06.2.10 of the TPs
F. Time Impact Analysis, as needed, in accordance with Section GP 110.06.2.11 of the TPs

The Project Schedule Submittal must progress with the following steps:

A. Developer shall submit Project Schedules for review and approval by ADOT.
B. ADOT will review the schedule and 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.
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:

G. Imply 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
H. Attest to the validity of assumptions, activities, relationships, sequences, resource allocations, or any other aspect of the Project Schedule

I. Imply Developer is entitled to any Supplemental Agreement extending Completion Deadline or adjusting the Price
J. Relieve Developer from compliance with the requirements of the Contract Documents, or result in the approval of any 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 contract times
B. For the Project Schedule Submittals, include (a) Developer's site management plan (e.g., lay down, staging, traffic, and parking), (b) the use of construction equipment and resources, (c) basis and assumptions for critical activity durations and logic, (d) compliance with winter weather requirements, (e) any shifts, non-Business Days, and multiple calendars applied to the activities, (f) the construction philosophy supporting the approach to the Work outlined in the submitted Project Schedule, and (g) the reasons for the sequencing of Work and describe any limited resources, potential conflicts, and other salient items that may affect the schedule and how they may be resolved
C. For all subsequent schedule Submittals, the Schedule Narrative must recap progress and days gained or lost versus the previous Progress Schedule, problems and delays that have been experienced to date, the party responsible for the problems or delays, and Developer's plan to resolve the problems or bring the delayed activities back on schedule, 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), describe changes in resources to be used on remaining Work and identify delays, their extent, and causes. Each Schedule Narrative must also itemize changes in activities and logic ties caused by each Supplemental Agreement, schedule recovery plans and grouping of related Developer-initiated revisions
D. The justification for any activity with a duration exceeding 20 Business Days
E. The justification for 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])
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
C. Recovery Schedule (as needed)

Developer shall also prepare and maintain the following schedules:

A. Look-Ahead Schedule
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. The Project Baseline Schedule must clearly define the prosecution of the Work from issuance of NTP1 to Final Acceptance by using separate critical path method (CPM) activities for the following: design; Project ROW activities (e.g., development of ROW Submittals, review and approval periods, and all other Project ROW activities for each parcel in accordance with Section DR 470 of the TPs), environmental commitments, and mitigation activities; construction; testing; permitting; Submittal preparation, reviews, resubmissions, and concurrence; material and equipment deliveries; interfaces with other contractors, Utilities, etc.; final inspection; Punch List; milestones and Substantial Completion; and 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 calendar 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 NTP2, 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/approval of the Project Baseline Schedule is a condition for 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, vendors and 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 Term, commencing after issuance of NTP2, until the closing date for final payment for NTP2. The Monthly Progress Schedule must reflect progress up to the closing 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, 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 Work,
    2. Detail all impacts on preexisting activities, sequences and restraint dates,
    3. Reflect Developer's current approach for 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 Work is performed out of sequence, Developer shall implement logic changes to allow the out-of-logic sequence Work to proceed. Developer shall exclude any revisions for Developer’s convenience when reconciling an extension to a milestone. Developer shall document changes, which must be highlighted or identified, 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, and for discussion at the Progress Meeting, as set forth in Section GP 110.06.2 of the TPs and in Section 13.2.2 of the Agreement. Once the Monthly Progress Schedule is accepted by ADOT, Developer shall use the Monthly Progress Schedule as the basis for the next Monthly Progress Schedule. ADOT has no obligation to approve an invoice payment until ADOT receives an acceptable Monthly Progress Schedule and all other conditions for approval have been satisfied.

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 of 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

K. ROW acquisition status per parcel

L. Monthly expenditure projects and cash expenditure curves by WBS

M. Discussion of actions/corrections to be taken to achieve Project Baseline Schedule milestones

N. Reporting of Noncompliance Events from the previous month

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 3 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 Deviations from the Project Schedule. Developer shall reference

the Project Schedule activity identification numbers and define subsequent specific daily operations for all Work activities scheduled to be performed during the 4-week period. At least 1 day prior to the weekly Project 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
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;
    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, expediting of deliveries);
    4. Identification of activities that have been added, deleted, or modified; and/or
    5. Changes to the Project Schedule's Critical Path.

Within 10 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 in ADOT's good faith discretion. Developer shall not be required to prepare a Recovery Schedule if Developer requests and demonstrates entitlement to an extension of the Term, in writing, due to delay(s) not within the control of Developer, and ADOT concurs schedule recovery is not required at that time. Within 5 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 5 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 indicating that an event, situation, or change affects a Critical Path of the Project Schedule as set forth in Section 14.1.3.1 of the Agreement, Developer shall prepare a Time Impact Analysis showing the cumulative effect of the change on the completion or fixed milestone date with the Relief Request. Developer shall include a written report, in a form satisfactory to ADOT, describing the Time Impact Analysis with 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 event that justify the extension. Developer may reschedule activities not otherwise affected by the event to take advantage of additional Float available as the result of the time extension. Developer shall reflect any such rescheduling in the Project Schedule. Each Time Impact Analysis must include a fragnet demonstrating the following information:

A. How Developer proposes to incorporate the Supplemental Agreement
B. The Claims 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
D. The proposed method for incorporating the delay and its impact to the Project Schedule

With each Relief Request, Developer shall submit a Time Impact Analysis to ADOT.

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, will serve 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 6.6.4.2 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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 110-9
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Schedule Narrative	5	2	1	At each Project Schedule Submittal	GP 110.06.2.4
Project Baseline Schedule	2	2	1	Prior to issuance of NTP2	GP 110.06.2.6
Monthly Progress Schedule	2	2	1	At the Progress Meeting	GP 110.06.2.7
Monthly Progress Report	5	2	1	At the monthly progress meetings	GP 110.06.2.8
Look-Ahead Schedule	5	2	1	1 day prior to the weekly Project meeting	GP 110.06.2.9

Table 110-9 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Recovery Schedule	2	2	1	Within 10 Business Days of receipt of ADOT written direction or when any Critical Path item slips by 28 Calendar Days or more	GP 110.06.2.10
Time Impact Analysis	5	2	1	With each Relief Request	GP 110.06.2.11
As-Built Schedule	5	2	1	Within 20 Business Days after Final Acceptance	GP 110.06.2.12
*Levels of Review 1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement) 2. Good faith discretion approval (Section 3.1.3.2 of the Agreement) 3. Reasonableness approval (Section 3.1.4.2 of the Agreement) 4. Review and comment (Section 3.1.5 of the Agreement) 5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)					

110.07 Quality Management

110.07.1 General Requirements

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

110.07.2 Administrative Requirements

110.07.2.1 Quality Management Plan

Developer shall prepare a comprehensive Quality Management Plan (QMP) that is consistent with and expands upon the preliminary QMP submitted with the Proposal. The QMP must comply with International Standards Organization (ISO) 9001:2000 for quality systems, quality plans and quality audits, or most current version at the time of the Proposal submittal, as updated by the International Standards Organization. Developer may elect to obtain formal ISO 9001 certification, but is not required to do so.

The QMP must consist of four volumes, as follows:

A. Volume 1: Quality Management Plan 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)
D. Volume 4: Maintenance Quality Management Plan (MQMP) (Section GP 110.07.2.1.4 of the TPs)

Developer shall develop, implement, and maintain the QMP for the Term. The QMP must describe the systems, policies, and procedures that ensure the Work meets the requirements of the Contract Documents and provides documented evidence of same.

The QMP must encompass all Work to be performed by Developer and Subcontractors of all tiers, and shall contain detailed procedures for Developer's quality assurance (QA) and QC activities. Developer's quality process must incorporate planned and systematic verifications and audits undertaken by an Independent Quality Firm (IQF) for construction and maintenance, and by Developer's quality staff for Professional Services. Developer's quality process must also allow for verification sampling, testing and inspection by ADOT. Developer shall conduct all QA/QC, performance confirmation, and coordination among design disciplines, all in accordance with the QMP and the requirements of the Contract Documents.

Developer shall load all quality records to the EDMS immediately. Upon request, Developer shall submit copies of Quality Records to ADOT.

Within 5 Business Days of their completion, Developer shall submit all Results of Internal Audits to ADOT for review and comment. Upon issuance and resolution of the non-conformance, Developer shall submit Non-Conformance Reports to ADOT for review and comment.

110.07.2.1.1 Quality Management Plan – General Requirements

Quality terminology, unless defined or modified elsewhere in the Contract Documents, must have 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.
C. Product: the Work.

Developer shall prepare the Quality Management Plan General Requirements including the requirements in this Section 110.07.2.1.1. Prior to issuance of NTP2, Developer shall submit the Quality Management Plan General Requirements to ADOT for approval in ADOT's good faith discretion.

110.07.2.1.1.1 Quality Management Organization

Developer shall document and regularly maintain the QMP to contain current versions of the following information:

A. Resumes for all quality management personnel, including information on certifications held.
B. The organizational chart that identifies all quality management personnel, their roles, authorities and line reporting relationships.
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.
E. Identification of testing organization, including information on organization's capability to provide the specific services required for the Work, certifications held, type of equipment, and location of laboratories.
F. Procedures for interdisciplinary quality reviews and coordination.

110.07.2.1.1.2 Quality Policy

The QMP must contain a complete description of the quality policies and objectives that Developer shall implement throughout its organization. The policy must demonstrate Developer's senior management commitment to implement and continually improve the quality management system for the Work.

110.07.2.1.2 Professional Services Quality Management Plan

Developer shall prepare a PSQMP that describes its policies, procedures, and staffing to manage quality for Professional Services in accordance with the requirements of this Section GP 110.07.2.1.2. Prior to issuance of NTP2, 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. The QC and QA procedures for Professional Services Work products organized by discipline and sub-discipline, as appropriate (such as engineering - structural, utilities, Project ROW). These procedures must specify measures to ensure that appropriate quality requirements are specified and included in the Professional Services Work product and to control deviations from such requirements.
B. Specific QC and quality review procedures, including all required forms and checklists, for preparing, verifying, and checking all Professional Services Work products to ensure that they are independently checked and back-checked in accordance with generally accepted practices of said Professional Services in the State and the requirements of the Contract Documents.
C. Provisions for identifying the originator and checker on the face of all final work products. Developer shall clearly identify the designer and checker on the face of all Final Design Documents.
D. Specific procedures for verifying the Professional Services Work product along with any computer programs and methods being used for such purposes.
E. 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. This must also include the coordination of the review, approval, release, distribution, and revision of documents involving such parties.
F. Procedures must: (1) ensure that Developer personnel are familiar with all the provisions of the Contract Documents concerning their respective responsibilities; (2) provide for the education, training and certification, as appropriate, of personnel performing activities affecting or assessing the quality of the Work to assure that such personnel achieve and maintain reasonable proficiency; and (3) ensure that Developer performs the Work in accordance with the PSQMP, generally accepted engineering practices or other applicable Professional Services practices in the State and the Contract Documents.
G. Procedures for meeting documentation requirements per the requirements of the Contract Documents.
H. Procedures and schedules for the performance of audits of Developer's QC procedures under the PSQMP.
I. A summary of the documentation that will comprise the Professional Services quality records, and the procedures to make such quality records immediately available to ADOT for review.
J. A summary of anticipated Professional Services audit documentation to be submitted to ADOT, and the procedures to make sure that Developer shall submit all Results of Internal Audits for Professional Services to ADOT for review and comment.

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 QC commensurate with the scope, complexity, and nature of the Professional Services Work products to be reviewed. Qualifications must include appropriate experience, certifications, training and licensure.

Developer personnel performing the QC check of Professional Services Work products must not be directly involved with the original development of the item, Element, or phase being checked.

The number of personnel performing Professional Services QC must reflect the volume of quality assurance (QA) 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 Assurance (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 to be performed. Qualifications must include appropriate experience, certifications, and training.

110.07.2.1.2.2.3 Professional Services Quality Assurance Staff Levels

The size of the 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 is available and that PSQMP activities are undertaken in a manner consistent with the Project Schedule and in a manner that enables Developer to timely achieve the Substantial Completion Deadline and Final Acceptance Deadline.

Should ADOT determine that Developer is not complying with PSQMP because of lack of staff or ethical standards, ADOT will have the right, without penalty or cost, including time extensions or delay damages, to restrict Work efforts until appropriate levels of staffing consistent with the PSQMP and satisfactory to ADOT are obtained, or ADOT may contract with a separate firm to perform these services and withhold payment to Developer for such services.

110.07.2.1.3 Construction Quality Management Plan

Developer shall prepare a Construction Quality Management Plan (CQMP) that describes its policies, procedures, and staffing to manage construction quality in accordance with the requirements of this Section GP 110.07.2.1.3, TP Attachment 110-2, and the Contract Documents.

Developer shall construct the Work in accordance with the Release for Construction (RFC) Submittal, Developer's CQMP must contain detailed procedures for Developer's QA/QC activities for construction activities. The CQMP must be consistent with the applicable procedures contained in the ADOT *Materials Quality Assurance Program* and relevant appendices and the ADOT *Construction Manual*. Developer shall use the ADOT *Materials Testing Manual* when establishing sampling and testing procedures for standardization and

consistency with ADOT procedures. The CQMP must establish clear distinction between QC and quality acceptance activities and persons performing them.

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 NTP2, 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 describe and include the following general requirements:

A. Methods and procedures that clearly define the distinction/authority/responsibility for the administration of the CQMP.
B. Designation of an individual on each crew to be responsible for performing daily field QC Inspections of the crew's Work and for preparing a daily QC report to document the Inspection performed.
C. The review and approval process of all Portland cement concrete and hot mix asphaltic concrete mix designs by an IQF Professional Engineer.
D. Methods and procedures to be utilized by Developer to obtain active participation of the workforce in QC operations to achieve a high quality Project; Developer shall include reporting forms to be used by the responsible QC personnel.
E. A construction QC organization and staffing plan. Developer shall (a) show the period of time that the QC staff members must be present on the Site, (b) include the resumes of the Key Personnel and other personnel included in the QC organization, and (c) state the experience/knowledge/skill levels of the QC support staff.
F. IQF organizational and staffing plans. Developer shall (a) show the period of time that the quality acceptance staff members must be present on the Site, (b) include the resumes of key staff members, and (c) state the required minimum knowledge, technical skills, and experience level of the personnel related to the various Inspection functions, such as grading, drainage, structures, and electrical Inspections, that will occur on the Work. Developer shall identify the administrative/clerical support staff for maintenance and management of records/documents pertinent to quality acceptance for the IQF activities.
G. Procedures for Inspecting, checking, and documenting the Work. Developer shall perform Inspections, examinations, and measurements for each operation of the Work to assure quality.
H. Sampling and testing requirements of all materials during the production or manufacturing processes.
I. Procedures to ensure there is adequate quantity of material available for IQF sampling and testing and ADOT verification sampling and testing.
J. Procedures to ensure that all activities affecting the quality of the Work are accomplished under controlled conditions, using appropriate equipment for the task being performed.
K. Procedures to ensure that the education, training, and certification of personnel performing CQMP activities are achieved and maintained and that all Work is performed in accordance with the approved designs, Plans, and specifications.
L. Procedures to ensure that critical Elements of the Work are not started or continued without Inspection and testing by the IQF personnel on site. Developer shall identify

and communicate Inspection or hold points to the IQF, Construction Quality Control Manager (CQCM), and ADOT and develop procedures to proceed beyond Inspection points.

M. Description of specific procedures to ensure that all Work conforms to the requirements of the Contract Documents, Governmental Approvals, applicable Laws, and the RFC documents, as well as that all materials, equipment, and elements of the Work performs satisfactorily for the purpose intended.

N. Documentation that all activities undertaken by or on behalf of Developer affecting the quality of the Work are prescribed by documented instructions, procedures, and appropriate drawings. Such instructions, procedures, and drawings must include quantitative and qualitative criteria to be used to determine compliance.

O. 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.

P. Procedures for identification and control of materials, equipment, and elements of the Work. These procedures must be consistent with current industry standards to ensure that identification of the item is maintained 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.

Q. Procedures to ensure that materials, equipment, or Elements of the Work that do not conform to requirements of the Contract Documents, Governmental Approvals, applicable Laws, or the Design Documents are not used or installed. These procedures must include identification, documentation, segregation, disposition and notification to ADOT and, if appropriate, Governmental Entities and other affected third parties, as well as procedures for ADOT to review Nonconforming Work.

R. Procedures for processing a Request for Information (RFI) to resolve discrepancies and/or questions in the Plans and specifications, so that all changes are documented and approved by Developer's design engineers and ADOT.

S. 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.

T. A program for Inspection for each operation of all Work examinations, measurement and test of materials or Elements of the Work to assure quality.

U. A program for coordination of all inspection and testing with the Inspections and tests of Governmental Entities and Utility Owners.

V. A program to ensure performance of all testing required to demonstrate that all materials, equipment, and Elements of the Work perform satisfactorily for the purpose intended and meet the standards specified in the Contract Documents. The program must specify written test procedures which include provisions for ensuring that all prerequisites for the given test have been met and that adequate test instrumentation is available and used. The CQMP must require that test results be documented and evaluated to ensure that test requirements have been satisfied. The CQMP must also demonstrate how the IQF tracks its testing frequencies to ensure compliance with the Contract Documents.

W. Procedures for reviewing and approving quality acceptance test results, categorizing test results in a manner acceptable to ADOT, transmitting quality acceptance test results to ADOT in a format acceptable to ADOT for use in fulfilling its statistical

validation requirements, and working collaboratively with ADOT to resolve statistical non-validation between IQF and ADOT test results.

X. Measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified, and adjusted at specified periods to maintain accuracy within industry standards.

Y. Procedures to control the handling, storage, shipping, cleaning, and preservation of materials and equipment to prevent damage or deterioration.

Z. Procedures to ensure those conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and 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. 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.

AA. A comprehensive system of planned and periodic audits of Developer's CQMP to determine adherence to and the effectiveness of the CQMP. IQF personnel must perform the audits in accordance with the written procedures or checklists. Developer shall document, review, and act upon audit results. Developer shall take follow-up action, including re-audit of deficient areas following corrective action, where indicated.

BB. Measures to control the receipt and issuance of documents, such as instructions, procedures, training manuals and drawings, including changes thereto, which prescribe activities affecting quality. These measures must ensure that approved documents, including authorized changes thereto, are reviewed for adequacy and approved for release by authorized personnel of Developer and are distributed to and used at the location where the prescribed activity is performed. The same organizations that performed the original review and approval must review and approve changes to documents, unless ADOT consents, in writing, to the use of another responsible organization.

CC. The requirements and methods for controlling documents.

DD. Procedures and personnel to be used to assure that specified instrumentation is installed and monitored in accordance with applicable specification.

EE. The form and distribution of certificates of compliance. A certificate of analysis must include all the information required for a certificate of compliance and, in addition, must include the results of all tests required by the specifications.

FF. Procedures for ensuring compliance with Buy America requirements of 23 CFR 635.410, including tracking quantities and dollars of domestic and foreign steel. The IQF must make this information available to ADOT.

GG. Procedures for quality acceptance in the CQMP with respect to checking and verifying the accuracy and adequacy of construction stakes, lines, and grades established by Developer.

HH. A summary of the documentation that comprises the construction quality records, and the procedures to make such quality records immediately available to ADOT for review.

II. A summary of anticipated construction audit documentation to be submitted to ADOT, and the procedures to make sure all Results of Internal Audits for construction are submitted to ADOT within the timeline required in Section GP 110.07.3 of the TPs.

110.07.2.1.3.2 Inspection of Work

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

Developer's failure to immediately discover any defective work or materials shall not in any way prevent later rejection when such defect is discovered nor obligate ADOT to final acceptance.

When identified by ADOT, certain units of Governmental Entities, political subdivision, utility or railroad corporation may have the right to inspect the Work. Such inspection shall in no sense make any unit of government, political subdivision or any railroad corporation a party to the contract and shall in no way interfere with the rights of either party to the contract.

110.07.2.1.3.3 Inspection of the Plant

ADOT may undertake the inspection of materials at the source. In the event plant inspection is undertaken, ADOT shall have the cooperation and assistance of Developer and the producer with whom Developer has contracted for materials, and ADOT shall have full entry at all times to such parts of the plant as may be involved in the manufacture or production of the materials being furnished. Adequate safety measures shall be provided and maintained.

110.07.2.1.3.4 Sampling Device

All secondary crushers and screening plants used in producing material must be equipped with a mechanical sampling device or devices that can either be operated from the ground or is accessible to the operator on a platform.

These devices must be constructed and operated so that they 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. The sampling devices must be substantially constructed so that a sample weighing up to 100 pounds can be taken.

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.

The sampling devices must be maintained in a satisfactory working condition so that samples may be taken at any time, as required by ADOT.

110.07.2.1.3.5 Ice for Field Testing

Developer shall make commercial ice available to ADOT on site for field testing verification purposes.

110.07.2.1.3.6 Construction Quality Acceptance Staff Levels

The size of the construction quality acceptance staff must reflect the volume of quality acceptance activities necessary for the Work in progress and Developer shall maintain such staff size in accordance with the approved CQMP. The IQF staff must perform quality acceptance oversight, Inspection, and testing services typically performed by ADOT on traditional projects.

Developer shall update the construction quality acceptance staffing requirements as necessary throughout the Construction Work period to reflect changes in the actual construction schedule. Developer shall ensure that adequate construction quality acceptance staff is available and that CQMP activities are undertaken in a manner consistent with the Project Schedule and in a

manner that enables Developer to timely achieve the Substantial Completion Deadline and Final Acceptance Deadlines.

110.07.2.1.3.7 Recording, Record Keeping and Documentation

Developer shall develop and maintain quality records, including:

A. QC Inspection reports and process control material sampling/testing results and control charts, which Developer shall make available to ADOT.
B. The IQF must maintain, electronically, a daily log of all Inspections performed for both Developer and Subcontractor operations in a format acceptable to ADOT and must be made available to ADOT upon request. The daily Inspection reports must identify Inspections conducted, results of Inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The responsible technician and supervisor must sign the daily Inspection reports. Inspectors must use ADOT approved checklists when performing his/her Inspections. Developer shall provide the results of the daily Inspections to ADOT in an electronic format within 24 hours after the work shift.
C. The IQF must be responsible for establishing an electronic system for recording all material test results and certifications. The responsible technician and his/her supervisor must sign the daily test reports. Developer shall provide the results of the daily test to ADOT within 24 hours of test completion.
D. The IQF's Inspection and materials quality program must electronically deliver the laboratory and field test results to ADOT in a database format acceptable to ADOT. This electronic reporting is intended to allow Developer and ADOT to make timely and accurate decisions on workmanship and material quality issues.

The IQF must review and maintain all originals or copies of a Certificate of Compliance or a Certificate of Analysis, as required, prior to the use of any materials or manufactured assemblies requiring such a certificate be furnished according to applicable ADOT *Materials Policy and Procedure Directives*. The certificates must be made available to ADOT.

Certificates shall be specifically identified as either a "Certificate of Compliance" or a "Certificate of Analysis".

Certificates of Compliance and Certificates of Analysis shall comply with the requirements specified herein, the ADOT *Materials Quality Assurance Program*, and applicable ADOT *Materials Policy and Procedure Directives*.

110.07.2.1.4 Maintenance Quality Management Plan

Developer shall prepare a comprehensive Maintenance Quality Management Plan (MQMP) which must fully incorporate the requirements of the Work during the Maintenance Period, with the primary function of establishing Developer's self-monitoring process and monitoring the performance of the Maintenance Services. The MQMP must be consistent with the design and construction QA/QC requirements set forth in this Section GP 110.07.2.1.4. At a minimum, the MQMP must specify:

A. Detailed QA system for validating the information, accuracy, and results of the MQMP.
B. Procedures to validate the data, times, dates, calculations and other information that are the basis of Maintenance Services Noncompliance Events.
C. Methods and procedures that clearly define the distinction/authority/responsibility for the administration of the MQMP.

D. That Developer, Suppliers, and Subcontractors designate an individual on each crew to be responsible for performing daily field Inspections of the crew's Work and for preparing a daily QC report to document the Inspections performed.
E. A Maintenance Services 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 Work. Developer shall perform Inspections, examinations, and measurements must be performed for each operation of the Work to assure quality.
G. Procedures to ensure that all activities affecting the quality of the 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, Rules, 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 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 Maintenance Services quality records, and the procedures to make such quality records immediately available to ADOT for review.
L. A summary of anticipated Maintenance Services audit documentation to be submitted to ADOT, and the procedures to make sure all Results of Internal Audits for Maintenance Services are submitted to ADOT within the timeline required in Section GP 110.07.2.1 of the TPs.

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

110.07.2.1.4.1 Reporting

Developer shall prepare a Maintenance Annual Report that must include the following elements:

A. An assessment of the actual Maintenance Services achievements versus the planned goals established in the Maintenance Management Plan, as well as corrective actions and measures to be taken in the ensuing year to ensure that any shortcomings are corrected; and
B. An assessment of compliance with the various traffic control requirements and limitations contained in the Contract Documents, and the traffic control plans developed in accordance with the Technical Provisions, as well as any corrective measures taken

to correct any breach or violation of such requirements and limitations and any corrective measures necessary to prevent any future breach or violation of such requirements and limitations.

By each anniversary of the Substantial Completion Date, Developer shall submit the Maintenance Annual Report to ADOT for review and comment.

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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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	2	1	Prior to issuance of NTP2	GP 110.07.2.1
Quality Records	5	2	1	Upon request	GP 110.07.2.1.1
Results of Internal Audits	4	2	1	Within 5 Business Days of their completion	GP 110.07.2.1.1
Non-Conformance Reports	4	2	1	Upon issuance and resolution of the non-conformance	GP 110.07.2.1.1
Professional Services Quality Management Plan (PSQMP)	2	2	1	Prior to issuance of NTP2	GP 110.07.2.1.2
Construction Quality Management Plan (CQMP)	2	2	1	Prior to issuance of NTP2	GP 110.07.2.1.3
Maintenance Quality Management Plan (MQMP)	2	2	1	Prior to issuance of Maintenance NTP	GP 110.07.2.1.4
Maintenance Annual Report	4	2	1	By each anniversary of the Substantial Completion Date	GP 110.07.2.1.4.1

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

110.08 Human Resource Management

110.08.1 General Requirements

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

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 appropriate required professional licenses and certifications; and such licenses and certifications must be acquired prior to the individual starting work on the Project.

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 at the Project as identified below. The number of years of relevant experience listed for each Key Personnel position represents a target goal for evaluation purposes and is not a mandatory, minimum requirement for that position.

Replacement and/or staffing of all Key Personnel positions listed below must follow the processes described in Section 9.6 of the Agreement.

All Key Personnel must be actively engaged full time. Developer shall appoint the Key Personnel for the Project as follows:

A. Project Manager
B. Construction Manager
C. Design Manager
D. Quality Manager
E. Safety Manager
F. Public Relations Officer
G. ROW Acquisition Manager
H. Utility Adjustment Coordinator
I. Environmental Compliance Manager
J. Maintenance Manager
K. DBE/On-the-Job Training (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 and construction of the Project. This individual must be an employee of (i) Developer, (ii) an Equity Member that must hold at least a 1/3 beneficial interest in Developer, or (iii) the Lead Subcontractor, and must be on-site full time during the D&C Period. The individual's relevant experience includes the following:

A. 20 years on complex highway infrastructure projects.
B. 10 years managing the design and construction of major urban freeway systems.
C. 5 years of major design-build-maintain project management of major urban freeway systems.

110.08.2.2 Construction Manager

The Construction Manager must be assigned to the Project full time, 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 Subcontractor, and must be on-site during the Construction Work. The individual's relevant experience includes the following:

A. 15 years on complex highway infrastructure projects.
B. 10 years managing the construction of major urban freeway systems.
C. 5 years of major design-build construction management of major urban freeways.

110.08.2.3 Design Manager

The Design Manager is responsible for coordinating the individual design disciplines and is responsible for ensuring that the overall Project design is completed and design criteria and requirements are met. This individual must be assigned to the Project full time and must be an employee of (i) Developer, (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, (iii) the Lead Subcontractor, or (iv) 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 as required during the Construction Work of the Project. This individual is responsible for design quality management and must have primary responsibility for Design Work. This individual must be a registered or licensed professional engineer, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of SOQ submittal, and must be a Professional Engineer by the date 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 urban freeways.
C. 5 years of major design-build project management of major urban freeway systems.

110.08.2.4 Quality Manager

The Quality Manager is responsible for establishing and supervising Developer's QA/QC program for the design and construction of the Project. 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 Subcontractor, and must be under the direct supervision of an executive officer above the level of, and under a line of authority independent of, the Project Manager. This individual must be assigned to the Project full time and must be on-site during the performance of Design Work and Construction Work. This individual must not be assigned any other duties or responsibilities on the Project or any other projects. This individual must have the authority to stop any and all Design Work or Construction Work. This individual must be a registered or licensed professional engineer, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of SOQ submittal, and must be a registered Professional Engineer by the date 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 freeway projects.
C. 5 years of major design-build construction management of major urban freeways.

110.08.2.5 Safety Manager

The Safety Manager is responsible for establishing and supervising Developer's safety program and implementing and coordinating the Transportation Management Plan (TMP) per 23 CFR 630.1012. 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 Subcontractor, and must report directly to the Project Manager. This individual must be assigned to the Project full time and must be on-site during Construction Work. This individual must be familiar with 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 freeway projects.
C. 5 years of major design-build construction management of major urban freeways.

110.08.2.6 Public Relations Officer

The Public Relations Office is responsible for supporting ADOT's effort to involve the community in the Project. This individual can be an employee of (i) Developer, (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, (iii) the Lead Subcontractor, (iv) the Lead Engineering Firm or (v) the Lead Maintenance Firm, or must have a contractual relationship with Developer. This individual must report to the Project Manager. This individual must be assigned to the Project full time during the D&C Period. The individual's relevant experience includes the following:

A. 10 years working on community relations programs.
B. 5 years coordinating public outreach programs on major urban freeway projects.
C. 3 years of community relations experience on major design-build construction projects with a contract price of $100 million per project

110.08.2.7 ROW Acquisition Manager

The ROW Acquisition Manager is responsible for coordinating the ROW acquisition services and ROW relocation activities of Developer and for ensuring that the ROW 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, (iii) the Lead Subcontractor, or (iv) the Lead Engineering Firm, or must have a contractual relationship with Developer. This individual must report to the Project Manager. This individual must be assigned to the Project full time and must be on-site during acquisition and relocation activities on the Project. This individual must be a licensed Arizona real estate agent or broker by date of contract award. The individual's relevant experience includes the following:

A. 10 years on complex highway infrastructure projects.
B. 5 years coordinating ROW acquisitions and ROW relocations for major urban freeways.

110.08.2.8 Utility Adjustment Coordinator

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 be an employee of (i) Developer, (ii) an Equity Member that holds at least a 1/3 beneficial interest in Developer, (iii) the Lead Subcontractor, or (iv) the Lead Engineering Firm, or must have a contractual relationship with Developer. This individual must report to the Construction Manager. This individual must be assigned to the Project full time and must be on-site 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 coordinating utility adjustments and relocations for major urban freeway projects.

110.08.2.9 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 will hold at least a 1/3 beneficial interest in Developer, (iii) the Lead Subcontractor, or (iv) the Lead Engineering Firm, or must have a contractual relationship with Developer. This individual must report to the Construction Manager. This individual must be assigned to the

Project full time and must be on-site during the performance of the Design Work and Construction Work. 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 urban freeway project.

110.08.2.10 Maintenance Manager

The Maintenance Manager is responsible for supervising all Maintenance Work and for working with the Project Manager to integrate maintenance planning and considerations into design and construction decisions. This individual must be an employee of (i) Developer, (ii) an Equity Member that will hold at least a 1/3 beneficial interest in Developer, or (iii) the Lead Maintenance Firm, and must be present during the Maintenance Period. This individual must serve as the point of contact during the Maintenance Period. The individual's relevant experience includes the following:

A. 15 years maintaining complex highway infrastructure projects.
B. 10 years coordinating maintenance programs on major urban freeway project.
C. 5 years of management of reconstruction associated with major urban freeways.

110.08.2.11 DBE/OJT Outreach and Compliance Manager

The DBE/OJT Outreach and Compliance Manager must be assigned to the Project full time, be available during the D&C Period and the Capital Asset Replacement Work, and 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. This individual will be responsible for DBE/OJT, equal employment opportunity (EEO), and small business recruitment, outreach, management, monitoring, oversight, and reporting. 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 working with DBE, OJT, or EEO programs.

110.08.3 Other Personnel

110.08.3.1 Professional Services Quality Manager

Developer shall designate a Professional Services Quality Manager (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 must be responsible for implementing quality planning, overseeing the Professional Services review, auditing, and coordinating with ADOT Professional Services oversight review. The PSQM must be 100 percent committed to the Project through the acceptance of the Final Design Documents by ADOT and must have no other role, duties, or responsibilities. The PSQM and Construction Quality Manager (CQM) must be different people. The individual's relevant experience includes the following:

A. 10 years of experience in design quality management and/or Professional Services quality management of major urban freeway 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 must be 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 the Independent Quality Firm (IQF). The CQM must be 100 percent committed to the Project and must have no other role, duties, or responsibilities. The CQM must be authorized 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 CQM's relevant experience includes the following:

A. 10 years of experience in the construction quality management of major urban freeway projects.

110.08.3.3 Construction Quality Control Staff

Developer's and Subcontractors' construction work force are all considered to be members of Developer's construction QC staff as each and every one is responsible for the quality of the Work. Personnel performing QC Inspections must ensure quality of workmanship. QC sampling and testing must ensure that materials meet the required specifications prior to acceptance testing performed by the IQF. Personnel responsible for performing QC Inspection must be knowledgeable and receive training to perform their QC duties. Personnel performing QC sampling and testing must be knowledgeable in the testing methods and procedures and do not need to be direct employees of Developer, but cannot be employees of the IQF.

110.08.3.4 Construction Independent Quality Manager

Developer's IQF must assign an on-site Construction Independent Quality Manager (CIQM) who must be responsible for management of the quality acceptance aspect of the CQMP. The CIQM must review, approve, authorize, examine, interpret, and confirm methods or procedures performed by Developer. The CIQM must be responsible for overseeing the quality acceptance testing and inspection and coordinating with ADOT's oversight inspection and testing staff in accordance with the requirements of the Contract Documents.

The CIQM must be a Professional Engineer and must be an employee of the IQF, with no responsibilities in connection with the production of the Work. The CIQM must report jointly to Developer's management team and ADOT. The CIQM must not report to any person or party directly responsible for Design Work or Construction Work.

The CIQM must be 100 percent committed to the Project and must have no other role, duties, or responsibilities. The CIQM must be authorized to stop any Construction Work that does not comply with the standards, specifications, or criteria established for the Project. The PSQM and CIQM must be different people.

110.08.3.5 Independent Quality Acceptance Staff

An Independent Quality Firm (IQF) staff must be provided under the direction of the CIQM to perform Inspection and material sampling and testing of all Work performed and materials incorporated into the Project. If approved in writing in advance by ADOT, qualified individuals who are employees of or retained by manufacturers, vendors, or Suppliers may Inspect certain portions of Work.

The IQF testing and sampling staff must be employees of the IQF, with no responsibilities in connection with the production of the Work, and must meet the requirements of Section VII of the ADOT Materials Quality Assurance Program ("Sampling and Testing Personnel Qualification Requirements"). The IQF staff must be experienced in highway inspection and material testing. The training and experience of the construction quality acceptance staff must be commensurate with the scope, complexity, and nature of the activity to be controlled and tested. Qualifications

must be consistent with ADOT's Materials Quality Assurance Program. Construction quality acceptance staff must report to the CIQM.

The IQF staff must provide appropriate level of oversight and perform audits of the QC Inspection and material sampling and testing operation. The construction quality acceptance Inspection staff must check compliance of all material, equipment, construction, installations, and operations. Personnel assigned to perform Inspection, testing, or monitoring of characteristics for acceptance must not be those personnel performing or directly supervising the Work being accepted.

110.08.3.6 Maintenance QC Manager

Developer shall assign an on-site Maintenance QC Manager who must be responsible for management of the MQMP. The Maintenance QC Manager must not be involved with scheduling or production activities, and must report directly to Developer's management team. The Maintenance QC Manager is responsible for independently overseeing and performing QC for the Maintenance Work. The Maintenance QC Manager reports, develops, and implements corrective actions for any deviations to the methods and procedures contained in approved MQMP in the performance of the Work.

110.08.3.7 Maintenance Quality Control Staff

The members of Developer's and Subcontractors' Maintenance Services work force are all considered to be members of Developer's QC staff as each and every one is responsible for the quality of the Work. Personnel performing QC Inspection must ensure quality of workmanship and QC sampling and testing must ensure that materials meet the required specifications. Personnel responsible for performing QC Inspection must be knowledgeable and receive training to perform their QC duties. Should any sampling and testing be required during the Maintenance Work, Maintenance QC Manager must be responsible for ensuring that sampling and testing procedures and methods meet the requirements in the MQMP.

110.08.3.8 ROW Quality Control Specialist(s)

Developer shall designate a ROW Quality Control Specialist(s) for the Project. The ROW Quality Control Specialist(s) must be responsible for internal QA/QC for Project ROW Work and review all Developer Submittals associated with ROW Exhibits, Legal Descriptions, title, appraisal, acquisition, relocation, and eminent domain prior to the Submittal being delivered to ADOT for review. The ROW Quality Control Specialist(s) must be familiar with ADOT procedures, standards, and law pertaining to acquisition of Project ROW.

110.08.3.9 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 or licensed land surveyor, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of Proposal submittal, and must be a registered land surveyor in the State by the date of contract award. The individual's relevant experience includes the following:

A. 10 years of experience with Right-of-Way, Design, and Construction surveys.
B. A minimum of 10 years of registration as a Land Surveyor.

110.08.3.10 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 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 or licensed professional engineer, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of Proposal submittal, and must be a Professional Engineer by the date of contract award. The individual's relevant experience includes the following:

A. 15 years of experience in matters relating to geotechnical subsurface exploration, geotechnical site characterization, analysis, design, and construction of bridge foundations, retaining walls and soundwalls, drainage structures, roadway embankments and roadway pavements, and excavation and fill slopes in soil and rock.

110.08.3.11 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 or licensed professional engineer, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of Proposal submittal, and must be a registered Professional Engineer by the start of the associated Work. The individual's relevant experience includes the following:

A. A minimum of 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.

110.08.3.12 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. Blasting Supervisors must demonstrate the following:

A. A minimum of 10 years of experience in the loading and firing of charges for rock excavation for heavy civil construction.

110.08.3.13 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 Blasters in Charge must demonstrate the following:

A. A minimum of 7 years of experience in supervising the loading and firing of charges for rock excavation.

110.08.3.14 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 and those that may be 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 the following areas:

A. Experienced in developing remedial action plans or equivalent reports necessary and acceptable to the ADOT in Hazardous Material investigation, discovery, and remediation efforts of Hazardous Materials.

110.08.3.15 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 the Section 106 process and familiarity with cultural resources policies, procedures, and goals, through published reports and/or past performance.

110.08.3.16 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 including burrowing owls
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

110.08.3.17 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 SWPPP throughout the Construction Period, for making the required inspections, and for implementing any other permit requirements stipulated in the AZPDES general permit.

The ECC must be capable of identifying existing and predictable effects of Developer's operations, and shall 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, and Developer shall ensure the same. The ECC shall be present at the Site on a full-time basis. Developer shall provide ADOT with a phone number through which the ECC can be contacted 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 such call being placed.

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. No other training can be substituted. 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 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, one of the following is required and must be maintained for the duration of the Work.

A. Registration in the State of Arizona as a Landscape Architect, with a minimum of 1 year of experience in the fields of erosion control and sediment transport.
B. Registration as a Professional Engineer with a minimum of 1 year of experience 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.

110.08.3.18 Hydraulics Engineer

Developer shall designate a Hydraulics Engineer for the Project. The Hydraulics Engineer must report directly to the Design Manager. Developer shall ensure that the Hydraulics Engineer is responsible for all matters regarding hydraulics for the Project. The Hydraulic Engineer must be a registered or licensed professional engineer, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of Proposal submittal, and must be a Professional Engineer by the date of Award. Registration must be kept active throughout the duration of the Work. The individual's relevant experience includes the following:

A. 5 years of experience with hydraulics design for the projects on the Arizona State Highway System.

110.08.3.19 Landscape Architect

Developer shall designate a Landscape Architect for the Project. The Landscape Architect must report directly to the Design Manager. The Landscape Architect must be responsible for the landscaping and aesthetics for the Project and be familiar with ADOT construction plan preparation. The Landscape Architect must be a registered or licensed landscape architect, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of Proposal submittal, and must be a registered landscape architect in the State of Arizona by the time of contract award. The individual's relevant experience includes the following:

A. 5 years of experience in developing landscape and aesthetic plans.

110.08.3.20 Irrigation System Designer

Developer shall designate an Irrigation System Designer for the Project. The Irrigation System Designer must report directly to the Landscape Architect. The Irrigation System Designer must be responsible for the irrigation system design for the Project and be familiar with ADOT construction plan preparation. Irrigation System Designer must have a minimum of 5 years of experience designing on complex highway infrastructure projects using drip irrigation and have familiarity with reclaimed irrigation water design requirements and regulations.

110.08.3.21 Landform Graphic Layout Artist

Developer shall designate a Landform Graphic Layout Artist for the Project. The Landform Graphic Layout Artist must be responsible for the complete layout and adjustment, as needed, of the landform graphics to meet actual site and visual conditions. The Landform Graphic Layout Artist is responsible for providing all layout labor assistance, materials, tools, equipment, and roadway safety items necessary to layout the landform graphics. The Landform Graphic Layout Artist must have completed work on two major landform graphic projects that involved working with variable contours, grading and drainage, and site conditions with grade level changes other just flat surfaces. The Landform Graphic Layout Artist must have experience in the use of professional methods of construction, materials, and equipment for the construction of large-scale landform graphics.

The Landform Graphic Artist must be on the landform graphic site during layout, layout approval, and installation of graphic outlines and as required by ADOT during placement of granite and rock mulch materials.

110.08.3.22 Appraiser(s) and Appraisal Reviewer(s)

Each Appraiser and Appraisal Reviewer must be certified by the Arizona Board of Appraisers as a General Certified Real Estate Appraiser. Each Appraiser and Appraisal Reviewer must have a minimum 5 years of experience in appraising real property for eminent domain purposes,

including partial taking appraisal, partial taking appraisal review, and expert witness testimony, unless otherwise approved by ADOT. Each Appraiser and Appraisal Reviewer must be familiar with appraisal and appraisal report review processes pursuant to the Uniform Standards of Professional Appraisal Practice (USPAP) and Federal requirements in Title 49 CFR Part 24. Both Appraisers and Appraisal Reviewers may be required to testify. The Appraisers and the Appraisal Reviewers must have separate and distinct duties, and Appraisers must be employed by different firms from the Appraisal Reviewers. Each Appraiser must submit three samples of previous appraisal work prepared for eminent domain purposes prior to performing any Work. All Appraisers preparing and signing appraisals must be approved by ADOT prior to performing any appraisals on the Project.

110.08.3.23 Relocation Agent(s)

Each Relocation Agent must have a minimum of 3 years of experience in relocation assistance for ROW projects pursuant to the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Relocation Agents responsible for business relocations must have an additional 2 years of experience with business relocation. A Relocation Agent's responsibilities must include the following: determining of eligibility of all displacees, contacting all displacees and informing them of their benefits, maintaining a file of all documentation concerning the relocation of the displacees, and extending all relocation assistance advisory services.

110.08.3.24 Acquisition Agent(s)

Each Acquisition Agent must be licensed either as a real estate sales person or broker pursuant to the Arizona Revised Statutes, Title 32, Chapter 20, Article 2 or rules established by the Arizona Real Estate Department, and must be familiar with appraisal and appraisal report review processes pursuant to the Uniform Standards of Professional Appraisal Practice (USPAP) and Federal requirements in Title 49 CFR Part 24. The Acquisition Agents must have a minimum 3 years of experience in ROW negotiations. The Acquisition Agent's responsibilities must include the following: contact with property owners on the Project to discuss the acquisition of property needed for the Project, maintaining complete and accurate files of all transactions and contacts with the property owners and/or their representatives, and actively working toward a joint resolution to acquire the property with the property owner.

110.08.3.25 Other ROW Personnel

All other ROW personnel must have at least 3 years of experience in title review and curative matters. ROW personnel's responsibilities must include the following: maintain complete and accurate files of all transactions and contacts with the property owners and/or their representatives, coordinate and clear all title issues, and assist at closing for properties acquired for the Project.

110.08.3.26 Deputy Maintenance Manager

Developer shall designate a Deputy Maintenance Manager for the Project. The Deputy Maintenance Manager must report directly to the Maintenance Manager and must be assigned to the Project full time. The Deputy Maintenance Manager must have at least 5 years of experience managing or leading maintenance or operations of federally funded controlled access freeway system, including responsibility for structures, pavements, roadside appurtenances, and traffic control. This individual must not be assigned any other duties or responsibilities on this Project or any other projects. The Deputy Maintenance Manager or designee must be available on call within 1 hour of emergency notification.

110.08.3.27 ITS Design Manager

Developer shall designate an 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 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 or licensed professional engineer, comparable to an Arizona registration, in some state or foreign jurisdiction at the time of Proposal submittal, and must be a Professional Engineer by the date of contract award. Registration must be kept active throughout the duration of the Work. The individual's relevant experience includes the following:

A. A minimum of 10 years of experience in leading ITS design.

110.08.3.28 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 (SAT) 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. A minimum of 10 years of experience in leading ITS construction, installation, and system acceptance testing.
B. A minimum of 50 miles of previous fiber optic cable installation experience.

110.09 Safety Management

110.09.1 General Requirements

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

Developer shall have sole responsibility for safety and convenience on the Site 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, but not limited to, 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 Term.

The Safety Management Plan must be Project-specific, and must include Work to be performed by Subcontractors.

Developer's Safety Management Plan must:

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

Prior to issuance of NTP2, Developer shall submit the Safety Management Plan 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 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 also specify those personnel with the authority to restart site activities after the previously unrecognized hazards have been controlled. The Project Manager is accountable for 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 Work that are specific to the job assignment
C. Required Work practices, job conduct, and injury-reporting procedures
D. Acquainting the employee with special Work and safety requirements at the site

110.09.2.1.3 Employee Training Requirements

Developer shall establish a safety training program that includes requirements for general and Project-specific training. All levels of staff must be trained.

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) to be worn by all personnel, as well as an ANSI-approved hard hat, safety glasses with side shields, and work boots, specific for the job being performed.

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- 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 possession of a prohibited substance. It must include the policy at the Site and any pre-job Site and post-Incident drug testing 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 could 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 if the plan is activated. The potential for an Emergency (fire, explosion, chemical release, etc.) exists at all construction areas and operational 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 Incident Response Procedures

The Safety Management Plan must include processes to investigate and report accidents and Incidents and to retain safety records. Developer shall develop a list of Project-specific requirements for documentation and reporting. Developer shall include the reporting of near-miss Incidents. Developer shall provide verbal notification and a written report to ADOT of all

Incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Site, which cause death, personal injury, or property damage. Developer shall verbally notify ADOT within 1 hour from time of occurrence of an Incident (or Developer's discovery of the occurrence thereof) causing public injury, and include date and time, location, brief description, extent of property damage, and extent of injuries. When such Incidents take place, Developer shall promptly initiate an investigation and notify appropriate individuals (ADOT, etc.).

Developer shall maintain a 24-hour-per-day, 7-day-per-week Emergency contact telephone number with a responsible Person 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 how that analysis is communicated 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 the task is to be performed. 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 Hazardous Materials are not delivered, stored, or used at the Site unless they are properly labeled, tagged, or marked and the Material Safety Data Sheets are readily available.

110.09.2.1.11 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 it is to be conducted, how the results are to be communicated, and how findings and corrective actions are to be tracked.

110.09.2.1.11.1 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. Each quarter by the 15th 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 submit the Safety Corrective Measure to ADOT.

110.09.2.1.11.2 Safety Results and Statistics

Developer shall prepare a Monthly Safety Report detailing the specific types of injuries, Incident rates, and corrective actions taken to prevent reoccurrence of similar Incidents for Developer and all Subcontractors. Developer shall evaluate individual supervisor safety performance. Within 5 Business Days after the end of the month, Developer shall submit the Monthly Safety Report to ADOT.

110.09.2.1.11.3 Periodic Updates to Safety Management Plan

Developer shall update the Safety Management Plan yearly 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 Temporary Fencing and Steel Plating

In conjunction with the Safety Management Plan, Developer shall provide 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.

Developer shall limit open utility trenches to 50 feet in length, except for cast-in-place pipe installations, during non-working hours, and shall be covered with steel plate.

110.09.2.3 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.

110.09.2.4 Noncompliance with the Safety Program

ADOT, through ADOT designated personnel, has the authority to stop any activity that constitutes or is perceived 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 the practices or conditions are corrected 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 the Project or any portion thereof is stopped or shut down by any Governmental Entity 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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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	2	1	Prior to issuance of NTP2	GP 110.09.2.1
Safety Performance Analysis Report	5	2	1	Each quarter by the 15th of the month after the quarter ends	GP 110.09.2.1.11 .1
Safety Corrective Measures, as needed	5	2	1	Immediately	GP 110.09.2.1.11 .1
Monthly Safety Report	5	2	1	Within 5 Business Days after the end of the month	GP 110.09.2.1.11 .2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

110.10 Submittal Review Management

110.10.1 General Requirements

Developer shall perform all Work in compliance with the requirements of this Section GP 110.10. This Section GP 110.10 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, Utilities, and railroad requirements with the owning jurisdiction for the Project.

110.10.2 Administrative Requirements

110.10.2.1 General

Developer shall provide Submittal packages via the Project document management system in accordance with the Contract Documents and the PMP for any Submittal package along with all supporting information necessary for ADOT, Governmental Entities, Utility Owners, and railroads 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
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, Release for Construction Submittal, etc.). The alphanumeric identifier must remain constant and track the design package through the life of the Project.

All Submittal documents must be submitted in hardcopy and electronic format as specified in Table 110-12 unless otherwise specified in the Contract Documents.

Table 110-12 Submittal Format				
Submittal Stage/Deliverable	**Hardcopy**		**Electronic**	
	Paper	**11x17**	**Native**	**PDF**
Administrative Documents (e.g., PMP, Project Schedule)	X		X	X
Specifications, Technical Reports, Calculations, Modeling, Input and Output Files, etc.	X		X	X
Initial Design Submittal		X	X	X
Final Design Submittal		X	X	X
Release for Construction Submittal		X	X	X
Final Design Documents Submittal		X	X	X
Shop and Working Drawings	X			X
Request for Information				X
Design Changes		X		X
Record Drawings	X		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, Utility Company, and/or railroad.				

110.10.2.3 CAD Requirements

Developer shall prepare all drawings, plans, and exhibits in accordance with the ADOT *2010 ADOT Drafting Guides for Use in Office and Field* (Drafting Guide) and the Computer Aided Design (CAD) Requirements included on http://www.azdot.gov/business/engineering-and-construction/CADD, unless otherwise modified by the TPs.

110.10.2.4 Hardcopy 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 be left inside the margin in the lower right hand corner. All Plans must be made in such a manner that clear and legible copies can be made from them. Developer shall prepare half-size copies on standard 11" x 17" sheets. The number of hardcopies for indicated in the "Nonexclusive Submittals List" tables in the TPs for Plans indicates half-size copies. Developer shall prepare exhibits on 8.5" x 11", 11" x 17", or 22" x 34" sized sheets.

All documents, reports, and calculations must be prepared on 8.5" x 11" sheets, unless otherwise noted in the Contract Documents.

110.10.2.5 Electronic Format

Developer shall submit, as identified in the Contract Documents, electronic Submittals compatible with existing ADOT program systems and/or software. Systems and software currently being used by ADOT include the following:

- Microsoft Windows 7 (operating system)
- Microsoft Office with Word, Excel, Outlook, and Media Player
- Bentley's MicroStation V8i (2D and 3D files)
- Bentley's InRoads Suite SS2 (Existing Ground Model and design files) or newer
- SignCAD
- HEC-RAS
- FLO2D
- HEC-HMS
- Oracle Primavera P6

Developer shall submit electronic files to ADOT as identified in the Contract Documents on electronic media (e.g., CDs, DVDs, flash drives) or electronically through the EDMS. Developer shall submit Plans in both full-size (22" x 34") and half-size (11" x 17") PDFs.

110.10.2.5.1 Existing Ground Model

Developer shall create an integrated-model of the existing condition to create a digital terrain model (DTM) using Bentley's InRoads/Site/Survey Select CAD. The Existing Ground Model must include existing ground surface and subsurface elements (including the best available information for: drainage structures, Utilities, and bridge and wall foundations), features utilizing data from light detection and ranging (LiDAR), subsurface Utility evaluation, field surveys, and existing plans data collection including currently available LiDAR or other existing ground surface data (.dtm or .tin format). Developer shall verify the DTM for accuracy through field procedures of locating well-defined and random check points (not included in the creation of the DTM surface) systematically dispersed throughout the Site and compared to the DTM. Developer shall comply with the requirements in the following manuals available from ADOT at http://www.azdot.gov/business/engineering-and-construction/EngineeringSurvey in creating DTMs: (1) Manual for Field Surveys, (2) Location Survey P-codes for Bentley InRoads, and (3) General Specifications for Photogrammetric Mapping. Developer shall submit the Existing Ground Model in both DTM and LandXML format.

110.10.2.5.2 InRoads Files (Design Files)

Developer shall prepare InRoads Design Files including template library (*.itl), the preference files (*.xin), alignment files in both *.alg and LandXML formats, and new design surfaces in LandXML format.

110.10.2.5.3 MicroStation Files (3D and 2D)

Developer shall utilize 3D methodologies and techniques to develop the geometric design and 3D design model for the Project. The 3D model must include 3D graphical elements including roadway components for horizontal and vertical alignments, contours, superelevation transitions limits, and existing and proposed finish grade triangles that are representative of the design model and DTM surface files.

Developer shall include the following key existing and proposed 3D design features in the 3D model:

A. Roadway (including intersections, turnouts, driveways, curb and gutter, barrier, sidewalks, guardrail and pads, etc.);
B. Drainage (including pipes, catch basins, manholes, and junction structures);
C. Structures (including sufficient detail to show top of deck surface, structure type, bottom of beam surface, and pier, abutment and retaining wall locations)
D. Utilities (including zones of protection);
E. Signing (including overhead span or cantilever sign structure locations and structure type);
F. Lighting (including pole and foundation locations);
G. Signals (including controller, pole and foundation locations); and
H. Existing and proposed railroad horizontal and vertical alignments, superelevation data, surfaces and features as follows:
    1. All elements of the Work;
    2. Foundations, including drilled shafts, of columns, abutments, retaining walls, high mast lighting, and any other ground penetration to be shown to scale of width and depth; and
    3. Existing structures to remain inside of the Project ROW.

Developer shall prepare all Plans in 2D using Bentley's MicroStation.

110.10.2.5.4 3D Models, 4D Model, and Visual Animation

Developer shall use 3D, 4D, and visual animation techniques to improve quality, reduce risk, improve Developer, ADOT, and Project Stakeholder collaboration; in communicating the construction sequence, existing and design feature conflict avoidance, and provisions for maintenance of traffic. Developer shall prepare 3D Models, a 4D Model Simulation, and Visual Animation for the Project.

110.10.2.5.4.1 General

Developer shall prepare the 3D Models, 4D Model, and Visual Animation in Bentley. Signals & Lighting (including at a minimum, controller, pole and foundation locations)

110.10.2.5.4.2 3D Model

Developer shall prepare 3D Models that contain existing conditions in 3D format and the proposed 3D key design features. 3D Models are virtual models that contain representations of physical objects in 3D (x, y, z) as surfaces or solids. 3D Models must include, but are not limited to existing conditions model(s), design model(s), and construction model(s). Construction model(s) must contain temporary site features and equipment (e.g. detours, temporary signals, utility excavations, false work, etc.)

The existing condition 3D model(s) must contain existing ground surface and certain 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 (*.dtm).

Design and construction 3D models must incorporate proposed 3D design features for the following elements of work:

A. Roadway
B. Drainage (including , at a minimum, pipes, catch basins, and junction structures)
C. Structures (including, at a minimum, sufficient detail to show top of deck surface, structure type, bottom of beam surface, pier, abutment, and retaining walls locations, and clearances)

D. Foundations, including at a minimum, all ground penetrations shall be shown to scale of width and depth
E. Utilities (including zones of protection)
F. Signing (including at a minimum overhead signs and foundations)
G. Signals & Lighting (including at a minimum, controller, pole and foundation locations)

Prior to the first pre-construction coordination meeting, Developer shall submit the 3D Models to ADOT for review and comment.

110.10.2.5.4.3 4D Model Simulation

Developer shall prepare a 4D Model Simulation that presents the key design features in a time scaled appearance of model elements/objects. The 4D Model Simulation must be an aggregation of virtual models that are linked to the Project Schedule that shows an ordered, time scaled appearance of model elements/objects. The Project Schedule that is integrated to the 3D model (4D model) shall be kept current (all revisions and updates) on a monthly basis. The 4D Model Simulation must contain one or more virtual models and at least one link to the Project Schedule. 4D Model Simulations must include the utility requirements in the Contract Documents. With every Project Schedule Submittal, Developer shall submit the 4D Model Simulation to ADOT for review and comment.

110.10.2.5.4.4 Visual Animation

Developer shall prepare a Visual Animation that is a walkthrough of a virtual model of the constructed Project that supports movement and display and contains photo-simulations to more accurately depict existing and construction build-out conditions both under and above ground. Visual animations prepared by Developer must be based on either 3D or 4D models. Prior to Substantial Completion, Developer shall submit the Visual Animation to ADOT for review and comment.

110.10.2.6 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. If any Submittal is rejected, 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. Developer is advised that comments on the Submittals received from parties other than ADOT may not follow the above-described ADOT comment format. In addition, Developer may receive separate comment packages from each party that reviews a Submittal. With the PSQMP, Developer shall prepare and submit a Comment Resolution Form f 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 110.10.2.1.1

of the TPs. With the subsequent Submittal, Developer shall submit Written Responses to Review Comments to ADOT.

Developer shall schedule a comment resolution meeting (CRM) to address unresolved comments. 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 review comments, determine which of the review comments Developer shall incorporate into the Work, and discuss and resolve the pending comments. More than one CRM per Submittal may be necessary to discuss all review comments provided to Developer. Developer shall attend the CRM. Within 5 Business Days of the CRM, Developer shall prepare and submit CRM Notes f to ADOT. The Project Manager, Design Manager, responsible engineer, 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 22.1 of the Agreement to address review comments not resolved at the CRM comment resolution board.

Developer shall address Initial Design Submittal comment resolution that requires a change in the Submittal package in the Final Design Submittal. Developer shall address all Initial Design Submittal comments in the Final Design Submittal prior to submitting the RFC Submittal.

Developer acknowledges and agrees that resubmittal of the Final Design Documents, RFC packages, or other design Submittals may be required by ADOT. Developer shall resubmit the Final Design Documents as many times as necessary to obtain approval of the Final Design Documents. No additional compensation and/or time extension is allowed for any resubmittals.

110.10.2.6.1 Over-the-Shoulder Reviews

Over-the-shoulder reviews are informal examinations by ADOT of Design Documents during the Project design process and are not considered formal reviews as specified in Section GP 110.10.2.2 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 Developer's Professional Services Quality Management Plan (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 considered nonbinding. Developer shall conform to the requirements of the Contract Documents. These reviews are not intended to 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 may 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 over-the-shoulder reviews are performed, ADOT will conduct them, as appropriate, in either Developer's office or at ADOT's offices, 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. If mutually agreed for specific review items, the over-the-shoulder review may consist of an exchange of electronic files between Developer's designer and ADOT.

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

110.10.2.6.2 Segment Limits Map and Submittal Schedule

Developer shall prepare a Segment Limits Map and Submittal Schedule for the development, scheduling, and characterization of Developer's design segment plan. The intent of the Segment Limits Map and Submittal Schedule is to enable ADOT to adequately plan 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. Developer may, with prior approval by ADOT, modify the Segment Limits Map as the design effort progresses.

Developer shall prepare a Submittal Schedule that identifies all design Submittal packages for each design segment Developer intends to submit to ADOT. The Submittal Schedule must identify individual Submittal packages for each bridge and wall structure.

Prior to issuance of NTP2, Developer shall submit the Segment Limits Map and Submittal Schedule to ADOT for approval in ADOT's good discretion. Developer may request, as part of the Segment Limits Map and Submittal Schedule deliverables, authorization from ADOT for the right to make weekly Submittals in excess of the stipulated maximum number during the design period. ADOT will have the right to withhold approval if it deems the request unreasonable or if ADOT personnel cannot accommodate the additional reviews.

Developer shall incorporate in the Project Schedule the review periods for each Submittal package to be submitted as identified in the Segment Limits Map. ADOT will not guarantee any specific review period for Governmental Entities, Utility Companies, and railroads reviews. The review period for each review to be performed by a Governmental Entity is established by the Governmental Entity, at its discretion, after a Submittal package has been provided to the Governmental Entity.

110.10.2.6.3 Submittal Review Periods

Developer shall coordinate with other Governmental Entities, Utility Owners, and railroads 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 below. Review times are applicable only for the submission of complete and comprehensive documents that are deemed acceptable by ADOT for review.

Table 110-13
Submittal Review Periods

Category	Submittal To	Review Period (Business Days)
	Professional Services	
A	ADOT	10
B	ADOT (Design Variances)	20
C	ADOT (Design Exceptions and Change of Access)	20[2]

Table 110-13 Submittal Review Periods		
Category	**Submittal To**	**Review Period (Business Days)**
D	ADOT (ROW Submittals)	10[1]
E	Other Governmental Entities, Utility Companies, and railroads	Varies[2]
	Construction	
F	Design Changes	10[2]
G	Record Drawings	20[2]

Notes:
1. Additional requirements for ADOT review of ROW Submittals are further described in Section GP 110.10.2.1.8.1 of the TPs.
2. Developer shall coordinate with other Governmental Entities, Utility Companies, and railroads to determine the entities' submittal requirements.

A maximum of 10 Submittals can be submitted per week per technical discipline. 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. Railroad
H. Roadway
I. Drainage
J. Aesthetics and Landscaping
K. Structures
L. Hydraulics
M. Traffic
N. Maintenance of Traffic
O. Intelligent Transportation System

Developer acknowledges and agrees that no more than 10 Submittals per technical discipline in the aggregate may be pending for review by ADOT at any given time. Developer may request authorization from ADOT for the right to make Submittals in excess of the stipulated maximum number stated in this Section GP 110.10.2.6.3. ADOT will have the right to withhold authorization if ADOT deems the request unreasonable or if ADOT personnel cannot accommodate the additional reviews.

110.10.2.6.3.1 ADOT Review of ROW Submittals

The maximum review period of 10 Business Days for ADOT ROW reviews applies separately to each of the following:

A. ROW Exhibits;
B. Legal Descriptions;
C. Appraisals;
D. Acquisition Packages;

E. Condemnation Packages; and
F. All other ROW Submittals.

No more than 10 ROW Submittals in the aggregate may be pending for review by ADOT at any given time for each of the following:

A. ROW Exhibits;
B. Legal Descriptions;
C. Appraisals;
D. Acquisition Packages;
E. Condemnation Packages; and
F. All other ROW Submittals.

Developer shall indicate the priority of review of ROW Submittals when Developer Submittals exceed the requirements above.

110.10.2.7 Design Requirements

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

Except as otherwise specified in the Contract Documents or approved by ADOT, Developer shall develop formal Design Documents Submittals following the steps described in Section GP 110.10.2.2 of the TPs. The primary design Submittal package stages are:

A. Initial Design Submittal
B. Final Design Submittal
C. Release for Construction Submittal
D. Final Design Documents Submittal

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

Developer shall coordinate with other Governmental Entities, Utility Owners, and railroads 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 requirements. Developer shall be responsible for all costs and schedule impacts for all Governmental Entities' requirements.

110.10.2.7.1 Plans

Developer shall prepare Plans for the Project in accordance with the Contract Documents. Developer shall ensure that all non-ADOT standards drawings/details are detailed on Plans. All Plans must include all proposed and actual changes to the Schematic ROW. If Developer's design requires changes to the Schematic ROW, the Submittal package must clearly indicate the Project ROW changes proposed, and must include a narrative detailing the need for the change.

110.10.2.7.2 Specifications

Developer shall prepare specifications for the Project that must be complete and ready for construction, including all specifications to support the Plans, description of Work, material requirements, methods of construction, and indicate inspection and testing requirements.

110.10.2.7.3 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 Design Documents to ADOT. The Initial Design Submittal must include Plans, specifications, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable with each Initial Design Submittal.

110.10.2.7.4 Final Design Submittal

When the design for a given element or area is approximately 95 percent complete, Developer shall prepare and submit Final Design Submittals to ADOT for review and comment. The Final Design Submittal must include Plans, specifications, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable with each Final Design Submittal. The Final Design Submittal must also include a comment resolution form showing how the Final Design Submittal has addressed the review comments generated during the previous Submittal reviews.

110.10.2.7.5 Release for Construction 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. 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.

ADOT's review of any RFC package will neither constitute approval of subsequent construction nor relieve Developer of its responsibility to comply with the requirements of the Contract Documents. Developer shall ensure construction complies with the requirements of the Contract Documents, Laws, and Governmental Approvals. Developer shall bear the risk of any required modifications to the component construction due to subsequent design changes resulting from further design development.

110.10.2.7.6 Final Design Documents Submittal

Developer shall combine the RFC packages for the entire Project upon completion of all design Work into a Final Design Documents package. The purpose of the Final Design Submittal is to create a single package of the design 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 the Final Design Documents Submittal is assembled 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 final RFC Submittal to ADOT, Developer shall submit the Final Design Documents Submittal to ADOT for review and comment. Developer acknowledges and agrees that resubmittal of the Final Design Documents Submittal or other design submittals may be required by ADOT. Developer shall resubmit the Final Design Documents Submittal as many times as necessary to obtain all final approval of the Final Design Documents Submittal.

110.10.2.8 Construction Requirements

110.10.2.8.1 Shop Drawings and Working Drawings

Developer shall prepare Shop Drawings and Working Drawings necessary to construct the Project. Shop Drawings and Working Drawings Submittals must include drawings on 22" x 34" sized sheets, calculations, and certifications, describe the methods of construction proposed, and adequately define and control the Work. PSQM must review and certify Shop Drawings and Working Drawings in accordance with Section GP 110.07 of the TPs. At least 10 Business Days prior to implementation, Developer shall submit Design Manager Approved Shop Drawings and Working Drawings to ADOT.

110.10.2.8.2 Request for Information

Design issues may arise in ongoing Work reflected in RFC packages. Developer may utilize the RFI process as a communication tool between design and construction. RFIs may be initiated by Developer or ADOT. 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 on 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.

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 RFIs and the updated RFI Log to ADOT. 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 5 Business Days of receipt of the ADOT-initiated RFIs, Developer shall prepare and submit a Response to ADOT-initiated RFIs to ADOT.

110.10.2.8.3 Design Changes

During Construction Work, adjustments to the design may be required to fit field conditions. The engineer-of-record for the design at the time of the design change must provide written approval for any design changes that occur 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.

Plan 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
E. ADOT comments are 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. Developer shall document all changes made through the design change process in the Record Drawings in accordance with Section GP 110.10.2.3.4 of the TPs.

110.10.2.8.4 Record Drawings

Developer shall prepare Record Drawings in accordance with the ADOT *Redline and As-Built Procedures and Guidelines*. Record Drawings must show locations and number of potential Grand Canyon State Logo Signs. As a condition of Final Acceptance in accordance with Section 6.6.4.2 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 Design Manager or engineer of record must professionally endorse (sign and seal) the Record Drawings. The Professional Services Quality Manager must certify 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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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	Prior to the first pre-construction coordination meeting	GP 110.10.2.5.4.2
4D Simulation	4	0	1	With every Project Schedule Submittal	GP 110.10.2.5.4.3
Visual Animation	4	0	1	Prior to Substantial Completion	GP 110.10.2.5.4.4
Comment Resolution Form	5	2	1	With the PSQMP	GP 110.10.2.6
Written Responses to Review Comments	5	2	1	With the subsequent Submittal	GP 110.10.2.6
CRM Notes	5	2	1	Within 5 Business Days of the CRM	GP 110.10.2.6
Segment Limits Map	2	2	1	Prior to issuance of NTP2	GP 110.10.2.6.2
Submittal Schedule	2	2	1	Prior to issuance of NTP2	GP 110.10.2.6.2

Table 110-14 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
Initial Design Submittal	5	2	1	When the design for a given element or segment is approximately 60 percent complete	GP 110.10.2.7.3
Final Design Submittal	4	2	1	When the design for a given element or area is approximately 95 percent complete	GP 110.10.2.7.4
RFC Submittal	5	2	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 110.10.2.7.5
Final Design Documents Submittal	4	2	1	20 Business Days after the submittal of final RFC Submittal by ADOT	GP 110.10.2.7.6
Design Manager Approved Shop and Working Drawings	5	2	1	10 Business Days prior to implementation	GP 110.10.2.8.1
RFIs and RFI Log	5	2	1	Every week	GP 110.10.2.8.2
Response to ADOT-initiated RFIs	5	2	1	Within 5 Business Days of receipt of the ADOT-initiated RFIs	GP 110.10.2.8.2
Design Changes	5	2	1	Varies	GP 110.10.2.8.3
Record Drawings	4	2	1	As a condition of Final Acceptance in accordance with Section 6.6.4.2 of the Agreement	GP 110.10.2.8.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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.

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. Documentation must include adjacent roadways, drainage channels or flowing waterways, fences, walls, houses, buildings, wells, sensitive habitats, irrigation systems, and areas where activities will be performed by Developer or Subcontractors. Developer shall document all facilities and Utilities that may be impacted by the Work including downstream drainage channels, 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. Prior to construction, 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 Work reflecting the activities underway during the month; and
C. Any accidents, unusual conditions, and complaints.

Developer shall prepare Site Documentation that includes video footage and digitally produced photographs. Developer shall organize all photographs and video footage according to activity and date. Developer shall obtain all necessary permission from property owners to enter their property for any documentation of the Site. Upon ADOT's request, Developer shall submit Site Documentation on digital versatile disc (DVD) format to ADOT for review and comment.

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. Unless otherwise indicated, all Submittals must be submitted 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 110.10.2.1.1 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	2	1	Prior to construction	GP 110.11.1
Site Documentation	4	0	3	Upon ADOT's request	GP 110.11.2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

SECTION B
DESIGN REQUIREMENTS (DR)

TABLE OF CONTENTS

DR 408 THIRD-PARTY AGREEMENTS

408.1 GENERAL REQUIREMENTS

Developer shall perform all Third-Party Agreement Work in compliance with the requirements of this Section DR 408.

408.2 ADMINISTRATIVE REQUIREMENTS

The Third-Party Agreements are listed in Table 408-1. TP Attachment 408-1 lists ADOT's responsibility for each Third-Party Agreement. Developer is required to perform all obligations of the Third-Party Agreements except to the extent that TP Attachment 408-1 states that an obligation has been allocated to ADOT. In the event that the Work necessitates a change to an existing Third-Party Agreement, or issuance of a new third-party agreement, Developer shall be responsible for all Work necessary to obtain the amended or new Third-Party Agreement.

Table 408-1
Third-Party Agreements

TP Attachment	Governmental Entity	Description	Status	Availability Date
408-1.1	City of Phoenix	Project Master Maintenance Agreement	Development In Progress	*[to be provided in Addendum 3]*
408-1.2	City of Phoenix	Local Street Turnback	Development In Progress	*[to be provided in Addendum 3]*

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 this Section DR 410. All Developer land survey Work must be performed under the supervision of the Survey Manager. All survey data provided by Developer to ADOT must be certified by the Survey Manager.

410.2 ADMINISTRATIVE REQUIREMENTS

410.2.1 Standards

Developer shall perform all land surveying Design Work in accordance with the standards, manuals, and guidelines listed in Table 410-1.

Table 410-1
Standards

No.	Agency	Title
1	ADOT	Intermodal Transportation Division Engineering Technical Group Engineering Survey Section Manual for Field Surveys
2	Arizona State Board of Technical Registration	Arizona Boundary Survey Minimum Standards

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 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 for Project No. 202L MA 000 H5439*, by Stanley Consultants, included in the RIDs, and shall immediately and in any event prior to proceeding with any design survey Work notify ADOT of any discrepancies. Developer shall be responsible for all surveys necessary for 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;

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 for Project No. 202L MA 000 H5439*, by Stanley Consultants, included in the RIDs. Secondary survey control points must be established by Developer throughout the corridor at intervals not to exceed 1,000 feet. These points must include horizontal and vertical data sufficient to control construction. These survey control points and bench marks must be shown on the plans and expressed in northings, eastings, elevations, stations, and offsets.

410.3.2.1 Survey Control Datum

The horizontal coordinate system must be based 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 to the Arizona State Plane Coordinate System grid values as depicted on the *Results of Survey for the Loop 202L (Ref. 3) Project*, by Stanley and Consultants, included in the RIDs. The vertical control must be based 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 3 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 to all land survey Work performed for the Project. These records 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 Design Survey Report is sealed by a land surveyor registered in the State of Arizona. Prior to the first Initial Design Submittal for each Project segment, Developer shall submit the Design Survey Report to ADOT.

410.4 SUBMITTALS

Table 410-2 reflects a nonexclusive list of Submittals identified in this Section DR 410 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 410-2
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 first Initial Design Submittal for each Project segment	DR 410.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 416.

416.2 ADMINISTRATIVE REQUIREMENTS

416.2.1 Standards

Developer shall perform all geotechnical Design Work in accordance with the standards, manuals, and guidelines listed in Table 416-1.

Table 416-1
Standards

No.	Agency	Name
1	AASHTO	LRFD (Load and Resistance Factor Design) Bridge Design Specifications, 2012, 6th Edition
2	FHWA	Rockfall Catchment Area Design Guide: Final Report, Report No. SPR-3(032)
3	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
4	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
5	FHWA	Geotechnical Engineering Circular No. 7, Soil Nail Walls, Report No. FHWA-IF-03-017, 2003

416.2.2 Existing Geotechnical Information

Geotechnical reports prepared by ADOT and additional geotechnical information available from other sources are provided in the RIDs. Although the geotechnical reports and geotechnical information included in the RIDs may include interpretations, extrapolations, analyses, and recommendations concerning data, design solutions, technical issues and solutions, and construction means and methods, such interpretations, extrapolations, analyses, and recommendations are subject to all the provisions of Sections 1.6 of the Agreement and are:

A. Preliminary in nature;
B. Not intended to represent the views or preferences of ADOT or any other Governmental Entity or represent any statement of approval or acceptance thereof by ADOT or any other Governmental Entity; and
C. Without representation or warranty by, or recourse to, ADOT

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 sound engineering judgment, 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 Developer's design.

416.2.3 Software Requirements

Developer may use the following software programs for geotechnical Design 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 110.01.2.2 of the TPs, Developer shall submit Proposed Geotechnical Software and Verification Data (including input and output files) to ADOT for approval in ADOT's reasonable discretion.

Acceptable geotechnical Project design software includes: ALLPILE, APILE, CBEAR, EMBANK, Shoring Suite, Driven, FoSSA, 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

SPT hammers used for the geotechnical investigation must have been tested for energy efficiency within the last 12 months prior to use, with the energy efficiency ratio reported in the boring logs and drilling records.

416.3 DESIGN REQUIREMENTS

Developer shall conduct field explorations and subgrade testing necessary to design the Work in accordance with the requirements of the applicable standards listed in Section DR 416.2.1 of the TPs.

416.3.1 Subsurface Geotechnical Investigation by Developer

The subsurface investigation must include soil borings, test pits, rock coring, geophysical surveys, and other field testing deemed necessary by Developer. Developer shall perform subsurface geotechnical investigations, testing, research, and analysis as necessary to design the roadway, pavement, foundations, structures, embankments, excavation, slopes, and other facilities for the Project.

Developer shall employ field investigation measures that avoid groundwater contamination and pollutant discharge and shall be responsible for all geotechnical investigation 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 and update Geotechnical Engineering Report(s) documenting the assumptions, conditions, and results of the geotechnical investigations and analyses. The report(s) must include the following:

A. Cover page.
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 soil and rock types, and drainage characteristics.
E. Description of the field investigations and laboratory testing used to characterize subsurface conditions. Field investigations must include descriptions of the soil/rock types, penetration test results, in situ test results, and recovery and rock quality designation for rock cores. Laboratory test results must include classification and engineering properties for all major soil and rock strata in the study area.
F. A discussion of geological and geotechnical conditions and results with reference to specific locations on the Project.

G. Recommendations for:
   1. Structures, including foundation type studies, capacities, 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 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. Impacts of compressible, hydro-collapsible, and/or expansive soils, if present, and proposed mitigations.
   6. Scour and stream bank erosion protection.
   7. Erosion abatement design for permanent cut and fill slopes.
   8. Corrosion potential of soils on construction materials.
   9. Impacts on, and from, groundwater, including necessary remedial actions.
   10. Construction and inspection considerations.
   11. Specification requirements and special provisions related to geotechnical recommendations.
   12. Details and objectives of any instrumentation plan.
   13. Suitability of materials (borrow, aggregates, riprap, etc.) that can be obtained from Project excavations, including source, quality, and availability.

H. Appendix, including the following:
   1. Plan view locations of field sampling/testing (e.g., borings, test pits, test trenches, surface samples, geologic maps, geophysical surveys).
   2. Copies of the 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, percolation tests).
   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 calibration.
   7. Photographs of all rock cores and proper identification labels.
   8. Instrumentation Plan.

With the Initial Design Submittal of the associated design, Developer shall submit an Initial Geotechnical Engineering Report(s) to ADOT. With the Final Design Submittal of the associated design, Developer shall submit a Final Geotechnical Engineering Report(s) to ADOT for review and comment. The Final Geotechnical Engineering Report(s) 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.

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). With the 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 Drawing Submittal, Developer shall submit the As-Built Geotechnical Engineering Report to ADOT for review and comment.

416.3.3 Geotechnical Analyses and Design

416.3.3.1 Rock Cut Slopes

Developer shall design rock cut slopes and shall use global slope stability safety factors in accordance with the applicable American Association of State Highway and Transportation Office (AASHTO) and FHWA standards listed in Section DR 416.2.1 of the TPs. Developer shall provide continuous finished cut slopes in accordance with ADOT Slope Sculpting Details (Exhibits L5.5 and L5.6 of the LAADCR), except terracing will not be allowed.

Developer shall design rockfall containment facilities and catchments to provide a minimum 95 percent rockfall retention rate with 100 percent of the retained rockfall not intruding into travel lanes in accordance with the applicable standards listed in Section DR 416.2.1 of the TPs. Developer shall perform computer simulation rockfall modeling for the design of all rock slope configurations not addressed in the applicable standards. Version 4.0 or 5.0 of the CRSP, or Version 4.0 or 5.0 of the RocFall program must be used for modeling purposes. Developer shall field verify the input parameters to the computer simulation rockfall modeling. Developer shall design rockfall containment facilities that are accessible and maintainable by heavy equipment with a minimum width of 12 feet.

416.3.3.2 Instrumentation

Developer shall prepare an Instrumentation Plan for all geotechnical Work that requires monitoring in accordance with the applicable standards listed in Section DR 416.2.1 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.

416.3.3.3 Tolerable Deformations

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

A. Highway bridge substructures:
   1. Maximum total settlement of 1 inch after bridge superstructure has been constructed
   2. Maximum differential settlement of ¾ inch after the bridge superstructure has been constructed
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 wall panels, and separation or crushing at joints.
C. Embankments and subgrade:

Limit the total remaining settlement of embankments and subgrade soils supporting the embankments and pavements to a maximum of ½ inch after constructing the pavement.

416.4 SUBMITTALS

Table 416-2 reflects a nonexclusive list of Submittals identified in this Section DR 416 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, all Submittals must be submitted 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 110.09.2.1.1 of the TPs:

Table 416-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Proposed Geotechnical Software and Verification Data	3	0	1	As part of the Basis of Design Report	DR 416.2.3
Initial Geotechnical Engineering Report(s)	5	4	1	With the Initial Design Submittal of the associated design	DR 416.3.2
Final Geotechnical Engineering Report(s)	4	4	1	With the Final Design Submittal of the associated design	DR 416.3.2
Geotechnical Supplement(s)	4	4	1	With the subsequent Submittal of the associated design	DR 416.3.2
As-Built Geotechnical Engineering Report	4	4	1	As part of the Record Drawing Submittal	DR 416.3.2
Instrumentation Plan	4	4	1	As part of the Geotechnical Engineering Report(s)	DR 416.3.3.2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 compliance with the requirements of this Section DR 419. Pavements for roadways and streets other than ADOT shall be performed in accordance with the authority having jurisdiction.

Developer shall identify the necessary limits of work on roadways and streets to meet the requirements of the Project. The localized limit of work shall conform to the following:

A. Widening or reconstruction of any portion of an asphaltic roadway shall require that the entire roadway width be, at a minimum, resurfaced within the longitudinal limits of the widening or reconstruction;
B. Addition of sidewalks outside an existing roadway or curb and gutter replacement shall not require that the existing road be resurfaced;
C. Developer shall resurface the entire width of a roadway after any portion of the roadway has been subject to eradication of permanent or temporary pavement markings for a longitudinal distance of 50 feet beyond the last eradicated marking; and
D. Utility patching on roadways within 150 feet of the otherwise established paving or resurfacing limits shall require that the paving or resurfacing limits be extended to cover the utility patching.

The limits of milling and resurfacing for roadways intersecting the Project shall extend beyond the curb return or to the limits of Construction Work required to tie into existing pavement, whichever is greater.

Refer to CR 419 and CR 460 of the TPs for pavement and pavement marking construction requirements.

419.2 ADMINISTRATIVE REQUIREMENTS

419.2.1 Standards

Developer shall perform all pavement design Work in accordance with the standards, manuals, and guidelines listed in Table 419-1.

Table 419-1
Standards

No.	Agency	Name
1	AASHTO	Guide for Design of Pavement Structures, 1993 (I-GDPS-4) and 1998 Supplement
2	ADOT	Materials Preliminary Engineering and Design (MPE&D) Manual
3*	ADOT	Pavement Design Standard Items
4*	ADOT	Construction Standard Drawings (C-standards)

* Developer must use items 3 and 4 for Non-Maintained Elements to be owned by ADOT. These items are not required for Developer maintained areas.

419.3 DESIGN REQUIREMENTS

419.3.1 Pavement Design

Developer shall base pavement design for general purpose lanes, high occupancy vehicle (HOV) lanes, auxiliary lanes, frontage roads, ramps, and crossroads upon Developer's determination of the design traffic loading forecast. Developer may use the data sources noted below for reference to determine the design traffic loading forecasts and truck percentages. Developer is responsible for forecasting the traffic loading and truck percentages for periods beyond the forecasts in the below noted documents.

A. *Final L/DCR*;
B. *MAG Travel Demand Model*; and
C. ADOT Multimodal Planning Division (MPD) database

The required residual pavement design life (in years) at the time of Handback must comply with the requirement in Section MR 500 of the TPs.

419.3.2 Related Pavement Materials Specifications

Unless otherwise specified herein, pavement material requirements must comply with the requirements of:

A. ADOT *Standard Specifications for Road and Bridge Construction;*
B. ADOT *Stored Specifications*; and
C. ADOT *Materials Pavement Design Standard Items* (refer to http://www.azdot.gov/docs/default-source/materials-library/design-report-standard-items.pdf?sfvrsn=16).

419.3.3 Pavement Type Selection

Pavement types must be as follows:

A. Mainline. Pavement for the SR 202 mainline must meet the requirements of this Section DR 419 of the TPs. Pavement for the I-10 Papago mainline must be the same pavement section (materials and depths) as the existing roadway pavement
B. Shoulders. Pavement for the shoulders of all roadways must be the same pavement section (materials and depths) as the adjacent roadway pavement.
C. Ramp Pavements. Ramp pavements must be constructed with the same pavement section materials as the adjacent mainline pavement.
D. Widened Pavement Sections. For all widened sections, the interface between the new widened pavement and the existing pavement must provide a uniform surface of the same material type across all adjacent lanes.
E. Frontage Roads, Crossroads and Local Streets. The Developer shall design pavements for Frontage Roads, Crossroads and Local Streets in accordance with the procedures and requirements of the authority having jurisdiction. The minimum pavement section for City of Phoenix arterial streets consists of 7.5 inches of asphaltic concrete overlying prepared subgrade.

419.3.4 Asphaltic Rubber-Asphaltic Concrete Friction Course

Pavement sections for mainline lanes, HOV ramps, and system interchange ramps shall include a one-inch asphaltic rubber - asphaltic concrete friction course (AR-ACFC) overlay.

419.3.4.1 General Placement Limits & Requirements

Developer shall provide a 20-foot long transition from 1 inch to ½ inch thickness at the end of all AR-ACFC placement limits.

For all placement of AR-ACFC not extending to the face of curb or barrier, the last 1.0-foot of width of the AR-ACFC shall incorporate a transition in thickness from 1 inch to ½ inch.

Developer shall show the location of the AR-ACFC limits on the final plans, the limits of which are to be approved by ADOT.

419.3.4.2 Mainline

AR-ACFC placement along mainline shoulders shall extend to the limits noted below.

A. Low side shoulder – place AR-ACFC to 2 feet beyond the edge line/stripe.
B. High side shoulder– place AR-ACFC to face of barrier or curb flowline.

419.3.4.3 Bridges

AR-ACFC placement along bridge decks shall extend to the limits noted below.

A. Place AR-ACFC to the face of barrier on the high side of the bridge deck.
B. Place AR-ACFC to 2 feet beyond the edge line/stripe on the low side of the bridge deck if the shoulder on the bridge deck is 12 feet or more in width.

419.3.4.4 Service Interchange Ramps:

AR-ACFC placement along service interchange ramps shall extend to 50 feet beyond the back of gore.

419.3.4.5 System Interchange Ramps:

AR-ACFC placement along system interchange ramps shall extend from the face of barrier or curb flow line on the high side to the face of barrier or lip of curb on the low side.

419.3.4.6 Removal Limits

On the I-10 Papago mainline roadway, Developer shall remove the existing full-width AR-ACFC from the back of the 75th Avenue TI ramp gores to the back of the 43rd Avenue TI ramp gores, without damaging the existing PCCP.

When the existing AR-ACFC extends beyond the limits of Ramp reconstruction then the existing AR-ACFC shall be replaced to the existing limits.

419.3.5 Pavement Design Summary

Developer shall prepare an Initial Pavement Design Summary (PDS) and Final PDS for the Project.

The PDS must include, but not be limited to, the following, as appropriate:

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

With the Initial Design Submittal of the pavement structural section Plans, Developer shall submit an Initial PDS to ADOT. With the Final Design Submittal of the pavement structural

section Plans, Developer shall prepare and submit a 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 Materials Design Report (MDR) and a Final MDR for the Project. Developer's MDR must include, but not be limited to, the following, as appropriate:

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

With the Initial Design Submittal of the pavement structural section Plans, Developer shall submit an Initial MDR to ADOT. With the 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 this Section DR 419 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 419-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Initial PDS	5	2	1	With the Initial Design Submittal of the pavement structural section Plans	DR 419.3.5
Final PDS	4	2	1	With the Final Design Submittal of the pavement structural section Plans	DR 419.3.4.6
Initial MDR	5	2	1	With the Initial Design Submittal of the pavement structural section Plans	DR 419.3.6
Final MDR	4	2	1	With the Final Design Submittal of the pavement structural section Plans	DR 419.3.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 420.

420.2 ADMINISTRATIVE REQUIREMENTS

420.2.1 Standards

Developer shall perform all Construction Work in accordance with the standards, manuals, and guidelines listed in Table 420-1.

Table 420-1
Standards

No.	Agency	Title
1	ADOT	South Mountain Freeway (Loop 202) Final Environmental Impact Statement and Section 4(f) Evaluation (FEIS)
2	ADOT	South Mountain Freeway (Loop 202) Record of Decision (ROD)
3	ADOT	Noise Abatement Policy dated July 13, 2011

420.2.2 Environmental Management Program

Developer shall develop, operate, and maintain a comprehensive Environmental Management Program for the Work that complies with all applicable Governmental Rules (including Environmental Law), Project commitments, and Governmental Approvals issued thereunder, whether obtained by ADOT, a Utility Owner, 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, 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 of the Agreement, 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 Governmental Approvals, environmental issues, environmental commitments, and Governmental Rules, 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 Governmental Approvals, and Contract Documents;
F. Establish a goal of zero environmental violations during the performance of all Work activities, and provide detailed processes for rectifying such violations in an appropriate and timely way;
G. Provide design certifications with every Design Submittal indicating that an environmental review of the design package has been completed and that the design

does not change any conditions of the original National Environmental Policy Act (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 and ADOT's environmental personnel and training
B. Environmental commitments
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 of its subcontractors and/or agents associated with the design, construction, 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 Western burrowing owls, Sonoran desert tortoises, other reptiles and amphibians, 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 regulated material spills caused by Developer or its subcontractors and/or agents associated with the design, construction, and maintenance of 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 all 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. Asbestos control management plan (demolition)
R. Lead-based paint control management plan (demolition)
S. Sedimentation and erosion control plan

Prior to issuance of NTP2, Developer shall submit the EMP to ADOT for approval in ADOT's good faith discretion. Developer shall not perform any construction Work prior to ADOT's and FHWA'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. Developer shall prepare interim EMP revisions, in the form of addenda, if revisions to the EMP are needed 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 to be used 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 Developer's Environmental Compliance Manager (ECM) and other personnel who will be 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 plan:

A. Describes Developer's organizational hierarchy and identify compliance roles and internal reporting responsibilities;
B. Includes a clear discussion regarding which key personnel, in addition to the ECM, have the authority to stop Work on the Project to prevent a violation from occurring; and
C. Describes the process for identifying and reacting to non-compliance events.

420.2.3.1.2 External Communications

For external communications procedures, Developer shall ensure that the plan:

A. Describes a procedure that defines how all external communications received by Developer shall be documented and handled, including how ADOT will be involved.
B. External communications may originate from Tribes, local jurisdictions, regulatory agencies, and the public. Issues may range from public noise complaints to violation notices from regulatory agencies.
C. Where appropriate, this communication procedure must be consistent with the EMP.
D. 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 Tribes, local jurisdictions, and regulatory agencies.
E. ADOT will lead all communication related to cultural resources and the Section 106 of the *National Historic Preservation Act* process.
F. Developer shall be responsible for external notification and reporting requirements associated with the permits Developer obtains and for which Developer is listed as the permittee, including reporting protocols identified within Developer's Spill Containment and Countermeasure Plan.

420.2.3.1.3 ADOT Communications

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

A. Describes interactions between Developer and ADOT in regard to reporting non-compliance issues.
B. Describes Developer's communication process and key personnel who are responsible for recognizing when a design change and/or alternative construction technique may require a permit modification or new approval.
C. Describes Developer's strategy for managing design changes that may require permit modifications or additional approvals.

420.2.4 Project Environmental Commitment Requirements

Developer shall comply with environmental commitments and requirements included in the ROD. The table provided in TP Attachment 420-1 includes the Project-specific environmental commitments associated with the ROD. Environmental mitigation measures have been reviewed and approved by FHWA for the construction of the Project. These mitigation measures are not subject to change without prior written approval from FHWA. Developer shall be responsible for all environmental commitment requirements in TP Attachment 420-1, except those requirements that are specifically identified as an ADOT action.

If, at any time, Developer is not in compliance with any applicable Laws, including any Environmental Laws, and Governmental Approvals, ADOT may suspend the Work, in whole or in part, under Section 18.2.1 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 to resolve violations 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 (management through workers, including each new employee who begins Work after issuance of NTP1) must participate in an environmental protection training program. The environmental protection training program must be complete prior to an individual performing any Work on the Site. The training program must orient Developer employees and Subcontractors to the following:

A. The overall importance of environmental issues in achieving a successful Project
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 training sessions on the environmental commitment requirements in TP Attachment 420-1 and must include a 6 week written notification to ADOT for cultural sensitivity training conducted by the Gila River Indian Community (GRIC).

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 420-2. The ADOT-Provided Approvals are based on the ADOT *Final L/DCR* that is provided in the RIDs. Copies of ADOT-Provided Approvals that ADOT has already secured are provided in the RIDs.

Table 420-2 ADOT-Provided Approvals				
TP Attachment	**Governmental Entity**	**ADOT-Provided Approval**	**Status**	**Availability Date**
420-1	FHWA	South Mountain Freeway (Loop 202) Interstate 10 (Papago Freeway) to Interstate 10 (Maricopa Freeway) Final Environmental Impact Statement and Section 4(f) Evaluation, and Record of Decision (ROD) ("NEPA Approval")	Executed	September 26, 2014; March 13, 2015

Developer acknowledges and agrees that changes to the Schematic ROW or incorporation of Developer-Designated ROW into the Project may require re-evaluation, amendment, or supplement to the NEPA Approval as the Work progresses. Developer shall be responsible for all Work in connection with such re-evaluation, amendment, or supplement in accordance with Section 4.3 of the Agreement. Developer shall identify any such changes and notify ADOT immediately. ADOT, in conjunction with FHWA, will determine whether an additional environmental study, re-evaluation, amendment, or modification is necessary.

Developer may request ADOT's assistance and cooperation in connection with re-evaluations, amendments, or supplements to NEPA Approval in accordance with and subject to the requirements in Section 4.3.8 of the Agreement. Developer shall prepare a NEPA Approval Package that includes material in connection with the re-evaluations, amendments, or supplements to the NEPA Approval including the application for amended approvals. Developer shall submit the NEPA Approval Package to ADOT for review and approval by ADOT, in ADOT's sole discretion. Upon ADOT's approval with the NEPA Approval Package, ADOT will submit the NEPA Approval Package to the Governmental Entity having jurisdiction for consideration.

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

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

Governmental Approvals that must be formally submitted and issued in ADOT's name require Developer's assistance, including providing complete design and information packages. In cases that require ADOT or FHWA to act as the coordinating party for Governmental Approvals, Developer shall provide all required data to support, to 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. The following is a list of Governmental Approvals that must be applied

for or issued in ADOT's name, including a description of the preliminary work that ADOT has performed to date and certain requirements to be performed by Developer with respect to such approvals:

A. *Section 404 of the Clean Water Act Permitting.*
ADOT has undertaken certain preliminary work concerning this application and has obtained an approved Preliminary Jurisdictional Delineation by the United States Army Corps of Engineers (USACE).

Developer shall submit a complete design and information package in conformance with the 404 permit application requirements to ADOT for ADOT to coordinate with USACE for submittal of the Section 404 permit application.

B. *Section 401 of the Clean Water Act Certification.*
Developer shall submit a complete design and information package in conformance with the 401 application requirements to ADOT for ADOT to coordinate with Arizona Department of Environmental Quality for certification under Section 401.

Typical USACE application review periods are contained within the *Operating Agreement between the FHWA, USACE, and ADOT* provided in the RIDs.

Developer shall prepare Governmental Approval Package(s) that includes applications and all required documentation to obtain Governmental Approvals that must be applied for or issued in ADOT's name. Developer shall submit the Governmental Approval Package(s) to ADOT for approval in ADOT's good faith discretion.

420.2.6.3 All Other Governmental Approvals

Developer shall obtain all Governmental Approvals, other than the NEPA Approval, to complete the Work. Prior to submittal to the Governmental Entity having jurisdiction, Developer shall submit Applications for Governmental Approvals to ADOT.

420.3 ENVIRONMENTAL REQUIREMENTS

Developer shall comply with the environmental requirements contained in the TP Attachment 420-1 during the design, construction, and maintenance of the Project. Developer shall not conduct or perform any ground disturbance activities until the appropriate environmental clearance (i.e., cultural resources, hazardous materials, or biological evaluations) has been issued for the applicable parcel. Developer shall coordinate with ADOT to confirm if appropriate environmental clearance is issued.

420.3.1 Environmentally Sensitive Areas

Developer shall protect environmentally sensitive areas. Environmentally sensitive areas include cultural resources as defined in the NEPA Approval, as well as those areas that may be identified during the permitting and the preconstruction environmental survey(s) process. Developer shall map environmentally sensitive areas on all Design Documents and identify and address them in the EMP.

The Project is subject to inspections from the Governmental Entities. Developer shall allow access to and follow the instructions from any Governmental Entities pertaining to requirements for the protection or mitigation of impacts on environmentally sensitive areas.

420.3.1.1 Environmentally Sensitive Avoidance Areas

Developer shall fence the boundary of Environmentally Sensitive Avoidance Areas in accordance with Section DR 420.3.1.2 of the TPs, prior to any construction activities or ground

disturbing activities within the Environmentally Sensitive Avoidance Area. Developer shall ensure that all construction or ground disturbing activities within the Environmentally Sensitive Avoidance Area Buffer is monitored by ADOT or its designee. If the mainline is located within the airspace of the Environmentally Sensitive Avoidance Area, Developer shall ensure that it is aligned at the farthest extents of the Environmentally Sensitive Avoidance Area and is entirely outside of the Environmentally Sensitive Avoidance Area Protected Air Space.

420.3.1.2 Environmentally Sensitive Area Fencing

At the direction of ADOT, Developer shall protect environmentally sensitive areas by installing high visibility markings, flagging, or 3-foot minimum high fencing at the direction of ADOT around all environmentally sensitive areas within the Project ROW, Temporary Construction Easements, or Developer's Temporary Work Areas prior to any ground-disturbing activities. Developer shall notify ADOT a minimum of 14 Business Days prior to installing environmentally sensitive area fence to schedule coordination of installation of fence. During construction near these areas, Developer shall provide daily inspection of environmentally sensitive areas in accordance with the EMP, and immediately report any damage or impact to ADOT and 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 permitting and Governmental Entities.

Developer shall remove fencing from environmentally sensitive areas prior to Final Acceptance. Developer shall notify ADOT a minimum of 14 Business Days prior to the removal of fencing around environmentally sensitive areas to schedule the coordination of the fence removal.

420.3.2 Archaeological

Archaeological testing and recovery is not required within the environmentally cleared Project area. However, Developer shall survey any access or other ancillary use areas outside of what is currently environmentally cleared to locate and evaluate cultural resources. 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, Developer shall prepare and submit all Archaeological Documentation and Reporting to ADOT for review and comment. ADOT, in conjunction with FHWA, will be responsible for submitting any draft or final report to the State Historic Preservation Office (SHPO) or other consulting Governmental Entities.

420.3.3 Cultural Resources

ADOT will fulfil the commitments made in the ROD and *Section 106 Programmatic Agreement* for the known cultural resources. A draft of the *Section 106 Programmatic Agreement* (2015-01 Draft SMF EIS Revised PA.PDF) is included in the RIDs. This will include any required data recovery and the implementation of the *Traditional Cultural Property* enhancement and mitigation plan for the Project as presented in TP Attachment 420-1. ADOT will notify Developer of clearance of parcels with cultural resources in accordance with Section DR 470 of the TPs.

If human remains or funerary objects are encountered during activity related to the construction of the freeway, Developer shall cease all further disturbances and activities in any area or nearby area suspected to overlie remains and notify ADOT. Developer shall manage unexpected cultural resources discoveries according to WUS-3 and CUL-10 of TP Attachment 420-1.

To comply with the *2015 Section 106 Programmatic Agreement*, ADOT will submit Developer's Schematic Design and the Initial Design Submittal(s) to consulting parties for a 30 day review and comment period. ADOT will not provide the consulting parties the Final Design Submittal or

RFC Submittal for review, unless the changes between Initial Design Submittal and Final Design Submittal or Final Design Submittal and RFC Submittal are significant, as determined by ADOT in its sole discretion. If such changes are determined significant, ADOT will submit the Submittals to the consulting parties for a 30 day review and comment period.

420.3.4 Hazardous Materials

Hazardous materials discovered during construction shall be managed in accordance with HZM-7 of TP Attachment 420-1.

420.3.5 Noise

Developer shall prepare a Final Technical Noise Analysis and Mitigation Report that complies with the ADOT *Noise Abatement Policy* dated July 13, 2011. With 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.

420.3.6 Biological Resources

ADOT has completed an initial survey of habitat suitability for the Sonoran desert tortoise. Developer shall use this information in the design of the Project.

420.3.7 Waters of the United States

Developer shall make every effort to not:

A. Create new drainage ditches or channels that the USACE would consider jurisdictional;
B. Increase waters of the US jurisdictional area.

420.3.8 Stormwater

Developer shall:

A. Comply with the current Arizona Pollutant Discharge Elimination System (AZPDES) Municipal Separate Storm Sewer System (MS4) permit
B. 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*.
C. Coordinate with regulated MS4s within the Project regarding existing connections and comply with the regulated MS4s' requirements

Developer shall design first flush treatment for the entire Project ROW.

420.3.9 Wildlife Crossings

420.3.9.1 Fencing

Developer shall include complete exclusion barrier or fencing (also called funnel or non-permeable fencing) that ties into crossing structures (culvert headwalls, bridge abutments, etc.) or other barriers to movement (noise walls, rock cut, etc.) at the multiuse crossings.

A. For deer, the fence shall be a minimum of 6.5 feet tall, secured or buried in ground.
B. For tortoise, the fence shall be buried 2 feet deep, 1.5 feet tall of materials with no openings or small openings, such as mesh or chain link fence. Fence shall overhang at top to inhibit climbing; maintain without vegetation directly adjacent to fence or barrier. Guardrail mounted fence has worked well on some projects; reptile exclusion walls are an alternate approach.

Escape options such as ramp on the road side of barrier for tortoise and one-way jump-out for deer shall be included.

420.3.9.2 Structures

Drainage structures (pipes and culverts) along the Pecos Road section of the Project will be designed to promote crossing by tortoises [and riparian amphibians and reptiles]. Developer shall:

A. Include natural substrate
B. Minimize length of culvert perpendicular to road and line up culverts across divided highways
C. Not include drop-offs such as may be caused by erosion on downstream side of a concrete-bottom drainage structure or stepped elevation within a structure
D. Not include rip rap blocking access to the structure; rip rap shall be grouted or buried and maintained so that it does not block tortoises from entering structure
E. Use materials that are not toxic to aquatic life and are not prone to erosion

The multiuse crossing structures in the area of the South Mountains shall be designed for deer [and other mammals]. These structures shall have:

A. Minimum opening height of 10 feet
B. Openness ratio = 0.8 at minimum, 1.0 is preferred
C. Openness ratio = (Culvert Height x Culvert Width)/Culvert Length
D. No open ledges or gaps in walls within or at opening of structure (fear of predators reduces use

420.4 SUBMITTALS

Table 420-3 reflects a nonexclusive list of Submittals identified in this Section DR 420 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 420-3
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Environmental Management Plan	2	6	1	Prior to issuance of NTP2	DR 420.2.3
NEPA Approval Package	1	2	1	As determined by Developer	DR 420.2.6.1
Governmental Approval Package(s)	2	2	1	As determined by Developer	DR 420.2.6.2
Applications for Governmental Approvals	5	2	1	Prior to submittal to the Governmental Entity having jurisdiction	DR 420.2.6.3
Archaeological Documentation and Reporting	4	2	1	Prior to any ground disturbance	DR 420.3.2
Final Technical Noise Analysis and Mitigation Report	2	2	1	With the Initial Design Submittal of the roadway design	DR 420.3.5

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

DR 425 PUBLIC INFORMATION

Refer to CR 425 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 this Section DR 430. Traffic signals, street lighting, and intelligent transportation systems (ITS) and freeway management systems are not considered "Utilities" to be adjusted under this Section DR 430.

430.2 ADMINISTRATIVE REQUIREMENTS

430.2.1 Standards

Developer shall perform all Utility design Work in accordance with the standards, manuals, and guidelines listed in Table 430-1.

Table 430-1
Standards

No.	Agency	Name
1	ADOT	Guide for Accommodating Utilities on Highway Right-of-Way
2	ADOT	Encroachment Permit (azdot.gov/business/permits/encroachment-permits)
3	Varies	Utility Company Standards

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 Meetings

The Utility Adjustment Coordinator shall hold utility coordination meetings on a weekly basis or more often as needed, with ADOT and the Utility Companies to communicate with the Utility Companies, Developer's staff, and others to ensure that conflicts are being resolved throughout the duration of the design of the Project.

430.2.3 ADOT-Provided Information

A Utility data search has been conducted for the Project that includes the collection of as-built drawings and system maps from Utility Companies and the designation of Utilities by field location surveys. Potholing was not performed. Utilities have been designated along the Schematic Design; however, the designation may not include all Utilities within the Project ROW. Developer shall verify the presence of all Utilities within the Project ROW. An existing Utility CAD file and inventory matrix was developed for the Project. The Utility inventory matrix, Utility CAD file, and any maps provided by the Utility Companies are included in the RIDs. Maps and plans provided by the City of Phoenix Water Services Department are not included in the RIDs. Developer shall secure the appropriate security clearance required to receive that information from the City of Phoenix.

Several Utility meetings were held with the Utility Companies. A general Utility informational meeting was held with Utility Companies on October 23, 2014. The purpose of the meeting was to inform the Utility Companies of the Project, the method of Project delivery, and potential Utility Adjustment process.

Additional meetings were held with Utility Companies to discuss their facilities in greater detail and document any issues or requirements. For such meetings, a discussion items document was produced; this document details the Utility Company's facilities known to be present, any prior rights claims, anticipated Utility Adjustments, and any coordination, review requirements, or construction issues that may be associated with the Utility. These discussion items documents are provided in the RIDs, along with any other system maps, guidelines, conflict reviews, or prior rights documents that were provided.

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. ADOT will approve or disapprove of any prior right claims. Prior rights determinations have not been made for all Utilities on the Project and must be determined. For Utilities that claim prior rights but do not have a decision on those claimed prior rights, Developer shall coordinate with ADOT and the Utility Company to ensure all required documents have been provided by the Utility Company and to ensure a decision is made by ADOT. Developer shall document all coordination throughout the approval process, including the final approval disposition.

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. The Utility Agreement shall define who will have the responsibility to perform the design and construction of the Utility Adjustment Work, the time frames under which the Utility Adjustment Work will occur, and compensation terms, if any, between the parties performing the Utility Adjustment Work. Refer to Section 5.10.2.4 of the Agreement for Utility Agreement requirements.

Except as provided in Sections 5.10.2.5 or 5.10.2.6 of the Agreement, ADOT will not be a party to Utility Agreements. If a Utility Company has proper Prior Rights Documentation in connection with a Utility Adjustment, then ADOT, together with Developer and the Utility Company, will be a party to the corresponding Utility Agreement. In such a case, ADOT will be a signatory to the Utility Agreement for the sole purpose of indicating its consent thereto and agreeing to the terms and conditions in the Utility Agreement respecting the Utility Company's prior rights. ADOT will be signatory to all Utility Adjustments with the City of Phoenix, or other Governmental Entity, as may be required, for the Project.

Developer shall coordinate and facilitate the securing of all Utility Agreements. Developer shall prepare all Utility Agreements in coordination with ADOT and shall provide originals, not copies, of the Utility Agreements. A sample ADOT Utility Agreement format is included in the RIDs.

430.2.4.3 Utility Clearance Letters

Developer shall prepare Initial Utility Clearance Letters and Final Utility Clearance Letters for each Project Segment. 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 Segment listed separately, showing the information below:
    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 protected in place

b. The Utility is in conflict and a Utility Adjustment is needed. 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
iv. Adjustment is currently in progress, by who, with an estimated completion date

At least 10 Business Days prior to any Construction Work within the Project Segment, Developer shall submit Initial Utility Clearance Letter(s), along with copies of correspondence from Utility Companies verifying the information contained in the letter is accurate, to ADOT for review and comment.

Developer shall prepare a Final Utility Clearance Letter for each Project Segment indicating that all needed Utility Adjustments have been completed and all Utilities have been mitigated. Within 10 Business Days of the completion of all Utility Adjustments within the applicable Project Segment, Developer shall submit a Final Utility Clearance Letter for each Project Segment to ADOT for review and comment.

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.

430.3.2 Utility Identification

Developer shall verify the location of all Utilities within the Project limits or otherwise affected by the Work. Utility Companies known to have facilities within the Project limits include the following:

A. Arizona Public Service – 230 kV power
B. AT&T – fiber optic
C. CenturyLink – telephone and fiber optic
D. City of Phoenix – water and sewer; also maintains Laveen Area Conveyance Channel
E. Cox Communications – cable and fiber optic
F. Kinder Morgan El Paso Natural Gas – pipeline for natural gas
G. Kinder Morgan Petro – pipelines for petroleum
H. Level3 (and former Williams) – fiber optic
I. Roosevelt Irrigation District – irrigation canal and pipes
J. Salt River Project Irrigation – irrigation pipelines, ditches, and wells
K. Salt River Project Power – 500 kV, 230 kV, 69 kV, 12 kV, and primary power
L. Southwest Gas – pipelines for natural gas
M. Sprint – fiber optic

N. Verizon (and former MCI) – fiber optic
O. Western Area Power Administration – 230 kV power
P. Zayo Group – fiber optic

Developer shall ensure that all Utilities within the Project ROW have been designated and included in the base CAD file(s). Permit logs that may contain additional information are available from ADOT, Maricopa County, and City of Phoenix for review.

430.3.3 Utility Report

Developer shall prepare Utility Reports for each Project Segment that documents the progress of the Utility coordination efforts. The Utility Report must be signed and sealed by the responsible Professional Engineer and must contain a narrative detailing the various Utility conflicts and resolutions, the updated Utility matrix, and copies of all correspondence, including meeting minutes. The narrative must include:

A. A list of all Utility Companies and contact information;
B. The basis of the Utility Information;
C. A summary, by Utility Company, of the Utility facilities, conflicts, and considerations for relocation or mitigation;
D. Pothole data acquired;
E. Anticipated Utility Adjustment costs, broken out by prior right/non-prior right;
F. Agreement status;
G. Right-of-Way needed for relocations and acquisition status;
H. Anticipated relocation design and construction schedules; and
I. *ADOT Encroachment Permit* status.

Every 3 months, Developer shall submit the Utility Report(s) to ADOT for review and comment . Within 20 Business Days of the completion of construction for each Project Segment Developer shall prepare and submit a Final Utility Report to ADOT for review and comment.

430.3.4 Utility Adjustments

Developer shall perform Utility Adjustments or ensure that the adjustments are made by the Utility Companies to accommodate the Project in accordance with the ADOT *Guide for Accommodating Utilities on Highway Right-of-Way* and the Contract Documents. No Utilities will be allowed on or within any existing or proposed bridges. Abandonment of Utilities within the Project ROW must comply with the requirements in the ADOT *Guide for Accommodating Utilities on Highway Right-of-Way.*

Developer shall coordinate access requirements of the Utility Companies. Developer shall provide for such access as may be requested by the Utilities and shall ensure that it is acceptable to ADOT. For prior right Utilities, Developer shall design any replacement access roads that may be 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, traffic signals, irrigation controllers, or other facilities in accordance with the Contract Documents. 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 that may be present and set up new or temporary services in accordance with the appropriate Utility Company's or Governmental Entity's requirements.

At least 10 Business Days prior to planned submittal of the Utility Service Request Letter to the associated Utility Company, Developer shall prepare and submit Utility Service Request Letter(s) to establish new services 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 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 land rights that may be needed.

430.3.6 Utility Plans

Developer shall incorporate all Utility information into the Design Documents. Developer's utility base CAD file must indicate the quality and reliability of existing Utility information. Vertical locations of underground Utilities must be shown on all cross sections and details in the Design Documents.

Prior to permit application, Developer shall obtain Utility Company approval of Utility Adjustment design plans prepared by Developer. Developer shall provide Utility Adjustment design plans approved by the Utility Company to ADOT as part of the Utility Report(s).

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. Unless otherwise agreed to in writing by Developer, the applicable Utility Company must design all other Utility Adjustments.

430.3.7 ADOT Encroachment Permits

Developer shall coordinate with the Utility Companies and ADOT to secure, prior to commencing any construction within the Project ROW, an ADOT encroachment permit is obtained for each Utility that will be installed, adjusted, or remain in the Project ROW. The Utility Company must file the permit application. See the ADOT website (azdot.gov/business/Permits/encroachment-permits) for more information regarding encroachment permits.

430.3.8 Utility Encasement

Encasement pipes shall be provided for pipelines carrying oil, gas, petroleum products, or other flammable or volatile substances, or steam, water, or other nonflammable substances under pressure in accordance with the following:

A. The length of casing pipe required shall vary, but shall extend 10 feet beyond the edge of pavement, at a minimum;
B. Ferrous metal casing pipes shall be protectively coated against corrosion; and
C. Encasement pipes shall be of a suitable diameter and length to permit removal and replacement of the carrier pipe without impacting roadway operations.

Electric and telephone conduits, ductbanks, gravity sewers and storm drains crossing beneath the roadways shall not require encasement provided that the strength of the utility line is capable of withstanding the load.

430.4 SUBMITTALS

Table 430-2 reflects a nonexclusive list of Submittals identified in this Section DR 430 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 430-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Initial Utility Clearance Letter(s)	4	2	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	2	1	Within 10 Business Days of the completion of all Utility Adjustments within the applicable Project segment	DR 430.2.4.3
Utility Report(s)	4	0	1	Every 3 months	DR 430.3.3
Final Utility Report(s)	4	2	1	Within 20 Business Days of the completion of construction for that Project segment	DR 430.3.3
Utility Service Request Letter(s)	5	2	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 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

DR 436 RAILROAD

436.1 GENERAL REQUIREMENTS

Developer shall perform all Design Work impacting the railroad in compliance with the requirements of this Section DR 436.

436.1.1 Existing Railroad Crossings

The Project interfaces with the railroad corridor owned and operated by Union Pacific Railroad (UPRR). There is an existing railroad at-grade crossing of the UPRR within the Project, which has specific a USDOT number as reflected in Table 436-1.

Table 436-1
Existing Railroad Crossing Locations

Railroad Crossing Locations	USDOT Crossing No.	Railroad MP
59th Avenue	741811U	899.69

436.2 ADMINISTRATIVE REQUIREMENTS

436.2.1 Standards

Developer shall perform all design Work impacting the railroad in accordance with the standards, manuals, and guidelines listed in Table 436-2.

Table 436-2
Standards

No.	Agency	Name
1	BNSF/UPRR	Guidelines for Railroad Grade Separation Projects
2	AREMA	Manual for Railway Engineering

Developer shall perform the design Work impacting the railroad in accordance with the 23 CFR 646, *UPRR Construction and Maintenance Agreements*, and Arizona Corporation Commission (ACC) authorization.

436.2.2 Railroad Scope

Developer's design and coordination related railroad Work includes at least the following activities:

A. Preparation and furnishing of Railroad Submittal Packages for each of the proposed roadway and off-site drainage crossing of the railroad.
B. Providing any information required to support ADOT with the UPRR review and approval processes.
C. Providing any information required to support ADOT with the ACC review and approval processes required for all needed grade separation, temporary and permanent crossings of the railroad.

D. Assisting ADOT in securing executed *UPRR Construction and Maintenance Agreements* for each crossing as further described herein.
E. Complying with the requirements of the *UPRR Construction and Maintenance Agreements*.
F. Entering into, for each proposed crossing, an "Agreement between UPRR and the Contractor"; an example is included in the RIDs.
G. Obtaining and complying with all applicable design specifications and requirements for each Work location that is on or adjacent to UPRR right-of-way.
H. Arranging for and obtaining all temporary rights-of-entry and access onto railroad property, and comply with all railroad requirements for access, entry, and safety training for all personnel involved.
I. Identifying and coordinating with UPRR for railroad flagging operations, and pay for costs of flagging.
J. Complying with and performing roadway worker training courses for all personnel that may enter any UPRR right-of-way.

Based on Design Documents provided by Developer as further defined herein, ADOT will provide the information to UPRR in accordance with Section DR 436.3.1 of the TPs. UPRR and ADOT will be signatories to the *UPRR Construction and Maintenance Agreements*. ADOT will apply to the ACC for authorization for each railroad crossing. Developer shall ensure that all railroad track Work, all railroad signal Work, and any UPRR-owned facilities impacted by the Project are designed by UPRR.

436.2.3 UPRR Requirements

Developer shall obtain a temporary UPRR construction license to construct the improvements at each crossing location within UPRR right-of-way. Developer shall arrange for UPRR to provide flagging services necessary for the safety of UPRR's property and the operation of UPRR's trains during all Project-related activities which occur within UPRR right-of-way. Developer shall ensure that its initial UPRR contact is the Manager of Industrial and Public Projects. As part of obtaining the necessary rights of entry and licenses, Developer shall arrange for UPRR to provide a contract project coordinator to serve as the UPRR contact.

436.2.4 UPRR Agreements

Developer shall comply with the requirements of all executed *UPRR Construction and Maintenance Agreements* in connection with the performance of the Work on proposed railroad crossings. Standard language and requirements of a *UPRR Construction and Maintenance Agreement* is included in the example agreement included in the RIDs. Each final executed UPRR Construction and Maintenance Agreement language may differ from the example provided in the RIDs. Developer's rights and responsibilities regarding *UPRR Construction and Maintenance Agreements* approval is included in Section 5.11.2 of the Agreement.

Prior to entering UPRR right-of-way, Developer shall obtain railroad *Right-of-Entry Agreements* with UPRR and shall coordinate entry directly with UPRR. Additionally, Developer shall obtain any other permits and approvals necessary to perform Work in UPRR right-of-way.

436.3 DESIGN REQUIREMENTS

436.3.1 Railroad Submittal Packages

Developer shall prepare a Railroad Submittal Package for each proposed railroad crossing to assist ADOT in securing an *executed UPRR Construction and Maintenance Agreement* for each crossing. No Work may occur within UPRR right-of-way prior to receipt of executed and

recorded *UPRR Construction and Maintenance Agreements*, unless otherwise authorized by ADOT and UPRR.

Developer shall provide Railroad Submittal Packages consistent with the requirements set forth in Section DR 436.2.1 of the TPs, unless modified herein. A complete Railroad Submittal Package must include, at a minimum, the following:

A. Plans reflected as a 100% Submittal as defined by UPRR;
B. All information required for a design Submittal, with the incorporation of ADOT design Submittal comments;
C. Temporary and permanent clearances in accordance with Burlington Northern Santa Fe (BNSF)/UPRR *Guidelines for Railroad Grade Separation Projects*;
D. Provision for underdeck lighting for bridges as required by the BNSF/UPRR *Guidelines for Railroad Grade Separation Projects;*
E. Pier protection in conformance with BNSF/UPRR *Guidelines for Railroad Grade Separation Projects* and AREMA requirements;
F. Bridge cross sections with sufficient data to determine geometry;
G. Demolition considerations;
H. Top of rail survey per BNSF/UPRR *Guidelines for Railroad Grade Separation Projects;*
I. Access roads and bridge elevation;
J. Railroad identification information (mile post, subdivision, etc.);
K. Foundation plans showing bent(s), column(s), and foundation locations for foundations located in UPRR right-of-way;
L. Construction impact limits to construct all improvements adjacent to and within UPRR right-of-way;
M. Estimated cost of flagging work, so that the estimate can be included in each of the *UPRR Construction and Maintenance Agreements*; Developer acknowledges and agrees that such estimate does not relieve Developer of its obligations to pay the actual costs of flagging; and
N. Any additional information, data, and/or supporting information as required by ADOT.

Developer shall submit all Railroad Submittal Package(s) to ADOT for review and approval by ADOT, in ADOT's sole discretion, and to UPRR for review and approval. If acceptable, Developer shall prepare and submit Final Railroad Submittal Package(s) to ADOT for review and approval by ADOT, in ADOT's sole discretion. ADOT will submit the Railroad Submittal Package to UPRR within 7 Business Days of receipt of a complete Railroad Submittal Package.

436.3.2 ACC Submittal

Developer acknowledges and agrees that all grade separation and temporary and permanent crossings of the railroad require ACC approval. *Procedures for Requesting a New Crossing or Upgrading of an Existing Crossing* includes typical requirements for ACC approval and is included in the RIDs.

After receiving UPRR approval of the plans and having executed and delivered all *UPRR Construction and Maintenance Agreements*, Developer shall prepare an ACC Submittal Package for each crossing. An on-site meeting between ACC and Developer may be required, if requested by ACC. A complete ACC Submittal Package is comprised of Plans and information as follows:

A. Introductory letter;
B. Executed *UPRR Construction and Maintenance Agreement*;
C. 100% Plans as defined by UPRR and approved by UPRR; and
D. Other information as required by ACC.

Developer shall submit one original and thirteen copies of each ACC Submittal Package to ADOT for review and approval by ADOT, in ADOT's sole discretion, and ACC. If acceptable, ADOT will submit each ACC Submittal Package to ACC within 7 Business Days of receipt of a complete ACC Submittal Package.

436.3.3 Railroad Operations

Developer shall coordinate and schedule with UPRR all activities that affect the railroad. Developer shall coordinate and schedule all Work within UPRR right-of-way to occur within the time gaps between trains.

Prior to performing any Work within UPRR right-of-way, Developer shall execute Exhibit C and C-1 of the "Agreement between UPRR and the Contractor," which is attached to each executed *UPRR Construction and Maintenance Agreements* between ADOT and UPRR.

436.3.4 Railroad Flagging

Developer shall determine the number of flagging days required and submit a request to UPRR for any flagging Work. Developer shall be responsible for any schedule impacts and costs associated with flagging required for the Project, and such flagging Work must be performed by UPRR flaggers in accordance with the executed *UPRR Construction and Maintenance Agreements*.

Developer shall not commence the Work or permit the Work to commence until Developer receives, in writing, assurance from UPRR's designated representative that arrangements have been made for flagging service, as may be necessary, and receives permission from UPRR's designated representative to proceed with the Work. Prior to any Work within UPRR right-of-way, Developer shall submit copies of Written Documentation of UPPR's Authorization of Work to ADOT.

436.3.5 Operational Safety

Developer must prove successful completion of roadway worker training courses by all personnel entering UPRR right-of-way. Developer shall ensure that all personnel working within UPRR right-of-way comply with roadway worker training courses requirements and the railroad requirements regarding personal protective equipment (PPE) and Work within the UPRR right-of-way.

436.4 SUBMITTALS

Table 436-3 reflects a nonexclusive list of Submittals identified in this Section DR 436 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 436-3
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Railroad Submittal Package(s)	1	0	1	As determined by Developer	DR 436.3.1
Final Railroad Submittal Package(s)	1	1	1	As determined by Developer	DR 436.3.1
ACC Submittal Package(s)	1	14	1	As determined by Developer	DR 436.3.2
Written Documentation of UPRR's Authorization of Work	5	2	1	Prior to any Work within UPRR right-of-way	DR 436.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 440.

440.2 ADMINISTRATIVE REQUIREMENTS

440.2.1 Standards

Developer shall perform all roadway Design Work in accordance with the standards, manuals, and guidelines listed in Table 440-1.

Table 440-1
Standards

No.	Agency	Name
1	ADOT	Design Exception and Design Variance Process Guide
2	U.S. Access Board	ADA Accessibility Guidelines
3	U.S. Access Board	Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way
4	AASHTO	A Policy on Geometric Design of Highways and Streets
5	AASHTO	Roadside Design Guide
6	AASHTO	A Policy on Design Standards – Interstate System

440.3 DESIGN REQUIREMENTS

440.3.1 Access Control

Developer shall provide access control in accordance with Section 506 of the ADOT *Roadway Design Guidelines*. Full access control along crossroads must be a minimum of 300 feet beyond the ends of the ramp radius returns unless otherwise approved by ADOT.

Access control limits must be depicted graphically on the roadway Plans. The actual control dimensions must be shown and described on the ROW plans.

440.3.2 Design Criteria

Developer shall design the roadway in accordance with the design criteria shown in TP Attachment 440-1 and TP Attachment 440-2. All Design Work on the interstate system must comply with the requirements in the AASHTO *A Policy on Design Standards – Interstate System*.

440.3.2.1 Sight Distance

Sight distance requirements for all roadways must comply with Section 201 of the ADOT *Roadway Design Guidelines*.

Developer shall provide 2 times the stopping sight distance given in Figure 201.2 of the ADOT *Roadway Design Guidelines* on the mainline at lane drops.

Developer shall provide 1.5 times the stopping sight distance given in Figure 201.2 of the ADOT *Roadway Design Guidelines* on the mainline at the approaches to ramp entrances and exits. The sight distance is measured from the center of the right-hand approach lane to the center of the right-hand ramp lane at the entrance and exit nose control points as shown in Figures 504.7 and 504.8A of the ADOT *Roadway Design Guidelines*.

440.3.2.2 Superelevation

Mainline axis of rotation must comply with the requirements in Section 202.2 of the ADOT *Roadway Design Guidelines.* Maximum superelevation rates for roadways are shown in TP Attachment 440-1. Superelevation transitions must comply with the requirements in Section 202.3 of the ADOT *Roadway Design Guidelines.* Roadway design must not include spiral curves.

440.3.2.3 Horizontal Alignment

Mainline horizontal alignment must comply with the requirements in Section 203 of the ADOT *Roadway Design Guidelines.* Roadway design must not include spiral curves.

440.3.2.4 Vertical Alignment

Mainline vertical alignment must comply with the requirements in Section 204 of the ADOT *Roadway Design Guidelines.* The maximum mainline grade shall be 3% except for the area east of Ivanhoe Street and west of 27th Avenue where the maximum grade shall be 4%.

440.3.2.5 Mainline Transitions and Tapers

When adding a lane, the approach transition must have a taper rate of 25 to 1. The transition when dropping a lane must have a taper rate of design speed to one. Add lanes and drop lanes must occur on the right.

Taper rates from narrow to wider shoulder widths in the direction of traffic must be 15 to 1. When tapering from wider to narrower shoulder widths, the taper rate must be design speed to one.

440.3.2.6 Cross Section Elements

The standard cross slope for all types of paved surfaces shall be 0.02 ft/ft. The entire width of each roadway shall have a uniform cross slope. The cross slope of the shoulder must match the cross slope of the adjacent lane, except at ramp gores.

Mainline and ramp shoulder wedges must be 6:1 or flatter and a minimum of 10’ from edge of shoulder to the slope hinge as depicted in Figure 303.1 of the ADOT *Roadway Design Guidelines*.

Mainline and ramp curbs must comply with the requirements in Section 302.2 of the ADOT *Roadway Design Guidelines.* Crossroads within access control limits must be curbed.

Shoulder widths provided in TP Attachment 440-1 must be the minimum continuous usable width of paved shoulder. Widening to provide minimum shoulder widths at median pier locations must comply with the requirements in Section 304.2 of the ADOT *Roadway Design Guidelines.*

Roadside recovery areas must comply with the requirements in Section 303.2 of the ADOT *Roadway Design Guidelines.* A barn-roof approach shall not be used to eliminate barrier.

Median slopes must be 6:1 or flatter.

Side slopes shall comply with Figure 306.4B and Figure 504.4A of the ADOT *Roadway Design Guidelines.* Fill slopes must be 6:1 or flatter for embankment heights up to 8 feet. Fill slopes of 2:1 maximum are permitted in the area east of Ivanhoe Street and west of 27th Avenue.

Slopes within rock cuts must comply with the geotechnical recommendations in the Geotechnical Engineering Report(s) and the Contract Documents. Cut slopes steeper than 3:1 must be outside the recovery area width as determined by using the foreslope of the cut as the appropriate fill slope rate or be barrier protected.

Developer shall provide a minimum clearance of 10 feet between the drainage channel or ROW line and the toe of a fill slope. For cut slopes, the clearance from the outer edge of slope rounding or crown drainage system must be a minimum of 10 feet from the ROW.

440.3.2.7 Roadside Safety Devices

All roadside safety devices must comply with the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features* or the AASHTO *Manual for Assessing Safety Hardware (MASH).*

Permanent roadway barriers must be F-shape concrete barriers, exclusive of end treatments. Median barrier must be a minimum of 42 inches in height. Barrier on the outside of the roadway must be a minimum of 32 inches in height. Barriers must meet minimum test level TL-4 when placed against the top of retaining walls or protecting slopes to the top of walls located within the clear zone.

Unshielded ends of the concrete barrier within the clear zone must have crashworthy end treatments and meet minimum test level TL-3. Developer shall not bury the end of the barrier as an end treatment at the approach end. Developer shall not solely taper the height of the barrier at the approach end.

Median barriers shall be provided for median widths of 75 feet or less.

Median barrier transitions must be in accordance with Figure 305.9 of the ADOT *Roadway Design Guidelines*. Barrier height transitions must be at the rate of 10:1 or flatter.

Light poles located in the median must comply with the configuration shown in Figure 305.9 of the ADOT *Roadway Design Guidelines*. The top of the median barrier must have adequate width to place the pole anchor in lieu of notching the barrier and placing the anchor at a location below the top of the barrier.

Developer shall replace cable barrier systems that are removed with new cable barrier or F-shape concrete barrier.

Developer shall not use temporary concrete barrier in a permanent configuration.

440.3.2.8 Frontage and Collector Distributor Roads

Developer shall design all frontage and collector distributor roads in accordance with Section 309 of the ADOT *Roadway Design Guidelines*.

440.3.2.9 Maintenance Access

Developer shall provide 12-foot-wide maintenance access at the toe of fill and cut slopes along both sides of the Freeway.

Developer shall design maintenance access to channels in accordance with Section DR 445.3.6.4 of the TPs.

440.3.2.10 Sidewalk

Developer shall provide sidewalk on all crossroads within the access control limits. Sidewalk must be a minimum of 5 feet in width; unless there is existing sidewalk greater than 5 feet in width, Developer shall replace in-kind or protect in-place the existing sidewalk. Outside of the access control limits, Developer shall replace sidewalk in-kind, including any sidewalks that must be included with proposed frontage roads in accordance with the standards in Table 440-1.

440.3.2.11 ROW Fencing

Developer shall provide fencing at the ROW or along the control of access, except where walls or other physical barriers define the ROW, where public access to the ROW is permitted, or as defined in Section DR 420 of the TPs.

ROW fence must be 6 foot tall chain link, or as defined in Section DR 420 of the TPs.

440.3.2.12 Temporary Roads

Detour roadways must comply with the requirements in Section 316 of the ADOT *Roadway Design Guidelines*.

440.3.2.13 Traffic Interchanges and Crossroads

Ramp-crossroad intersections must comply with the requirements in Section 403 and Section 505 of the ADOT *Roadway Design Guidelines* and must meet the desirable criteria. Median Urban Designs shall not be used. Ramp-crossroad intersections must not have stop control.

Crossroad improvements must not encroach on GRIC ROW.

Developer shall provide the number of through lanes at all interchanges as shown in TP Attachment 440-2. Sight distances at ramp-crossroad intersections must comply with the requirements in Section 408 of the ADOT *Roadway Design Guidelines* and permit for right turns on red signals.

The maximum grade of crossroads within 400’ of ramp termini is 3 percent.

Crossroad median widths under structures must provide 2 feet minimum from the face of curb to the face of pier. The median width without piers must be at least 4 feet.

Ramps must comply with the requirements in Section 504 of the ADOT *Roadway Design Guidelines.* Service interchange entrance ramps must be two lanes and taper to a single lane at the entrance to the mainline in accordance with Figure 504.8B of the ADOT *Roadway Design Guidelines*. Entrance or exit ramps on the left shall not be allowed with the exception of HOV ramps.

Directional interchange ramps must be two lanes with the exception of HOV ramps that may be one lane. Lanes added to I-10 by directional entrance ramps must be dropped no sooner than one per successive service interchange crossroad location.

440.3.3 Local Streets and Intersections

Local streets and intersections outside of ADOT access control limits that are affected by the Project must be designed in accordance with City of Phoenix standards and guidelines and the criteria shown in TP Attachment 440-2.

440.3.4 ADA Compliance

All pedestrian facilities must comply with the U.S. Access Board *Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADAAG)* and the U.S. Access Board *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)*. Developer shall evaluate all existing pedestrian facilities within the Project ROW, including the I-10 intersections from 47th Avenue to 67st Avenue for conformance with ADAAG requirements. Developer shall prepare an Initial ADA Compliance and Feasibility Report that demonstrates that the Project complies with all applicable ADAAG requirements. Existing pedestrian facilities that comply with ADAAG requirements may remain in place. Existing pedestrian facilities that do not comply with ADAAG must be replaced with facilities that comply with PROWAG requirements. All new pedestrian facilities must comply with PROWAG requirements.

With the Initial Design Submittal for the Design Work, Developer shall submit the Initial ADA Compliance and Feasibility Report to ADOT. Developer shall update the Initial ADA Compliance and Feasibility Report and prepare and with the Final Design Submittal of the Design Work, Developer shall submit the Final ADA Compliance and Feasibility Report to ADOT.

440.3.5 Design Exceptions and Design Variances

The Schematic Design includes design elements that require Design Exceptions for horizontal stopping sight distance at the I-10 (Papago)/South Mountain Freeway System traffic interchange (TI), including the HOV ramp, ramp NE, ramp NW, ramp WS, and ramp ES. FHWA has reviewed the designs, but has not approved Design Exceptions based on the preliminary nature of the design and potential for design changes by Developer. Developer shall prepare Design Exception requests for these design elements based on Developers design.

Developer is discouraged from creating additional Design Exceptions or Design Variances. If Developer's design creates additional Design Exceptions or Design Variances, Developer 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 request, Developer shall prepare all documentation in accordance with the ADOT *Design Exception and Design Variance Process Guide.* With the Initial Design Submittal for the associated Work, Developer shall submit Request(s) for Design Exception or Design Variance to ADOT for review and approval by ADOT, in ADOT's sole discretion. Developer is advised that ADOT may withhold approval of any requests at its sole discretion and must schedule sufficient time for evaluation of all requests. Following review of Design Exceptions requests, ADOT will submit the Request(s) for Design Exceptions to FHWA for review and approval. All Design Exceptions must be reviewed by ADOT and reviewed and approved by FHWA. All Design Variances must be approved by ADOT.

Developer shall prepare a Design Exception and Design Variance Report that consolidates all Design Exceptions and Design Variances, all supporting documentation, and copies of the ADOT and FHWA approval letters. With the Final Design Submittal for the associated Work, Developer shall submit the Design Exception and Design Variance Report to ADOT.

440.4 SUBMITTALS

Table 440-2 reflects a nonexclusive list of Submittals identified in this Section DR 440 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

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Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Initial ADA Compliance and Feasibility Report	5	0	1	With the Initial Design Submittal for the associated Work	DR 440.3.4
Final ADA Compliance and Feasibility Report	5	0	1	With the Final Design Submittal for the associated Work	DR 440.3.4
Request(s) for Design Exception	1	0	1	With the Initial Design Submittal for the associated Work	DR 440.3.5
Request(s) for Design Variance	1	0	1	With the Initial Design Submittal for the associated Work	DR 440.3.5
Design Exception and Design Variance Report	5	0	1	With the Final Design Submittal for the associated Work	DR 440.3.5

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 445. Developer shall provide a highway drainage design that minimizes off-site impacts while maintaining a frequency of protection for the highway in accordance with this Section DR 445.

445.2 ADMINISTRATIVE REQUIREMENTS

445.2.1 Standards

Developer shall perform all drainage Design Work in accordance with the standards, manuals, and guidelines listed in Table 445-1.

Table 445-1
Standards

No.	Agency	Title
1	FHWA	Hydraulic Design of Highway Culverts, Hydraulic Design Series No. 5
2	FHWA	Urban Drainage Design Manual, Hydraulic Engineering Circular No. 22

445.2.2 Data Collection

Developer shall collect all data, including those elements outlined in this Section DR 445 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 to determine its condition, size, material, location, and other pertinent information when documentation is not available for existing drainage elements within the Project ROW that are to remain in place,.

The data collected must be documented as outlined in this Section DR 445 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, Utility Owners, and railroads, as applicable.

If a FEMA map revision is found to be warranted on Developer's Preliminary or Final Drainage Reports, Developer shall prepare documentation, perform the design, and provide to the local floodplain administrators all information and technical data needed to file conditional letter of map revision and letter of map revision with Federal Emergency Management Agency (FEMA).

445.2.4 Software

Developer shall use drainage software that is compatible with the software in use by ADOT or fully transferrable to the software currently in use by ADOT in accordance with Section GP 110.10 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 Schematic 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. The drainage improvements must be designed based on the future land use as determined by the Governmental Entity with jurisdiction and must not cause objectionable backwater and/or excessive velocities as specified in the standards listed in Table 445-1, 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. The drainage improvements must be designed 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*. The Drainage Master Plan is intended 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.

With the 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 a Drainage Master Plan Update 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.

With the 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 and that addresses ADOT comments from the Preliminary Drainage Report. With the 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 Final 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 listed in Table 445-2 and Table 445-3.

Table 445-2
Minimum Design Storm Frequency

Highway Level and Condition	Design Storm Frequency* (years)
New construction	50
Reconstruction	50
Structure affected by major project	50
*Design storm frequencies may be controlled by other considerations.	

Table 445-3
Design Storm Frequency for Pavement Drainage Systems

Roadway Type and Condition	Design Storm Frequency (years)
Non-Depressed Roadways:	
Storm drain systems:	
Hydraulic grade line 6 inches below top of grate	10
Cut and median ditches:	
Hydraulic grade line no higher than subgrade	10*
Hydraulic grade line no higher than 3 inches below pavement	See Table 445-2
Depressed Roadways:	
Storm drain systems:	
Hydraulic grade line 6 inches below top of grate	50
Note: Pavement drainage systems include inlets, catch basins, storm sewers, main drains, storage reservoirs, and pump stations. * For divided highways with median widths ≤ to 50 feet, it may not be practical to achieve criteria	

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 445-4 and Figure 603.2A of the ADOT *Roadway Design Guidelines*.

Table 445-4 Allowable Spread, 10-year Storm Event	
Roadway	**Spread Criterion**
Two-lane roadway and two-way frontage road	Shoulder, turn lane, or parking lane
Multilane roadway and one-way frontage road	½ lane + shoulder, turn lane, or parking lane
Ramp	
One lane	Unponded width of 12 feet
Two lane	½ lane + shoulder
One-lane directional ramp	Less than or equal to 8 feet
Two-lane directional ramp	½ lane + shoulder
At ramp gores	See Figure 603.2A of the ADOT *Roadway Design Guidelines*
Auxiliary lanes	½ auxiliary lane + shoulder
Note: Refer to roadway cross section and apply appropriate one- or multilane roadway criteria. For one-directional crowned roadways, the ½-lane spread shall be included only on one side.	

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. Modifications must be made to new or existing drainage features to achieve no rise in water surface elevation outside ADOT 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 Schematic ROW.

Runoff from roadway ditches must not cause additional erosion, scour, or undermining to bridge abutments.

If the proposed drainage system conveys flow to an existing pump station, Developer shall upgrade existing pump stations and equipment to comply with the requirements in the TPs.

445.3.5 Hydrology

Developer shall determine design flows based on the following sources, given in 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, runoff rates from drainage studies by other Governmental Entities must be evaluated for use in establishing a design flood frequency curve. Such studies must be reviewed for appropriateness with regard to the needs of the facility being designed. There may be instances where two hydrologic values must be used: (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: Rainfall-runoff models must be used where stream runoff data are not available. For drainage areas of 160 acres or less, the rational method may be used. For drainage areas greater than 160 acres, the USACE computer program HEC-1 must be used. Developer shall comply with the approved procedures and recommended parameter values for the Rational Method and HEC-1 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.

Non-standard ADOT inlets must adhere to the standards in Section DR 445.2.1 of the TPs. Inlets on roadways that allow bicycle travel must be bicycle-safe grates.

Developer shall design all off-roadway inlets within the roadway recovery area with 3 inches or less local depression. Developer shall account for a potential reduction of inflow capacity attributable to clogging using the capture ratios shown in Table 445-5.

Table 445-5
Inlet Capture Ratios

Grate Inlets	Capture Ratio
On grade	0.50
Sump	0.50
Curb Inlets	
On grade	0.80
Sump	0.80
Combined Curb and Grate	
On grade	
Curb inlet	0.80
Grate inlet	0.50
Sump	
Curb inlet	0.80
Grate inlet	0.50
Combined Slotted and Grate	

Table 445-5 Inlet Capture Ratios	
Grate Inlets	**Capture Ratio**
On grade	
Slotted inlet	0.67
Grate inlet	0.50
Sump	
Slotted inlet	0.50
Grate inlet	0.50

445.3.6.2 Storm Drain System

Where precluded from handling runoff with open channels by physical site constraints, or as directed in this Section DR 445, 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 6 inches below the lip of gutter, the top of manhole cover, and as specified in Table 445-3 of Section DR 445.3.4.1 of the TPs.

Manhole covers must be identified 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 3 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: 6 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
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*. Evaluation documentation must be included with the design calculations. Developer shall include "new pipe summary sheets" in the Plans.

Developer shall use the Manning's "n" values included in Table 445-6.

Table 445-6
Manning's "n"

Pipe Type	"n"
Concrete pipe	0.012
Cast-in-place concrete	0.014
Smooth plastic: polyethylene	0.012
Spiral rib: galvanized steel	0.014

445.3.6.4 Channels and Ditches

Developer shall ensure that the design for drainage channels provides 10-foot-wide vehicular maintenance access ramps, from the maintenance road where possible, to the channel bottom upstream and downstream of hydraulic structures. Developer shall not locate access ramps closer than 100 feet from the nearest channel transition and must located on the high side of the channel invert. Access ramps must slope downward in the downstream direction.

Developer shall include erosion control measures in the drainage channels and ditches, including flexible or rigid channel linings, to prevent scour and sedimentation.

Side slopes of aggregate lined and unlined channels must not be steeper than 3:1 (H:V). Concrete-lined channels must have side slopes no steeper than 2:1. Developer shall provide maintenance access for channels having a length of 500 feet or more.

Developer shall ensure that the minimum freeboard is 1 foot for a 100-year storm event, where overtopping would permit stormwater to break out of ADOT ROW and whose failure would endanger life or property.

For leveed channels where the water surface elevation is higher than natural ground, Developer shall provide an additional 1 foot of freeboard to accommodate surface irregularities and alignment adjustments.

If a ditch drains to a drainage structure designed to a lower frequency storm, Developer shall take into account the lower frequency storm in the ditch design at the discharge location of the ditch. At the discharge location, Developer shall size ditches for the structure design storm

capacity at the bank-full depth instead of adding freeboard to the water depth of the design storm. Developer shall also take into account the backwater attributable to the ponding at culverts and other structures in the water depth computations.

445.3.6.4.1 Drainage Outlets into Major Watercourses

Developer shall design the drainage outlet to the design peak flow of the channel concurrent with the 10-year peak flow in the main watercourse. Developer shall also design for the 10-year peak flow in the channel concurrent with the design peak flow in the main watercourse. Developer shall take into account water levels of the design peak flow in either the main watercourse or flood channel (not concurrent peaks) for bank protection measures at the outlet and nearby channel.

445.3.6.5 Stormwater Storage Facilities

Developer shall design stormwater storage facilities in accordance with the Arizona national pollutant discharge elimination system regulations for water quality and rate control requirements or the Governmental Entity with jurisdiction, whichever is more stringent. All stormwater storage facilities calculations must be included in the Preliminary and Final Drainage Report.

Developer shall ensure that stormwater storage facilities comply with the following requirements:

A. Outflow discharges from the stormwater storage facilities must not cause peak discharges downstream greater than peak discharges without the Project.
B. Detention basins must not retain standing water longer than 36 hours after inflow.
C. The maximum depth of a stormwater storage facility must not exceed 25 feet.
D. Stormwater storage facilities must have an emergency spillway that is designed to allow overflow of runoff when the outlet is blocked and the storage is exhausted.
E. Bottoms of storage facilities must be stabilized.

Developer shall design the Project without jurisdictional dams. Jurisdictional dams are defined as an artificial barrier for the impounding or diversion of water either 25 feet or more in height or having a storage capacity of more than 50 acre-feet.

445.3.6.6 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 the culvert design is influenced by upstream storage owned by a Governmental Entity for the purpose of stormwater storage, 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 box culvert height, inside dimension, must be 4 feet.
B. For the design flood, the headwater level must be no higher than 3 inches below the pavement. The headwater depth to culvert height ratio must not exceed 1.5.
C. The 100-year floodwater levels must not increase the flood damage potential on areas outside of ADOT ROW.

D. Flow capacity of any culvert must be investigated 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 siltation to the original grade can be anticipated.
E. All culverts must have end sections or headwalls.
F. Culverts with a span or diameter greater than or equal to 48 inches must have concrete headwalls.
G. Concrete box culverts must have inlet cut-off walls. Concrete box culverts must have an outlet cut-off wall with a minimum 4 foot depth.
H. Culverts with a span or diameter 48 inches or greater must have an apron with cut-off wall.
I. Concrete cut-off walls, headwalls, and partial headwalls must extend at least 2 feet below the ultimate bed elevation and a minimum of 4 feet below culvert inverts.
J. Cut-off walls, headwalls, partial headwalls, and aprons must be attached to the culvert.
K. Outlets must have riprap whenever the outlet velocity is between 4 and 15 feet per second.
L. 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. Culverts crossing beneath railroad tracks must be of size and material approved by the railroad in accordance with Section DR 436 of the TPs.

445.3.6.7 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 stormwater is confined to the shoulders and no water encroaches into the travel lanes.

445.4 SUBMITTALS

Table 445-7 reflects a nonexclusive list of Submittals identified in this Section DR 445 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 445-7
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Drainage Master Plan	4	2	1	With the Initial Design Submittal of the roadway drainage, roadway design, and/or bridge hydraulic design	DR 445.3.2

Table 445-7
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Updated Drainage Master Plan	5	2	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	2	1	With the Initial Design Submittal for the associated drainage improvements	DR 445.3.3
Final Drainage Report(s)	5	2	1	With the Final Design Submittal for the associated drainage improvements	DR 445.3.3
As-Built Drainage Report	5	2	1	As part of the Record Drawing Submittal	DR 445.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 450.

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. 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 Task Force Meetings

Developer and ADOT shall establish an Aesthetics and Landscaping (A&L) Task Force, including representatives of Developer, ADOT, and representatives of agencies as determined by ADOT.

The purpose of the Aesthetics and Landscaping Task Force is to:

A. Review and refine the Aesthetics and Landscape Master Plan and
B. Review, refine, and approve Developer's aesthetics and landscaping Plans, specifications, and details.

The A&L Task Force must be established, hold the initial meeting, and meet at the frequency noted in Section GP 110.02.4 of the TPs.

450.2.2.3 Technical Work Group Meeting

Developer shall conduct aesthetics and landscaping TWG meetings throughout the Design Work of the aesthetics and landscaping and in accordance with Section GP 110.02.4 of the TPs. ADOT staff will participate in these TWG meetings and be available for over-the-shoulder plan reviews.

450.2.3 Plant Inventory

Developer shall inventory all saguaros, barrel cacti, ocotillos, and all native trees, including blue palo verde, foothills palo verde, ironwood, and mesquite, with a caliper 4 inches or greater, measured 6 inches above existing ground, within the Project ROW. Developer shall inventory the plants as parcels become available for Developer's use. Each plant inventoried must be given an identification (ID) number that is associated with that plant through the salvaging, nursery, and replanting process. Developer shall prepare a matrix of inventoried plants that includes plant ID number, the species, caliper, and height of all trees, as well as the height of all saguaros and barrel cacti. The matrix must also identify whether each plant listed is salvageable or non-salvageable for all inventoried plants. Developer shall prepare plant inventory exhibits that indicate the location of each inventoried plant and its associated ID number.

Developer shall prepare a Plant Inventory for the Project that includes the following:

A. Cover page
B. Table of contents
C. Discussion
D. The matrix of inventoried plants
E. Plant inventory exhibits

Prior to issuance of NTP2, Developer shall submit the initial Plant Inventory for review and comment by ADOT. Within 15 Business Days after new parcels become available for Developer's use, Developer shall prepare and submit Plant Inventory Updates to ADOT for review and comment.

450.2.4 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 all native woody vegetation under healthy condition that has a single trunk diameter or combined trunk diameter of at least 4 inches, measuring 6 inches above existing ground at the root location. The Salvage Operation Plan must include the following:

A. Cover page
B. Table of contents
C. Timing for salvage operations for optimum success
D. Anticipated phasing schedule for salvage and replanting of plant materials
E. 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
F. Nursery details, including:
    1. Anticipated nursery location(s)
    2. Security measures for nursery site(s)
    3. Plant irrigation at the nursery(ies)
G. Methods and details for replanting boxed trees, saguaros, and cacti

With the Plant Inventory, Developer shall submit the Salvage Operation Plan to ADOT for review and comment. Developer shall update the Salvage Operation Plan as the Plant Inventory is updated. With each Plant Inventory Update, Developer shall submit the Salvage Operation Plan Update to ADOT for review and comment.

450.2.5 Noxious and Invasive Species Control Plan

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 found during the Plant Inventory, from the beginning of construction through Project Handback. If noxious and invasive species were not found during the Plant Inventory, Developer shall state so in the Noxious and Invasive Species Control Plan. A list of Arizona introduced invasive and noxious plants can be found on the United States Department of Agriculture website. The Noxious and Invasive Species Control Plan must include the following:

A. Cover page
B. Table of contents
C. Discussion, including the following:
    1. Information on the species that are found in the Project ROW

2. Proposed chemical or mechanical means to minimize germination of these plants

At least 15 Business Days prior to any ground disturbance, Developer shall submit the Noxious and Invasive Species Control Plan to ADOT for review and comment. Developer shall prepare a Noxious and Invasive Species Control Plan Update as the Plant Inventory is updated. No later than 10 Business Days after the submittal of each Plant Inventory Update, Developer shall submit the Noxious and Invasive Species Control Plan Update to ADOT for review and comment.

450.2.6 Plating Report (Topsoil)

Developer shall conduct soils sampling throughout the entire Project ROW. Sampling must be performed in accordance with the Natural Resource Conservation Service requirements and must include a minimum of 12 samples from each of the soil types found in the Project ROW. Boring samples must vary in depth from 1 to 6 feet below existing site grade. Developer shall analyze the samples for the agronomic-based saturated paste determinations of pH, soluble salts, sodium adsorption ratio, and estimated exchangeable sodium percent. Developer shall also analyze the samples for organic matter, nitrate, bicarbonate phosphorus, potassium, sulfur, DTPA soluble zinc, iron, manganese, copper, boron, gypsum requirement, and gravel.

From this sampling, Developer shall determine what amendments are needed for optimum plant growth. Topsoil must comply with the soil characteristics included in Table 450-1.

Table 450-1
Soil Characteristics

Characteristics	Test Method	Requirement (Average of Six Samples)
pH	ARIZ 237	6.0–8.3
Soluble salts (ppm)	ARIZ 237	2,000 maximum
Calcium carbonate	ARIZ 732	8% maximum
Exchangeable sodium	ARIZ 729	5% maximum
Exchangeable sodium (ppm)	ARIZ 729	300 maximum
P.I.	AASHTO T 90	5–20
Gradation: 2 inch ½ inch No. 40	ARIZ 201	% Passing 100 85–100 35–100

If alternative topsoil is to be used in lieu of or in addition to on-site material, Developer shall provide independent soil laboratory results showing that the topsoil complies with the requirements in Table 450-1Table 450-1. Developer shall prepare a Plating Report that includes the following:

A. Cover page
B. Table of contents
C. Discussion, including the following:
    1. Introduction

2. Description of existing soil
3. Proposed amendments
4. How Developer shall excavate, transport, stockpile, and place topsoil
5. What equipment Developer shall use

D. Appendix, including the following:
   A. Summary and results of the soil analyses
   B. Sources of all topsoil
   C. Laboratory testing results
   D. Independent soil laboratory testing results
   E. Sampling map showing where test samples were taken

With the first Initial Design Submittal of any landscape Submittal, Developer shall submit the Plating Report to ADOT for review and comment.

450.2.7 Irrigation Water Use and Conservation Plan

Developer shall analyze and determine the projected water use, for all phases of the project, for planting in each character area identified in the *SR 202 South Mountain Freeway Landscape Architecture & Aesthetics Design Concept Report (LAADCR*), which is included in the RIDs. Developer shall perform irrigation calculations for water needs during the construction phase, the plant establishment period, and the Maintenance Period. The irrigation calculations must account for estimated monthly water needs.

The irrigation water use shall not exceed the maximum annual water use requirements specified in the Third Party Agreement with the City of Phoenix.

Developer shall prepare an Initial Irrigation Water Use and Conservation Plan based on the aesthetics and landscape Plans. The Initial Irrigation Water Use and Conservation Plan must include the following:

A. Cover page
B. Table of contents
C. Discussion, including the following:
1. Detailed methodology proposed to determine how much irrigation water will be applied during the planting, establishment, and maintenance phases of the contract. The Plan shall include an approved method of measuring soil moisture at the root balls of trees and shrubs at four locations per controller at locations and intervals approved by the Engineer.
2. Description of how the schedule will be developed and how water use will be monitored
3. Plan for conserving irrigation water
4. Plan for recording water meter use at regular monthly intervals and delivering the results for review
5. Proposed controller programming schedule
6. Description of planting design theory describing how the majority of plants to be used will be the lowest water users and where and how the higher water using plants will be located.

D. Appendices, including the following, at a minimum:
   F. Calculations, which shall be summarized using the sample in Table 450-2 as a guide.

Table 450-2 Water Usage by Character Area						
Month	**Percent of ET* (%)**	**Gallons**				
		Char. Area 1	**Char. Area 2**	**Char. Area 3**	**Char. Area 4**	**Char. Area 5**
January	3	XXX	XXX	XXX	XXX	XXX
February	4.1	XXX	XXX	XXX	XXX	XXX
March	6.9	XXX	XXX	XXX	XXX	XXX
April	10.3	XXX	XXX	XXX	XXX	XXX
May	12.7	XXX	XXX	XXX	XXX	XXX
June	12.8	XXX	XXX	XXX	XXX	XXX
July	13.4	XXX	XXX	XXX	XXX	XXX
August	12.7	XXX	XXX	XXX	XXX	XXX
September	9.6	XXX	XXX	XXX	XXX	XXX
October	7.2	XXX	XXX	XXX	XXX	XXX
November	4.3	XXX	XXX	XXX	XXX	XXX
December	2.8	XXX	XXX	XXX	XXX	XXX
TOTAL	100	XXX	XXX	XXX	XXX	XXX
* ET refers to evaporation and transpiration, a measure of potential plant water requirements.						

With the Initial Design Submittal of any landscape Submittal, Developer shall submit the Initial Irrigation Water Use and Conservation Plan to ADOT for review and comment.

Developer shall prepare the Final Irrigation Water Use and Conservation Plan based on the updated planting and irrigation design. With the Final Design Submittal of any landscaping Submittal Developer shall submit the Final Irrigation Water Use and Conservation Plan to ADOT for review and comment.

450.2.8 Aesthetics and Landscape Master Plan

At the first Task Force meeting, Developer shall prepare and submit an Aesthetics and Landscape Master Plan to ADOT for review and comment. The Master Plan shall be a roll plot(s) showing the proposed freeway layout at a legible scale. Areas to be planted (Character Areas 1, 3, 4, 5) or seeded (Character Area 2) will be colored in green, landform graphic areas will be colored in brown, areas to receive decomposed granite only will be colored in yellow. In a separate matrix, provide the total square footage within each character area for: planted or seeded areas, landform graphic areas, and decomposed granite only areas. Sound walls and retaining walls will be highlighted with color or thick line weight. Indicate with a symbol the proposed locations of the sound wall accents. After receiving approval of the Master Plan, the Developer may proceed with Visual Analysis.

450.2.9 Visual Analysis

When the layout of the freeway mainline is complete for each character area and there is a preliminary understanding of the cut and fill slopes, the height and location of bridges, retaining walls, and similar features, the extents of the mountain cuts, and the layout of drainage features and crossings, the Landscape Architect will prepare a visual analysis of the character area to:

A. determine elements and conditions that will impact the use and design of the landscape
B. locate built and natural elements
C. locate microclimates based on prevailing wind directions, patterns of sun and shade, existing topography, and soil type
D. identify positive vistas and views
E. identify unappealing views

This list is representative of elements to document and is not considered all inclusive. The visual analysis will be used by the Landscape Architect to create a planting design that:

A. uses vegetation to screen views both of the roadway and from the roadway
B. uses strategic planting layout and spacing to frame positive views
C. strategically locates vegetation to screen unappealing views
D. uses measures to blend retention basins and their landscape treatments into the surroundings
E. clusters groupings of plant material in an informal pattern to break up the linear form of the freeway
F. emphasizes shade in key pedestrian areas along city crossroads
G. avoids creating “hidden” areas for transient habitation
H. considers ease and efficiency of landscape and irrigation maintenance
I. ensures maintenance access areas, pull boxes, light poles, sign foundations, and impact devices are free of vegetation

After the Design Kickoff meeting and prior to submitting a planting Initial Design Submittal, Developer shall submit a Visual Analysis to ADOT for review and comment.

450.3 DESIGN REQUIREMENTS

450.3.1 Aesthetics

The Project is divided into five character areas. Each character area has its own character theme, rustication pattern, landform graphic pattern, and planting theme and is described in the LAADCR.

Rustication is defined as any change in the pattern or texture of built structure as compared with a standard smooth finish. Rustication, can whether it protrudes out or is inset into the wall, must comply with the structure requirements in Section DR 455 and CR 455 of the TPs. The dimensions of rustication relief as shown in Exhibits L2.13 through L2.35 of the LAADCR are the minimums allowed.

All exposed surfaces of built structures must be rusticated, except the undersides of bridges. Built structures, as defined here, include bridge barrier walls, bridge abutments, bridge wing walls, bridge support columns, noise walls, retaining walls, lightweight panels, slope paving and other similar site structures. Built structures do not include lined drainage channels, drainage head walls, or roadside or median barriers.

Developer shall paint all exposed surfaces of built structures, including the undersides of bridges and excluding metal features (fencing, gates, guardrails), with the colors as shown in Table 450-3Table 450-3. Developer shall paint concrete with a flat finish, accents with a gloss

finish, masonry with a gloss finish, and metal with a semigloss finish. Paint must extend to 2 feet below finished grade. Lined drainage channels, drainage head walls, and roadside and median barriers shall not be painted.

Table 450-3
Color Palette

Location	Color
Entire freeway corridor base field color	Silt
Character Area 1 Ocatillo Settlement Pattern accent color	Ocotillo Bloom
Character Area 2 Cholla Ocotillo Pattern accent color	Earth Red
Character Area 3 River Bank Pattern accent color	Yellow Ochre
Character Area 4 Leaf Portal Pattern accent color	Field Green
Character Area 5 Mountain Urban Link Pattern accent color	Ocotillo Bloom and Warm Earth
Salt River Bridge accent colors	Earth Red

450.3.1.1 All Character Areas

450.3.1.1.1 Walls

All bridge abutment walls, sound walls, and retaining walls throughout the freeway corridor must receive the same horizontal rustication and base field paint color. Simulations of all the character areas, including the Salt River Bridge pattern, with the horizontal rustication pattern on the bridge abutment and sound walls are shown in Exhibits L2.2, L2.4, L2.6, L2.8, L2.10, and L2.12 of the LAADCR.

Existing walls will need to be painted in the new base color in order transition between existing I-10 themes at Pecos Road and at 59th Avenue and the new South Mountain Freeway themes.

450.3.1.1.2 Landform Graphics

Developer shall provide landform graphics that cover approximately 50 percent of the total project landscaped area. Landform graphics may be either concrete graphics or graphics using decomposed granite. For calculating cover, landscaped areas do not include drainage basins or channels, right-of-way in wash crossings, maintenance roads, and side slopes between 17th Avenue and 51st Avenue.

Landform graphics are intended for sloped areas at interchanges between the mainline and the on- and off-ramps. Landform graphics may also be located along sloped mainline sections, but single landform graphic area shall not exceed one-half mile in length.

Developer shall provide landform graphic for each Character Area that replicate Exhibits L2.39 through L2.44 of the LAADCR.

450.3.1.1.3 Crossroad Landscape

Crossroad medians between the on- and off-ramp intersections shall not be vegetated. Medians shall be hardscaped with pavers or concrete a pattern or finish to complement the character area aesthetics in which they occur.

Median and road side landscape areas beyond the on- and off-ramp intersections will be designed in coordination with the City of Phoenix.

450.3.1.1.4 Accessory Structures

Accessory structures such as FMS buildings and irrigation equipment enclosures shall be designed in materials and colors to match the character area in which it is located.

450.3.1.2 Character Area 1

Character Area 1, referred to as the Ahwatukee Neighborhoods, is located between 48th Street and a half mile east of Desert Foothills Parkway. It is defined by the proximity of existing medium-density residential development. The aesthetic theme of Character Area 1 is the Ocatillo Settlement Pattern, expressed through crisp geometric forms, horizontal lines, and triangular shapes. Exhibit L2.2 of the LAADCR is a simulation of these forms on a typical sound wall and bridge structure. The final designs shall replicate these simulations.

450.3.1.2.1 Bridges

Developer shall provide rustication patterns on all bridge barrier walls, bridge support columns, and bridge abutment walls in Character Area 1 in accordance with Exhibits L2.14, L2.15, and L2.17 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.2.2 Walls

Developer shall provide rustication patterns on all walls, except drainage headwalls, in Character Area 1 in accordance with Exhibit L2.16 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.3 Character Area 2

Character Area 2, referred to as the Ahwatukee Foothills, is located between a half mile east of Desert Foothills Parkway to just east of 51st Avenue (north of the GRIC boundary). It is defined by the proximity of existing lower-density residential development, increased topography, and large areas of undisturbed native desert. The aesthetic theme of Character Area 2 is the Cholla/Ocotillo Pattern, expressed through forms that are representative of the simple shapes and forms found on cholla and ocotillo cactus. Exhibit L2.4 of the LAADCR is a simulation of these forms on a typical sound wall and bridge structure. The final designs shall replicate these simulations.

450.3.1.3.1 Bridges

Developer shall provide rustication patterns on all bridge barrier walls, bridge support columns, and bridge abutment walls in Character Area 2 in accordance with Exhibits L2.18, L2.19, and L2.21 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.3.2 Walls

Developer shall provide rustication patterns on all walls, except drainage headwalls, in Character Area 2 in accordance with Exhibit L2.20 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.4 Character Area 3

Character Area 3, referred to as the Laveen Village, is located between just east of 51st Avenue (north of the GRIC boundary) and the Salt River. It is defined by agricultural fields, pastures, and low-density residential development. The aesthetic theme of Character Area 3 is the River Bank Pattern, expressed through shapes that are representative of water carving river banks, channels, and steep mountain slopes. Exhibit L2.6 of the LAADCR is a simulation of these

forms on a typical sound wall and bridge structure. The final designs shall replicate these simulations.

450.3.1.4.1 Bridges

Developer shall provide rustication patterns on all bridge barrier walls, bridge support columns, and bridge abutment walls in Character Area 3 in accordance with Exhibits L2.22, L2.23, and L2.25 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.4.2 Walls

Developer shall provide rustication patterns on all walls, except drainage headwalls, in Character Area 3 in accordance with Exhibit L2.24 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.5 Character Area 4

Character Area 4, referred to as the Estrella Village, is located between the Salt River and I-10. It is defined by a mix of agricultural fields, pastures, and medium-density residential development transitioning to industrial and commercial land uses. The aesthetic theme of Character Area 4 is the Leaf Portal Pattern, expressed through shapes that suggest the agricultural heritage of this area. Circular shapes in the pattern represent portals into the future or out of the past. Exhibit L2.8 of the LAADCR is a simulation of these forms on a typical sound wall and bridge structure. The final designs shall replicate these simulations.

450.3.1.5.1 Bridges

Developer shall provide rustication patterns on all bridge barrier walls, bridge support columns, and bridge abutment walls in Character Area 4 in accordance with Exhibits L2.26, L2.27, and L2.29 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.5.2 Walls

Developer shall provide rustication patterns on all walls, except drainage headwalls, in Character Area 4 in accordance with Exhibit L2.28 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.6 Character Area 5

Character Area 5, referred to as the I-10 Traffic Interchange, is located along I-10 between 75th and 43rd Avenues. It is defined by the existing freeway landscape character as well as the adjacent residential development to the north and industrial development to the south. The aesthetic theme of Character Area 5 is the Mountain Urban Link Pattern, expressed through interlocking shapes that representationally tie the South Mountain Freeway to the I-10 freeway. Exhibit L2.10 of the LAADCR is a simulation of these forms on a typical sound wall and bridge structure. The final designs shall replicate these simulations.

450.3.1.6.1 Bridges

Developer shall provide rustication patterns on all bridge barrier walls, bridge support columns, and bridge abutment walls in Character Area 5 in accordance with Exhibits L2.30, L2.31, and L2.33 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.6.2 Walls

Developer shall provide rustication patterns on all walls, except drainage headwalls, in Character Area 5 in accordance with Exhibit L2.32 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.7 River Bridge Character

The Salt River Bridge Character applies only to the bridge crossing the Salt River. The bridge barrier walls, as shown in Exhibit L2.12 of the LAADCR, have a rustication pattern called the wave pattern that relates this bridge to other ADOT bridges crossing the Salt River.

450.3.1.7.1 Bridge

Developer shall provide rustication patterns on bridge barrier walls on bridges crossing the Salt River in accordance with Exhibit L2.12 of the LAADCR. All ornamental fencing on bridge barrier wall must be horizontal pattern using steel cable in accordance with Exhibit L2.35 of the LAADCR. The final designs shall replicate these simulations.

450.3.1.7.2 Walls

Developer shall provide horizontal rustication on Salt River Bridge abutment walls in accordance with Exhibits L2.12 and L2.13 of the LAADCR. The final designs shall replicate these simulations.

450.3.2 Landscape

Developer shall select all landscape plant materials from the lists defined below and/or from the plants salvaged and transplanted from on site. All plants from a Character Areas list shall be used in the planting design in a manner that provides variety of the species throughout the Character Area, and makes the best use of the low-water use plants, reserving the higher water-use plants for select areas. No substitution of species will be allowed.

450.3.2.1 Planting Design

The plant material shall provide an evident sense of uniformity and continuity in pattern, material, size, color, and intensity throughout the five character areas. Landscape shall be designed to address the following broad objectives:

A. Use vegetative buffers to screen views both of the roadway and from the roadway.
B. Use strategic gaps in plantings to frame positive views.
C. Transplant large saguaros, mature trees, and cacti to visually sensitive or critical roadway areas.
D. Use measures to blend retention basins and their landscape treatments into the surroundings.
E. Place landscape treatments on the periphery of right-of-way areas, at overpass locations, and on areas adjacent to residential development.
F. Cluster groupings of plant material in informal patterns to break up the linear form of the freeway.
G. Emphasize shade in key pedestrian areas along city crossroads.
H. Consider ease and efficiency of landscape and irrigation maintenance.
I. Avoid creating “hidden” areas for transient habitation.
J. Ensure that maintenance access areas, pull boxes, light poles, sign foundations and impact devices are free of vegetation.
K. Do not plant in areas of total shade.

Trees shall 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 monotony of the horizontal plane. Tree plantings shall be used to focus desirable views while screening undesirable ones.

Shrubs and accents shall be used to provide a year round layer of texture and color that shall serve to articulate the ground plane and provide intermediate vertical relief. Given limited right-of-way and plant spacing requirements, mass plantings of shrubs shall further delineate naturalistic or geometric forms as identified by the surrounding landscape configuration.

Developer shall lay out plant material as it relates to planting in the recovery zone in accordance with the ADOT *Roadway Design Guidelines*. Developer shall not place trees or shrubs so as to conceal the view of any highway sign or signal.

450.3.2.1.1 Character Area 1

The Character Area 1 planting concept blends the landscape of the existing I-10/SR 202 interchange landscape with that of the existing surrounding residential neighborhoods. Plants used in Character Area 1 must be from the plants listed in Table 450-4. Per each category of plant (large tree, small tree, large shrub, small shrub, accent), minimum are given for how much each species shall be represented in the final plan. The remaining percentage shall be at the discretion of the Landscape Architect. The landscape layout design shall create a transition between existing I-10 at Pecos Road landscape and the new South Mountain Freeway Character Area 1 landscape.

Table 450-4
Character Area 1 Plants

Botanical Name	Common Name	Minimum Percentage that Each Species Shall be Represented in Final Design (%)
Large Trees		
Cercidium floridum	Blue palo verde	10
Olneya tesota	Desert ironwood	10
Pithecellobium flexicaule	Texas ebony	10
Prosopis pubescens	Screwbean mesquite	10
Prosopis velutina	Velvet mesquite	10
Small Trees		
Acacia willardiana	Palo blanco	8
Caesalpinia cacalaco	Cascalote	8
Pistacia lentiscus	Mastic tree	8
Psorothamnus spinosus	Desert smoke tree	8
Sophora secundiflora	Texas mountain laurel	8
Sophora secundiflora ‘Silver Peso’	‘Silver Peso’ Texas mountain laurel	8
Large Shrubs		
Caesalpinia pulcherrima	Red bird of paradise	6

Table 450-4 Character Area 1 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design (%)**
Calliandra sp.	Fairy duster	6
Cordia parvifolia	Little leaf cordia	6
Justicia californica	Chuparosa	6
Leucophyllum candidum	Silver Cloud sage	6
Leucophyllum frutescens	Green Cloud sage	6
Leucophyllum laevigatum	Chihuahuan sage	6
Simmondsia chinensis	Jojoba	6
Small Shrubs		
Muhlenbergia capillaris	Regal Mist	25
Ruellia peninsularis	Baja ruellia	25
Accent		
Asclepias sp.	Milkweed	8
Carnegiea gigantea	Saguaro	8
Dasylirion wheeleri	Desert spoon	8
Fouquieria splendens	Ocotillo	8
Hesperaloe parvifloia	Red yucca	8
Yucca sp.	Yucca	8

The minimum tree size must be 15 gallons at a minimum density of 14 per acre. Desert type trees shall be multitrunk. The minimum shrub size must be 1 gallon at a minimum density of 30 per acre. The minimum accent size must be 5 gallons at a minimum density of 10 per acre.

City crossroad minimums are trees at 15 gallon, 1 per 40 linear feet; shrubs at 1 gallon minimum, 5 shrubs per tree; and accents/cacti at 5 gallon minimum, quantity included as part of the required 5 shrubs per tree.

450.3.2.1.2 Character Area 2

The Character Area 2 planting concept is native desert. Salvaged desert trees and cacti and seeding with native desert shrubs must blend the freeway landscape with the adjacent South Mountain Park/Preserve (SMPP). All inventoried, salvageable plants must be located within Character Area 2, and each location must be identified with the plant's ID number. Plants used

in Character Area 2 must be from the plants listed in Table 450-5. Per each category of plant (large tree, small tree, large shrub, small shrub, accent), minimum are given for how much each species shall be represented in the final plan. The remaining percentage shall be at the discretion of the Landscape Architect.

Table 450-5
Character Area 2 Plants

Botanical Name	Common Name	Minimum Percentage that Each Species Shall be Represented in Final Design
Large Trees		
Cercidium floridum	Blue palo verde	10
Cercidium microphyllum	Foothills palo verde	10
Olneya tesota	Desert ironwood	10
Prosopis pubescens	Screwbean mesquite	10
Prosopis velutina	Velvet mesquite	10
Small Trees		
Psorothamnus spinosus	Desert smoke tree	25
Sophora secundiflora ‘Silver Peso’	‘Silver Peso’ Texas mountain laurel	25
Large Shrubs		
Calliandra sp.	Fairy duster	12
Justicia californica	Chuparosa	12
Larrea tridentate	Creosote	12
Simmondsia chinensis	Jojoba	12
Small Shrubs		
Ambrosia deltoidea	Bursage	17
Encelia farinosa	Incienso brittlebush	17
Sphaeralcea ambigua	Globe mallow	17
Accent		
Asclepias sp.	Milkweed	10
Carnegiea gigantean	Saguaro	10
Ferocactus sp.	Barrel cactus	10

Table 450-5 Character Area 2 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Opuntia sp.	Prickly pear	10
Opuntia sp.	Cholla	10

Tree density shall be a minimum of 14 trees per acre using all the salvaged trees and supplementing them as needed with nursery grown trees at a minimum 15 gallon size. The minimum shrub size must be 1 gallon at a minimum density of 15 per acre. Saguaros must be at a minimum density of 1 per acre using all the salvaged saguaros and supplementing them as needed with purchased saguaros at a minimum size of 8-foot spear. Accents/cacti must be at a minimum density of 2 per acre, using all the salvaged material and supplementing as needed with nursery grown material at a minimum 1 gallon size. These minimums are in addition to the seeding.

City crossroad minimums are trees at 15 gallon, 1 per 40 linear feet; shrubs at 1 gallon minimum, 5 shrubs per tree; and accents/cacti at 5 gallon minimum, quantity included as part of the required 5 shrubs per tree.

450.3.2.1.3 Character Area 3

The Character Area 3 planting concept is agriculturally themed. Plantings must be arranged in straight lines to mimic the furrows and hedgerows found in the adjacent farm fields. Plants used in Character Area 3 must be from the plants listed in Table 450-6. Per each category of plant (large tree, small tree, large shrub, small shrub, accent), minimum are given for how much each species shall be represented in the final plan. The remaining percentage shall be at the discretion of the Landscape Architect.

Table 450-6 Character Area 3 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Large Trees		
Cercidium floridum	Blue palo verde	15
Dalbergia sissoo	Indian rosewood	5
Pistachia chinensis	Chinese pistache	5
Pithecellobium flexicaule	Texas ebony	5
Prosopis velutina	Velvet mesquite	15
Quercus virginiana	Southern live oak	5

Table 450-6 Character Area 3 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Ulmus parvifolia	Evergreen elm	5
Small Trees		
Caesalpinia cacalaco	Cascalote	8
Chitalpa tashkinensis	Chitalpa	8
Pistacia lentiscus	Mastic tree	8
Psorothamnus spinosus	Desert smoke tree	8
Sophora secundiflora	Texas mountain laurel	8
Vitex agnus-castus	Chaste tree	8
Large Shrubs		
Caesalpinia Mexicana	Mexican bird of paradise	7
Cordia parvifolia	Little leaf cordia	7
Dodonaea viscosa	Hop bush	7
Eremophila maculate	Valentine bush	7
Leucophyllum candidum	Silver Cloud sage	7
Leucophyllum frutescens	Green Cloud sage	7
Simmondsia chinensis	Jojoba	7
Small Shrubs		
Lantana sp. ‘New Gold’	New Gold lantana	12
Muhlenbergia capillaris	Regal Mist	12
Rosmarinus officinalis prostrates	Prostrate rosemary	12
Ruellia peninsularis	Baja ruellia	12
Accent		
Agave sp.	Agave	12
Asclepias sp.	Milkweed	12
Hesperaloe funifera	Giant hesperaloe	12

Table 450-6 Character Area 3 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Hesperaloe parviflora	Red yucca	12

The minimum tree size must be 15 gallons at a minimum density of 14 per acre. Desert type trees shall be multitrunk. The minimum shrub size must be 1 gallon at a minimum density of 30 per acre. The minimum accent size must be 5 gallons at a minimum density of 10 per acre.

City crossroad minimums are trees at 15 gallon, 1 per 40 linear feet; shrubs at 1 gallon minimum, 5 shrubs per tree; and accents/cacti at 5 gallon minimum, quantity included as part of the required 5 shrubs per tree.

450.3.2.1.4 Character Area 4

The Character Area 4 planting concept is to blend with the plant palette for the City of Phoenix's Estrella Urban Village and the surrounding residential and industrial developments. Plants used in Character Area 4 must be from the plants listed in Table 450-7. Per each category of plant (large tree, small tree, large shrub, small shrub, accent), minimum are given for how much each species shall be represented in the final plan. The remaining percentage shall be at the discretion of the Landscape Architect.

Table 450-7 Character Area 4 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Large Trees		
Cercidium praecox	Palo brea	15
Dalbergia sissoo	Indian rosewood	5
Pistache chinensis	Chinese pistache	5
Pithecellobium flexicaule	Texas ebony	5
Prosopis glandulosa	Honey mesquite	15
Quercus virginiana	Southern live oak	5
Small Trees		
Caesalpinia cacalaco	Cascalote	10
Chitalpa tashkinensis	Chitalpa	10
Pistacia lentiscus	Mastic tree	10

Table 450-7 Character Area 4 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Psorothamnus spinosus	Desert smoke tree	10
Sophora secundiflora	Texas mountain laurel	10
Large Shrubs		
Bougainvillea sp.	La Jolla	5
Caesalpinia Mexicana	Mexican bird of paradise	5
Caesalpinia pulcherrima	Red bird of paradise	5
Dodonaea viscosa	Hop bush	5
Leucophyllum candidum	Silver Cloud sage	5
Leucophyllum frutescens	Green Cloud sage	5
Leucophyllum laevigatum	Chihuahuan sage	5
Simmondsia chinensis	Jojoba	5
Tecoma stans ‘Orange Jubilee’	Orange jubilee	5
Small Shrubs		
Acacia redolens ‘Desert Carpet’	Prostrate acacia Desert Carpet	10
Lantana sp. ‘New Gold’	New Gold lantana	10
Muhlenbergia capillaris	Regal Mist	10
Rosmarinus officinalis prostrates	Prostrate rosemary	10
Ruellia peninsularis	Baja ruellia	10
Accent		
Aloe sp.	Aloe	12
Asclepias sp.	Milkweed	12
Dasylirion wheeleri	Desert spoon	12
Hesperaloe parviflora	Red yucca	12

The minimum tree size must be 15 gallons at a minimum density of 14 per acre. Desert type trees shall be multitrunk. The minimum shrub size must be 1 gallon at a minimum density of 30 per acre. The minimum accent size must be 5 gallons at a minimum density of 10 per acre.

City crossroad minimums are trees at 15 gallon, 1 per 40 linear feet; shrubs at 1 gallon minimum, 5 shrubs per tree; and accents/cacti at 5 gallon minimum, quantity included as part of the required 5 shrubs per tree.

450.3.2.1.5 Character Area 5

The Character Area 5 planting concept blends the new South Mountain Freeway landscape with that of the existing I-10 landscape. Plants used in Character Area 5 must be from the plants listed in Table 450-8. Per each category of plant (large tree, small tree, large shrub, small shrub, accent), minimum are given for how much each species shall be represented in the final plan. The remaining percentage shall be at the discretion of the Landscape Architect. The landscape layout design shall create a transition between existing I-10 at 59th Avenue landscape and the new South Mountain Freeway Character Area 1 landscape.

Table 450-8
Character Area 5 Plants

Botanical Name	Common Name	Minimum Percentage that Each Species Shall be Represented in Final Design
Large Trees		
Cercidium praecox	Palo brea	12
Dalbergia sissoo	Indian rosewood	12
Eucalyptus papuana	Ghost gum	12
Prosopis glandulosa	Honey mesquite	12
Small Trees		
Acacia aneura	Mulga	10
Acacia willardiana	Palo blanco	10
Chitalpa tashkinensis	Chitalpa	10
Psorothamnus spinosus	Desert smoke tree	10
Sophora secundiflora	Texas mountain laurel	10
Large Shrubs		
Bougainvillea sp.	La Jolla	8
Caesalpinia pulcherrima	Red bird of paradise	8
Leucophyllum candidum	Silver Cloud sage	8
Leucophyllum frutescens	Green Cloud sage	8

Table 450-8 Character Area 5 Plants		
Botanical Name	**Common Name**	**Minimum Percentage that Each Species Shall be Represented in Final Design**
Leucophyllum laevigatum	Chihuahuan sage	8
Tecoma stans 'Orange Jubilee'	Orange Jubillee	8
Small Shrubs		
Acacia redolens 'Desert Carpet'	Prostrate acacia Desert Carpet	25
Ruellia peninsularis	Baja ruellia	25
Accent		
Agave sp.	Agave	7
Aloe sp.	Aloe	7
Asclepias sp.	Milkweed	7
Dasylirion wheeleri	Desert spoon	7
Fouquieria splendens	Ocotillo	7
Hesperaloe parviflora	Red yucca	7
Yucca sp.	Yucca	7

The minimum tree size must be 15 gallons at a minimum density of 14 per acre. Desert type trees shall be multitrunk. The minimum shrub size must be 1 gallon at a minimum density of 30 per acre. The minimum accent size must be 5 gallons at a minimum density of 10 per acre.

City crossroad minimums are trees at 15 gallon, 1 per 40 linear feet; shrubs at 1 gallon minimum, 5 shrubs per tree; and accents/cacti at 5 gallon minimum, quantity included as part of the required 5 shrubs per tree

450.3.2.1.6 Seeding

Seeding shall be used in Character Area 2 as the method of establishing understory plants. Developer shall seed within the traffic clear zone/recovery areas. The seed mixes below represent the desired mix of species and density.

Developer shall provide low grasses and forbs seed mix in the bottom of all retention basins and within the traffic clear zone/recovery areas within Character Area 2. Low grass and forb seed mix must be in accordance with Table 450-9.

Table 450-9 Low Grass And Forb Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Abronia villosa	Sand verbena	0.25
Argemone platyceras	Prickly poppy	0.25
Aristida purpurea	Purple threeawn	2
Baileya multiradiata	Desert marigold	2
Bouteloua aristidoides	Needle grama	2
Bouteloua rothrockii	Rothrock's grama	0.5
Bothriochloa barbinodis	Cane beardgrass	1
Distichlis stricta	Desert saltgrass	1
Encelia farinose	Incienso brittlebush	1
Encelia frutescens	Button brittlebush	1
Eschscholtzia Mexicana	Mexican poppy	2
Larrea tridentate	Creosote bush	0.5
Lesquerella gordonii	Gordon's bladderpod	1
Lupinus sparsiflorus	Desert lupine	1.5
Lupinus succulentus	Arroyo lupine	5
Phacelia crenulata	Arizona desert bluebell	2
Plantago ovata	Desert indian wheat	1
Salvia columbariae	Desert chia	1
Senna covesii	Desert senna	1
Sphaeralcea ambigua	Desert globemallow	2
Sporobolus cryptandrus	Sand dropseed	0.75
Verbena goodingii	Desert verbena	0.5

Developer shall apply tall background seed mix to revegetate areas beyond the traffic clear zone/recovery areas and all other unpaved disturbed areas within Character Area 2. The Tall Background Seed Mix shall not be applied within 20 feet behind guardrails/barrier walls, or within 20 feet of the inlets and outlets of drainage facilities or to the flow paths of the inlets and

outlets of drainage facilities. Tall background seed mix must be in accordance with Table 450-10.

Table 450-10
Tall Background Seed Mix

Botanical Name	Common Name	Pounds Per Acre of Pure Live Seed
Abronia villosa	Sand verbena	0.25
Acacia greggii	Catclaw acacia	025
Ambrosia dumosa	White bursage	1
Argemone platyceras	Prickly poppy	0.25
Aristida purpurea	Purple threeawn	2
Atriplex canescens	Fourwing saltbush	1
Baileya multiradiata	Desert marigold	2
Bothriochloa barbinodis	Cane beardgrass	1
Bouteloua aristidoides	Needle grama	2
Bouteloua rothrockii	Rothrock's grama	0.5
Calliandra eriophylla	Fairy duster	0.25
Cercidium floridum	Blue palo verde	0.5
Cercidium microphyllum	Foothills palo verde	0.5
Distichlis stricta	Desert saltgrass	1
Encelia farinosa	Brittlebush	1
Encelia frutescens	Button brittlebush	1
Eschscholtzia mexicana	Mexican poppy	2
Kallstroemia grandiflora	Arizona poppy	0.25
Larrea tridentata	Creosote bush	0.5
Lesquerella gordonii	Gordon's bladderpod	1
Lupinus sparsiflorus	Desert lupine	1.5
Lupinus succulentus	Arroyo lupine	5
Olneya tesota	Desert ironwood	3
Phacelia crenulata	Arizona desert bluebell	2
Prosopisjuliflora velutina	Velvet mesquite	0.25

Table 450-10 Tall Background Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Salvia columbariae	Desert chia	1
Senna covesii	Desert senna	1
Sphaeralcea ambigua	Desert globemallow	2
Sporobolus cryptandrus	Sand dropseed	0.75
Verbena goodingii	Desert verbena	0.5

Developer shall apply wash seed mix as a landscape ecological restoration buffer next to the edge of drainage areas along the flow path and beyond the traffic clear zone/recovery areas within Character Area 2. The Wash Seed Mix shall not be applied within 20 feet behind guardrails/barrier walls, or within 20 feet of the inlets and outlets of drainage facilities or to the flow paths of the inlets and outlets of drainage facilities. Wash seed mix must be in accordance with Table 450-11.

Table 450-11 Wash Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Ambrosia dumosa	White bursage	1
Aristida purpurea	Purple threeawn	2
Atriplex canescens	Fourwing saltbush	1
Baileya multiradiata	Desert marigold	0.5
Bothriochloa barbinodis	Cane beardgrass	1
Bouteloua aristidoides	Needle grama	0.5
Bouteloua rothrockii	Rothrock's grama	0.5
Calliandra eriophylla	Fairy duster	0.25
Celtis pallida	Desert hackberry	2
Cercidium floridum	Blue palo verde	0.5
Chilopsis linearis	Desert willow	0.5
Distichlis stricta	Desert saltgrass	3
Encelia farinosa	Incienso brittlebush	1
Encelia frutescens	Button brittlebush	1

Table 450-11 Wash Seed Mix		
Botanical Name	**Common Name**	**Pounds Per Acre of Pure Live Seed**
Eschscholtzia mexicana	Mexican poppy	2
Larrea tridentata	Creosote bush	0.5
Lupinus sparsiflorus	Desert lupine	1.5
Lupinus succulentus	Arroyo lupine	5
Lycium andersonii	Wolfberry	2
Olneya tesota	Desert ironwood	3
Phacelia crenulata	Arizona desert bluebell	2
Prosopisjuliflora velutina	Velvet mesquite	0.25
Salvia columbariae	Desert chia	1
Senna covesii	Desert senna	1
Sphaeralcea ambigua	Desert globemallow	2
Sporobolus airoides	Alkali sacaton	2
Sporobolus cryptandrus	Sand dropseed	0.5
Verbena goodingii	Desert verbena	0.5

450.3.2.2 Irrigation Design

Developer shall design the irrigation system in accordance with the following criteria:

A. Minimum design pressure 60 pounds per square inch.
B. Maximum pipe water velocity 5 feet per second.
C. Minimum 50 pounds per square inch operating pressure at individual remote control valve locations.
D. Minimum 86% distribution uniformity.
E. Include flow monitoring and flow control.
F. Include remote monitoring of controllers through a central control.
G. Include the ability to operate the irrigation system with hand-held devices.
H. Include pressure compensating low-flow drip emitter system for all planting.
I. Trees and shrubs must be valved separately.
J. All control valves, mainlines, and pressure regulators must be placed a minimum of:
   1. 20 feet behind curb and gutter;
   2. 8 feet behind all barriers when along freeway mainline and ramps; or
   3. Within first 5 feet behind sidewalks.
K. Irrigation pipes and equipment must comply with all applicable health code requirements.
L. Irrigation system must tap into existing City of Phoenix water lines.

M. Irrigation control system shall have the ability to monitor current weather conditions and monitor soil moisture conditions at specific representative plant locations throughout the project area using advanced soil sensing equipment.
N. Irrigation control system shall have the ability to initiate, adjust, or cancel an irrigation cycle based on actual real-time soil moisture readings.

450.3.2.2.1 City Right-of-Way Landscape

Irrigation systems for landscape within the City of Phoenix right-of-way must be independent from the freeway irrigation system.

450.3.2.3 Ground Treatment

All rock mulch and rock riprap used for erosion/sediment control must be fractured/crushed rock that is angular in shape. Natural river-run materials, including rounded natural river rocks/cobblestones and pebbles, are not acceptable for erosion/sediment control.

All ground surfaces within the Project limits not paved with asphalt or concrete must receive material to minimize dust pollution and erosion and as an aesthetic ground treatment. Character Areas 1, 3, 4, and 5 must receive 3-inch minus granite mulch, at the nominal depth of 2 inches, in the colors listed in Table 450-12. See Section CR 450.3.2.3 of the TPs for approved suppliers.

Table 450-12
Ground Treatment

Character Area	Granite Color
1	Coral
2	Not applicable
3	Brown
4	Gold
5	Gold

Landscaped areas of city cross roads must receive ¾ inch screened decomposed granite at the nominal depth of 2 inches. Character Area 2 and all other areas not otherwise specified herein must receive 3 inch minus desert pavement, at the nominal depth of 2 inches, and seeding. Desert pavement is an approximation of the native desert ground cover found in undisturbed desert areas. It is a combination of cobble, vegetation, and soil salvaged from the top 4 to 8 inches of the native desert areas of Character Area 2.

Mountain cut slopes steeper than 1:1 (H:V) are exempt from receiving a ground treatment. Developer shall provide decomposed granite and granite mulch in a gradation that minimizes erosion (rilling of the slopes) based on a 50-year, 30-minute rainfall, equivalent to a precipitation intensity of approximately 0.0052 feet/minute.

450.3.3 Aesthetics and Landscape Plans

Developer shall prepare Full Elevations, Colored Renderings, and 3D Animations with Sketchup and Microstation software of Aesthetic Architectural rustication for each character area. This includes roll plots, rendered in color, of the landscape design. Prior to preparing the Aesthetics

and Landscape Design Plans as described below, Developer shall submit the Full Elevations, Colored Renderings, and 3D Animations to ADOT for review and comment.

Developer shall prepare Aesthetics and Landscape Design Plans that includes the following:

A. Face sheet
B. Standard sheets, if applicable
C. Design sheet
D. Summary sheet, including the following:
    1. Legends
    2. General notes
E. Rustication detail sheets
F. Rustication layout sheets
G. Landform graphics and inert materials detail sheets
H. Landform graphics and inert materials layout sheets
I. Planting and inert materials detail sheets
J. Planting and inert materials layout sheets
K. Irrigation detail sheets, including the following:
    1. Installation details for each product used
    2. Trenching
    3. Emitter layout
L. Irrigation layout sheets, including the following:
    1. Plans show layout of piping and placement of valves, controllers, backflow preventers, and all other irrigation equipment
M. SWPP index sheet
N. SWPP detail sheets, if applicable

Developer shall submit Aesthetics and Landscape Plans to ADOT for review and comment.

450.4 SUBMITTALS

Table 450-13 reflects a nonexclusive list of Submittals identified in this Section DR 450 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 450-13
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 NTP2	DR 450.2.3
Plant Inventory Update	4	2	1	15 Business Days after parcels become available for Developer's use	DR 450.2.30
Salvage Operation Plan	4	2	1	With the Plant Inventory	DR 450.2.4
Salvage Operation Plan Update	4	2	1	With each Plant Inventory Update	DR 450.2.4

Table 450-13
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Noxious and Invasive Species Control Plan	4	2	1	15 Business Days prior to any ground disturbance	DR 450.2.5
Noxious and Invasive Species Control Plan Update	4	2	1	No later than 10 Business Days after the submittal of each Plant Inventory Update	DR 450.2.5
Plating Report	4	2	1	With the first Initial Design Submittal of any landscape Submittal	DR 450.2.6
Initial Irrigation Water Use and Conservation Plan	4	2	1	With the first Initial Design Submittal of any landscape Submittal	DR 450.2.7
Final Irrigation Water Use and Conservation Plan	4	2	1	With the Final Design Submittal for any landscaping Submittal	DR 450.2.7
Aesthetics and Landscape Master Plan	4	2	1	Prior to the Design Kickoff meeting.	DR 450.2.8
Visual Analysis	4	2	1	After the Design Kickoff meeting and prior to submitting a planting Initial Design Submittal	DR 450.2.9
Aesthetics and Landscape Plans	4	2	1	As determined by Developer	DR 450.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 455.

455.2 ADMINISTRATIVE REQUIREMENTS

455.2.1 Standards

Developer shall perform all structures Design Work in accordance with the standards, manuals, and guidelines listed in Table 455-1.

Table 455-1
Standards

No.	Agency	Title
1	AASHTO	LRFD Bridge Design Specifications
2	AASHTO	LRFD Bridge Construction Specifications
3	AASHTO	Construction Handbook for Bridge Temporary Works
4	AASHTO	Guide Specifications – Thermal Effects in Concrete Bridge Superstructures
5	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals
6	AASHTO	Manual on Subsurface Investigations
7	AASHTO/AWS	D1.5 Bridge Welding Code
8	AASHTO	Guide Design Specifications for Bridge Temporary Works
9	AASHTO	Manual for Bridge Evaluation
10	AASHTO	Guide Specifications for Design and Construction of Segmental Concrete Bridges
11	AASHTO	Guide Specifications for Structural Design of Sound Barriers
12	AASHTO	LRFD Guide Specifications for the Design of Pedestrian Bridges
13	AASHTO	Manual for Assessing Safety Hardware (MASH)
14	AWS	American Welding Society (AWS) 1.1 Welding Code
15	UPRR/BNSF	Guidelines for Railroad Grade Separation Projects, BNSF Railway – Union Pacific Railroad
16	SRP	Design Guidelines and Specifications for Bridge Crossings of Salt River Project (SRP) Canals, Salt River Project Water Shareholder Operations

455.3 DESIGN REQUIREMENTS

Structures design aesthetic features 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 arrangements have been made 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.

455.3.1 Structure Type Selection

Developer shall prepare a Foundation Report(s) for bridges and retaining walls in accordance with the applicable standards and guidelines listed in Table 445-1. 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 a Structure Type Study Report(s) for all bridges and retaining walls. Cost analysis between several structure types is not required. The Structure Type Study Report(s) must identify which bridges are designed 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
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 the all Structure Type Study Report comments for such structure have been addressed.

455.3.2 Roadway Bridges

Developer shall design all new roadway bridges and retaining walls 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.

Temporary (construction) vertical clearances must be as follows:

A. The minimum vertical clearance for falsework over freeways must be 16'-6".
B. Vertical clearance requirements over railroads must be in accordance with the Sections DR 436 and CR 436 of the TPs.

Permanent vertical clearances must be as follows:

A. The minimum vertical clearance for vehicular bridges must be 16'-6".
B. The minimum vertical clearance for pedestrian bridges must be 17'-6".
C. Vertical clearance requirements over railroads must be in accordance with the Sections DR 436 and CR 436 of the TPs.
D. The minimum vertical clearance for all sign structures must be 18'-0".
E. The minimum vertical clearance for dynamic message signs (DMS) must be 18'-6"

455.3.2.2 Loads

Developer shall design bridges for the following loading:

A. Dead load – A reserve superimposed dead load of 25 psf must be included in the design of all bridge elements to provide for a future deck overlay.
B. Live load – All new vehicular structures must be designed for HL93 live loading. Bridges proposed to carry construction overload vehicles must be designed per Section 16 of the ADOT *Bridge Group Practice Guidelines*.

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 455-2.

Table 455-2
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)		$0.6f'_{ci}$	$0.45f'_c$	$0.6\phi_w f'_c$	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

Table 455-2 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	$0.4f'_c$

455.3.2.5 Structural Concepts and Design

Developer shall satisfy the following criteria for structure types and components:

A. Cable stayed bridge types must not be used.
B. External post-tensioning must not be used.
C. A minimum of three girders must be used to provide redundant load path structures.
D. Fracture critical members must not be used.
E. The use of the approximate analysis methods for curved bridges in Article 4.6.2.2.4 of the AASHTO *LRFD Bridge Design Specifications* is not permitted. Curved bridges are defined in Article 4.6.1.2 of the AASHTO *LRFD Bridge Design Specifications*.
F. The use of the V-load method for curved steel I-girders or the M/R method for curved steel box girders is not permitted.

455.3.2.6 Bridge Barriers

Bridge barriers must be F-Shape concrete bridge barriers complying with NCHRP Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features* or the AASHTO *Manual for Assessing Safety Hardware (MASH)* and AASHTO *LRFD Bridge Design Specification* requirements with minimum test level TL-4, unless described otherwise specified in the Contract Documents. Bridge barriers in system interchanges with directional ramps must be minimum test level TL-5. Bridge barriers where pedestrian traffic is accommodated must be combination pedestrian-bridge barriers complying with NCHRP Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features* or the AASHTO *Manual for Assessing Safety Hardware (MASH)* and AASHTO *LRFD Bridge Design Specification* requirements.

Outside bridge railings for system-to-system traffic interchanges must be a 44-inch barrier. Outside bridge railings for all other bridges must be a 34-inch barrier. Median barriers for all bridges must be a 44-inch barrier. Bridge barriers must not be slip formed.

455.3.2.7 Approach Slabs

Developer shall provide a 15-foot minimum length reinforced concrete bridge approach slab with approach slab anchors at the ends of each new bridge. The bridge approach slabs must extend the full width of the roadway. For concrete pavement, Developer shall provide a protective pavement system to prevent movement and damage of the pavement to induce loads on the bridge.

455.3.2.8 Bridge Deck

All structural deck slabs must be concrete. Developer shall minimize the number of deck joints wherever possible. Aluminum, finger, or sliding plate bridge joints must not be used. 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; and
E. Have a minimum clear cover for reinforcing steel in new deck slabs of 2-½-inches for top reinforcement and 1-inch for the bottom reinforcement for corrosion protection.

New bridge deck thicknesses must be designed in ½-inch increments with the minimum thicknesses shown in Table 455-3. Effective span lengths greater than 13 feet is not be allowed.

Table 455-3
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

Sidewalks on bridges must be in compliance with ADA standards. The minimum width of useable sidewalk on bridges must be 6'-0".

455.3.3 Pedestrian Bridges

Developer shall design pedestrian bridges in accordance with AASHTO *LRFD Guide Specifications for the Design of Pedestrian Bridges*.

455.3.4 Retaining Walls and Wingwalls

Developer shall provide 42-inch metal hand rail on top of retaining walls of 48 inches in height or greater, except when protected by barrier wall against the top of retaining wall.

Mechanically stabilized earth (MSE) walls must not be used to support abutment foundations on the Project.

455.3.5 Noise Walls

Developer shall design noise walls at the locations as determined by Developer in accordance with Section DR 420 of the TPs.

Noise walls must be designed in accordance with AASHTO *LRFD Bridge Design Specifications*. For noise walls supported on retaining walls (i.e., combination walls), strength and serviceability requirements must apply per AASHTO *LRFD Bridge Design Specifications* for load conditions that include wind loads.

Fire hose access holes must be provided at noise walls at approved locations. Covers must be placed on each of the fire hose access holes. Developer shall coordinate with the local fire departments adjacent to the Project to obtain design requirements and approval for locations and cover type.

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.

Noise walls located on bridges and adjacent to traffic hazards must be designed to not allow a catastrophic failure due to vehicle impact load and must limit the risk of falling debris resulting from vehicle impact. Noise walls on the bridges must be placed behind bridge barrier.

Masonry walls shall be designed to prevent water seepage into the wall system.

455.3.6 Drainage Structures, Sign Structures, Temporary Structures

Developer shall design drainage structures, sign structures, and temporary structures in accordance with the applicable standards in Table 455-1.

455.3.7 Plans and Design Calculations

455.3.7.1 Plans

Developer shall request structure names and structure numbers for each bridge from ADOT by the Initial Design Submittal. The following bridges have been assigned structure numbers and names:

A. Str. No. 20024 – UPRR OP
B. Str. No. 20025 – SB Frontage Rd UPRR OP
C. Str. No. 20026 – NB Frontage Rd UPRR OP

Developer shall prepare bridge plans in accordance with the ADOT *Standardized Dictionary of Work Tasks*. Multiple bridge designs must not be combined on the same Plans. Bridge Plans must be submitted separately for individual bridges. The structure 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)
N. Pile records (if applicable)

455.3.7.2 Design Calculations

455.3.7.2.1 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. The Structure Calculations Report must be bound and all pages must be numbered. Within 5 Business Days of ADOT's request, Developer shall submit a Structures Calculations Report(s) to ADOT.

455.3.7.2.2 Bridge Load Rating

Developer shall load rate all NBI qualified bridges carrying vehicular traffic (20ft 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. 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*. With the Initial Design Submittal of a bridge Plan, Developer shall submit an Initial Load Rating Report(s) to ADOT for review and comment. With 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 455-4 reflects a nonexclusive list of Submittals identified in this Section DR 455 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 455-4
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Foundation Report(s)	4	2	1	As part of the Structure Type Study Report(s)	DR 455.3.1
Structure Type Study Report(s)	4	2	1	Prior to submitting any Initial Design Submittals for the associated structure	DR 455.3.1
Structure Calculations Report	5	2	1	Within 5 Business Days of ADOT's request	DR 455.3.7.2.1
Initial Load Rating Report(s)	4	2	1	With the Initial Design Submittal of a bridge Plan	DR 455.3.7.2.2
Final Load Rating Report(s)	4	2	1	With the Final Design Submittal of a bridge Plan	DR 455.3.7.2.2

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 457.

457.2 ADMINISTRATIVE REQUIREMENTS

457.2.1 Standards

Developer shall analyze and design all hydraulic structures and appurtenances in accordance with the standards, manuals, and guidelines listed in Table 457-1.

Table 457-1
Standards

No.	Agency	Title
1	ADOT	Bridge Hydraulics Guidelines

457.2.2 Data Collection

Developer shall collect all necessary data to design bridges to accommodate the historical hydrologic flows in the Project and that comply with the hydraulic requirements of this Section DR 457.

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 Zone, and official documents concerning the Project, such as the FEIS or other drainage and environmental studies.

Developer shall give careful consideration to existing studies, such as any existing floodplain studies that may have been performed by FEMA or local jurisdictions.

All hydraulic computations, designs, and recommendations must consider past studies and projects in the area by 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, Utility Owners, and Railroads.

457.3 DESIGN REQUIREMENTS

457.3.1 General

Developer shall determine if hydraulic structures and appurtenances are defined as a bridge in accordance with ADOT *Bridge Hydraulics Guidelines*. 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*. Design discharge rates must be confirmed with the applicable governing Governmental Entity prior to use.

For a crossing on the same waterway as a stream gauging station, Developer shall use the flow data available from the stream gauging station to determine design flows, if the stream gauging 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 stream gauging station and the design site.

457.3.3 Design Frequency

The freeway that is part of the Project is designated as Class I route based on drainage frequency classification by ADOT. Storm frequency and hydraulic requirements within Effective FEMA Special Flood Hazard Zone must be in accordance with FEMA Code of Federal Regulations (CFR) for the National Flood Insurance Program: 44 CFR Parts 60 and 65, EO 11988, and 23 CFR 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). Water surface elevation increases within the floodplain must be limited to the designated regulatory floodway elevation.

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. 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 Zone adhere to those mandates as outlined by the applicable Governmental Entity and federal mandates as contained within FEMA Code of Federal Regulations (CFR) for the National Flood Insurance Program: 44 CFR 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.

Developer shall perform a preliminary assessment of possible drainage (hydrology and hydraulics) effects on adjacent public and private properties. If existing hydrologic studies are used, validity of assumptions and accuracy of the results of such studies must be verified by Developer.

457.3.6 Scour Analysis

Bridge foundations must be designed 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 the pile or the drilled shaft is embedded 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.

All piers and abutment foundations must be evaluated for superflood conditions and must be designed to be stable for the calculated scour. Revetment at abutments must be designed in accordance with the procedures outlined in HEC-23. Alternatives to random revetment for bridge abutments in urban areas or those frequently used by pedestrians is not allowed, unless authorized in writing by ADOT.

Affects of any gravel mining operations within 1 mile upstream and 2 miles downstream must be evaluated for long term scour affects.

457.3.7 Bridge Deck Drainage

Runoff from Bridge decks must be conveyed off the bridge, unless otherwise specified in the Contract Documents, and 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. These drains, or temporary drains, are to be constructed at time of bridge deck placement to prevent erosion.

Deck drains shall be spaced 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.

Bridge deck drains must not discharge directly into natural waters of the United States, except for the Salt River. Runoff from bridge deck drainage must be treated as required by ADEQ or other applicable regulation prior to discharge to natural waters of the United States. The bridge deck drainage system must not discharge against any part of the structure.

Developer shall ensure that deck drains conform to the following requirements:

A. Bridge deck drainage downspouts at piers must have outfall erosion protection.
B. Bridge deck drains 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, at a minimum, 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
D. A discussion regarding if 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.

With the Initial Design Submittal for each bridge, Developer shall submit an Initial Bridge Hydraulics Report to ADOT. With the Final Design Submittal for each bridge, Developer shall address ADOT comments and submit a Final Bridge Hydraulics Report to ADOT for review and comment.

457.3.9 Bridge Plans

Bridge Plans must be prepared in accordance with the requirements in the Contract Documents. Bridge Plans elevation view 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 Zone; and
C. The super flood discharge (either 500-year discharge or overtopping discharge).
D. Consensus scour depth.

457.4 SUBMITTALS

Table 457-2 reflects a nonexclusive list of Submittals identified in this Section DR 457 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 457-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Initial Bridge Hydraulics Reports	5	0	1	With the Initial Design Submittal for each bridge	DR 457.3.8
Final Bridge Hydraulics Reports	4	0	1	With the Final Design Submittal for each bridge	DR 457.3.8

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

DR 460 TRAFFIC

460.1 GENERAL REQUIREMENTS

Developer shall perform all traffic Design Work in compliance with the requirements of this Section DR 460.

460.2 ADMINISTRATIVE REQUIREMENTS

460.2.1 Standards

Developer shall perform all traffic Design Work in accordance with the relevant requirements of the standards, manuals, and guidelines listed in Table 460-1.

Table 460-1
Standards

No.	Agency	Title
1	FHWA	Manual on Uniform Traffic Control Devices (MUTCD)
2	ADOT	Arizona Supplement to the MUTCD
3	ADOT	Manual of Approved Signs
4	FHWA	Road Safety Audit Guidelines

460.2.2 Software

Developer may use the following software programs to analyze and achieve the level of service (LOS):

A. Traffic signal capacity, cycle length, split timing, and level of service: Synchro/SimTraffic or HCM/Cinema 3.0
B. Traffic signal coordination timing, including optimal cycle length, phase sequence, and offsets: Synchro
C. Signal coordination, queuing, and turn bay storage: SimTraffic, CORSIM, VISSIM, or Trans Modeler
D. Roundabout analysis and design: RODEL

In the event that Developer proposes to use any software other than that listed, with the Basis of Design Report, Developer shall submit Proposed Traffic Software and Verification Data to ADOT for approval in ADOT's reasonable discretion.

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
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
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. Developer shall utilize ADOT standards, manuals, and guidelines for all Non-Maintained Elements to be owned by ADOT.

Developer shall segregate lighting circuits based on the requirements of the authorities having jurisdiction.

460.3.2 Traffic Operational Requirements

Developer shall prepare a Traffic Report(s) for the Project. Each Traffic Report must include all traffic analysis, including the following:

A. Cover page signed and stamped by a registered engineer
B. Table of contents
C. Discussion
    1. Purpose
    2. Methodology
    3. Summary
D. Calculations
    1. Turn bay lengths
    2. Number of turn bay lanes
    3. Traffic signal analysis

Prior to any highway Initial Design Submittal, Developer shall submit the each Traffic Report(s) to ADOT.

460.3.3 Pavement Markings

Pavement marking layout must comply with the ADOT *Signing and Marking Standard Drawings*. Developer shall design a complete and functional pavement marking system for the Project that complies with the following requirements:

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. Consistent with pavement markings on the ADOT transportation system.

The minimum retro-reflectivity values for all preformed plastic pavement markings must be as follows:

A. White long line markings: 500 millicandelas per square meter per lux ($mcd/m^2/lux$)
B. Yellow long line markings: 300 $mcd/m^2/lux$
C. White arrows, symbols, legends, short lines: 350 $mcd/m^2/lux$

The minimum retro-reflectivity values for all other final pavement markings must be as follows:

A. White markings: 350 millicandelas per square meter per lane (mcd/m^2/ln)
B. Yellow markings: 200 mcd/m^2/ln

Developer shall not use paint for final pavement markings.

Developer shall provide bridge and barrier markers in accordance with ADOT *Standard Drawings M-32 and M-33*.

460.3.3.1 Raised/Reflective Pavement Markers

Reflective raised pavement markers shall be installed on mainlanes, ramps, and frontage roads in accordance with ADOT standards.

460.3.3.2 Pavement Marking Plans

Developer shall prepare permanent pavement marking plans that show edge and lane line striping, stop lines, crosswalks, arrows, legends, gore areas, symbols, elongated route markings and legends, raised pavement markers, object markers, delineation, or other required markings in accordance with the MUTCD and the *Arizona Supplement to the MUTCD*.

460.3.4 Signs

Signing layout must comply with the ADOT *Signing and Marking Standard Drawings*. 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. Relocate existing signs or provide temporary signs during all phases of construction until such time that the permanent signs are in place
B. Remove and dispose of all conflicting signs and sign structures
C. All signs and support structures must be new

Developer shall coordinate with Grand Canyon State Logo Signs, a program of ADOT, for the locations of specific service logo signs at each interchange and exit ramps. Grand Canyon State Logo Signs is responsible for contracting the fabrication and installation of the specific service logo signs.

All warning signs must use fluorescent yellow sheeting.

All signs to be maintained by ADOT during the Maintenance Period must comply with the ADOT *Traffic Engineering Policy Guidelines and Procedures* 480 for sign sheeting.

Developer shall not locate signs where they will be obstructed by future vegetation growth. Developer shall minimize placement of non-regulatory signs to obscure rustication patterns.

460.3.4.1 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 used must be in accordance with the ADOT *Signing and Marking Standard Drawings*. Developer shall not use U-channel posts for sign mountings.

460.3.4.2 Overhead Sign Structures

Minimum sign clearance for overhead signs must be 18’-0” and for DMS must be 18’-6” over the entire width of the pavement, including shoulders and gutters. The minimum sign clearance for signs mounted on bridge structures must not be less than the bridge clearance requirements specified in the Contract Documents. The bottom of signs mounted on bridge structures must be 6 inches above the soffit of the structure. Developer shall locate overhead sign structures

required in areas other than the mainline and ramps in such as manner as to provide a minimum of 2 feet of horizontal clearance from the face of vertical curb.

460.3.4.3 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. With the Initial Design Submittal for signing Plans Developer shall submit a Signing Concept Plan to ADOT.

Developer shall prepare the following Plans as part of the Design Documents:

A. Signing Plans and signing summary sheets that include the location of signs, the size of the sign, the legend of the sign, and the mounting type

B. 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.

C. 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.

D. Sign mounting details for all overhead signs mounted on bridges, non-standard sign structures details, and non-standard sign structure foundations details

460.3.5 Traffic Signal Systems

Traffic signal intersections must not operate below an overall LOS C. Individual movement must not operate below LOS D. Traffic signal layout must comply with the ADOT *Signal and Lighting Standard Drawings*, MUTCD, and the ADOT *Arizona Supplement to the MUTCD*. Developer shall design all components necessary to provide a complete and functional traffic signal system that complies with the following requirements:

A. Developer shall modify, as appropriate, any existing traffic signals affected by Developer's design.
B. Developer shall coordinate with the appropriate Governmental Entities for interconnection and synchronization of traffic signal networks.
C. The traffic signal system must:
    1. Provide traffic movement based on Developer's analysis;
    2. Provide communication between all traffic signals and ADOT traffic operations center in accordance with Section DR 466 of the TPs;
    3. Accommodate pedestrians as required by local, state, and federal regulations, and the Contract Documents;
    4. Include vehicle detection, closed circuit television (CCTV) remote monitoring in accordance with Section DR 466 of the TPs, and communication links for signal coordination; and
    5. Provide temporary traffic signals at any location that currently has traffic signals and that are removed for construction or locations that are required to facilitate maintenance of traffic.
    6. Provide an uninterrupted power supply (UPS) for each traffic signal controller.

All signal cabinets must be TS2 Type 1 with Econolite Cobalt Controllers. Developer shall design all signalized intersection approaches with adequate sight distance to allow for right turn on red in accordance with the MUTCD, ADOT *Arizona Supplement to the MUTCD*, and the ADOT *Roadway Design Guidelines*.

460.3.6 Lighting

The roadway lighting system must comply with requirements set forth in AASHTO *Roadway Lighting Design Guide*, the ADOT *Standard Specifications for Road and Bridge Construction*, and the ADOT *Standard Drawings*. The lighting system must be a continuous LED lighting system that provides illumination and uniformity levels on the highway in accordance with the AASHTO *Informational Guide to Roadway Lighting*.

Where opposing traffic shares a median barrier, roadway lighting is to be on a median lighting system that lights the freeway from the median edge line to the outside shoulder edge line in both directions. Service and system interchanges will require supplemental lighting with high mast poles and other lighting standards to attain lighting levels. On freeway ramps, roadway lighting must light the ramp between the lane lines from the gore area to within 75 feet of the crossroad. The required level of maintained horizontal luminance, measured in foot-candles, on the roadway must be an average of 0.6 to 0.8 and a 0.2 minimum, with an average to minimum ratio of 3:1 to 4:1. The light loss factor used in light level calculations must be 0.8, unless a manufacturer's fixture recommendation is less than 0.8. Developer shall not use a light loss factor greater than 0.8.

Developer shall design conduit systems for underdeck lighting on all bridge structures.

Developer shall provide lighting on pedestrian bridges, metered separately, with a minimum of 1 candle per square foot.

Each LED light fixture shall support installation of an Electronic Control Module (ECM) for dimming and fixture performance monitoring.

Developer shall maintain consistent light levels within the Project ROW when adjacent to existing residential properties. Developer shall minimize luminaire glare and trespass lighting into neighboring residences. Developer shall check the light levels at the edge of the Project ROW every 100 feet along the entire Project limits to verify the light levels and to avoid any nuisance light outside the roadway prism. The roadway lighting design must keep light levels at the edge of right-of-way less than 0.20 foot-candles. Developer shall prepare a Photometric Analysis Strip Map that displays all 0.2 iso-contours. Any 0.2 iso-contour that falls outside of the Project ROW, adjacent to neighboring residences, shall be reevaluated for avoidance. As part of the Lighting Design Report, Developer shall submit the Photometric Analysis Strip Map to ADOT.

Developer shall perform load calculations and voltage drop calculations for each circuit. Developer shall not use more than a 3 percent voltage drop from the load center cabinet to the branch circuits to size conductors. The conductors from the load center to the point of service must be sized using a 1 percent voltage drop. All new lighting load center cabinets must be metered for 240/480 Volt.

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 high mast poles and median barrier mounted type U poles. Developer shall provide a permanent level maintenance pad for all high mast lighting. Developer shall provide a maintenance platform where the roadway side slope is greater than 4:1 (H:V).

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. The Lighting Design Report must be signed and sealed by a Professional Engineer. With the Initial Design Submittal of the roadway lighting system Developer shall submit the Lighting Design Report to ADOT.

460.3.6.1 Lighting Plans

Developer shall prepare lighting system Plans for the Project. The lighting system Plans must show all existing and new electrical features, all details, pole and conductor schedules, distribution schedule for each lighting service, notes, and special provisions. The plans must include information regarding conduit used to intercept existing circuits to be used for new lighting and for new conduit crossing locations for median lighting. The lighting system plans must also include lighting summary sheets giving the location of the lighting poles, pull box, and load centers, and the conductor summary.

460.4 SUBMITTALS

Table 460-2 reflects a nonexclusive list of Submittals identified in this Section DR 460 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, all Submittals must be submitted 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 110.10.2.1 of the TPs:

Table 460-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Proposed Traffic Software and Verification Data	3	1	1	With the Basis of Design Report	DR 460.2.2
Sign Inventory	5	2	1	Prior to issuance of NTP2	DR 460.2.3
Traffic Report(s)	5	2	1	Prior to any highway Initial Design Submittal	DR 460.3.2
Signing Concept Plan	5	2	1	With the Initial Design Submittal for signing Plans	DR 460.3.4.3
Photometric Analysis Strip Map	5	3	1	As part of the Lighting Design Report	DR 460.3.6
Lighting Design Report	5	3	1	With the Initial Design Submittal of the roadway lighting system	DR 460.3.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

DR 462 MAINTENANCE OF TRAFFIC

462.1 GENERAL REQUIREMENTS

Developer shall perform all maintenance of traffic (MOT) Design Work in compliance with the requirements of this Section DR 462.

462.2 ADMINISTRATIVE REQUIREMENTS

462.2.1 Standards

Developer shall perform all MOT Design Work in accordance with the standards, manuals, and guidelines listed in Table 462-1.

Table 462-1
Standards

No.	Agency	Name
1	FHWA	Manual on Uniform Traffic Control Devices (MUTCD)
2	ADOT	Arizona Supplement to the MUTCD
3	ADOT	ENG 07-03 ITG Policy

462.2.2 Maintenance of Traffic Task Force

Developer shall establish a MOT Task Force, including representatives of Developer, ADOT, cities, counties, tribal entities, 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:

A. Review and refine the Transportation Management Plan (TMP) and its implementation
B. Review and refine Developer's MOT plans, specifications, and details
C. Disseminate MOT information to task force meeting attendees
D. Determine additional membership invitees affected by the MOT, as needed

The MOT Task Force must be established, hold the initial meeting, and meet at the frequency noted in Section GP 110.02.4 of the TPs.

462.2.3 Transportation Management Plan

Developer shall develop, implement, and maintain a TMP for the Project that complies with the ADOT *ENG 07-03 ITG Policy*. The TMP must include the following items:

A. Work zone Traffic Control Plans including entrances and exits from the Site and proposed haul routes.

B. Procedures to communicate TMP information to the Public Relations Officer, 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 limits. 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 address special circumstances, such as equipment malfunction, traffic incidents, Lane Closures not reopening on time, motorists' property being damaged, and special events.

G. 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.

H. Identification of all special events.

I. 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.

J. Procedures to modify the TMP as needed to adapt to current Project circumstances.

Prior to issuance of NTP2, 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 considered 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 TMP Update to ADOT for review and comment.

462.3 DESIGN REQUIREMENTS

462.3.1 Temporary Construction Traffic Control Conditions

462.3.1.1 Temporary Auxiliary Lanes and Exit Ramp Extensions

Temporary lanes and extension for exit ramps must be designed and constructed to comply with the following requirements:

A. Existing traffic must not have to slow down in the through lanes to less than 50 miles per hour (mph) in order to safely gain access to the temporary auxiliary lane
B. The temporary auxiliary lane must be long enough so that traffic leaving the through lane at 50 mph can slow down safely to a speed of 30 mph
C. The temporary auxiliary lane must have a minimum paved surface width of 11 feet and a minimum paved shoulder width of 3 feet
D. Acceleration lanes must be designed to comply with the requirements in Section DR 440 of the TPs
E. All temporary auxiliary lanes and extensions for exit ramps must be provided with temporary overhead lighting
F. A minimum 2-foot lateral reaction distance must be provided for any temporary or permanent 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 Pecos Road and 10 feet on the crossroads. Developer shall maintain the minimum number of lanes as reflected in Table 462-2.

Table 462-2
Number of Lanes to Remain Open

Location/Direction	Number of Lanes
I-10 EB (Papago Freeway)	4 general purpose lanes and 1 HOV lane (SR 101L to I-17)
I-10 EB (Maricopa Freeway)	3 general purpose lanes and 1 HOV lane (Warner Road to SR 202L)
	3 general purpose lanes (SR 202L to Queen Creek Road)
I-10 WB (Papago Freeway)	4 general purpose lanes and one HOV lane (I-17 to SR 101L)
I-10 WB (Maricopa Freeway)	3 general purpose lanes (Queen Creek Road to SR 202L)
	3 general purpose lanes and 1 HOV lane (SR 202L to Elliot Road)
SR 202 (Santan Freeway)	A minimum of 2 lanes of traffic in each direction of traffic.
Pecos Road	A minimum of 2 lanes of traffic in each direction of traffic.
Crossroad Facilities	A minimum of 1 lane of traffic in each direction of traffic.
	Minimum of 1 left turn lane where left turn lanes exist

Differential pavement elevations within the same travel lanes or adjacent travel lanes will not be allowed.

A nominal two-foot right and left shoulder must be provided during all phases of construction.

462.3.1.3 Pedestrian and Bicycle Access

Developer shall maintain and provide access along existing sidewalks, trails, bike lanes, and intersections along all streets. Access along crossroads through bridge construction limits must be maintained at a minimum on one side at all times. If access cannot be maintained, Developer shall prepare a Request for Pedestrian Access Modification/Closure that includes plans showing the proposed modification/closure and signs and indicating the applicable ADA path of travel and associated ADA requirements. At least 10 Business Days prior to the planned modification/closure, Developer shall submit the Request for Pedestrian Access Modification/Closure to ADOT and the applicable Governmental Entities for review and comment.

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 must 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
F. Normal commercial activities (e.g., materials and products pick-ups and deliveries, customer access)
G. Safe routes to school plans

At least 15 Business Days prior to implementation of the proposed detour, Developer shall submit Detour Plans to ADOT and all applicable Governmental Entities.

462.3.1.5 Truck Routes

Developer shall submit all truck routes, and any subsequent modifications to truck routes in effect, to ADOT and the applicable Governmental Entities for review and approval, in their sole discretion. Developer shall notify ADOT in writing a minimum of 20 Business Days prior of any proposed reduction of current vertical or horizontal clearance.

462.3.2 Traffic Control Plans

Developer shall prepare Traffic Control Plans that provide for all construction stages and phasing in accordance with the requirements of the Contract Documents. The Traffic Control Plans 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 Traffic Control Plans. Developer shall design Traffic Control Plans without the use of DPS. Prior to work involving traffic, Developer shall submit Traffic Control Plans to ADOT for review and approval in ADOT's reasonable discretion. Developer shall obtain all permits and approvals from all applicable Governmental Entities.

462.3.3 Lane and Shoulder Closures

At least 10 Business Days in advance of any Lane Closure, except for major Lane Closures and cases of emergency, Developer shall submit a Written Request for Lane Closure along with Traffic Control Plans to ADOT for approval in ADOT's good faith discretion. If approved, Developer shall input all closures into the ADOT highway condition and reporting system at least 5 Business Days prior to the associated closure. Developer shall notify ADOT immediately as soon as Developer becomes aware of a delayed or canceled scheduled Lane Closure.

Developer shall coordinate Lane Closure times with adjacent projects that may affect traffic during the same period and disclose all adjacent project closures when requesting Lane Closures.

Developer shall not close two adjoining corridors in the same direction at the same time. Developer shall not close two corridors that would act as alternates to each other at the same time.

462.3.3.1 Freeway and Ramps

Unless approved by ADOT in its sole discretion, full or partial Lane Closures must occur only during the periods reflected in Table 462-3. Unless the closure results from construction emergencies or non-foreseeable events, Developer shall submit proposed freeway or ramp closures occurring outside the noted hours to ADOT for approval not less than 10 Business Days prior to the first day of such proposed closure. Lane Closure times include setup and take down of all traffic control devices.

A full closure must not exceed 3 miles. During any partial closure, Developer shall maintain a minimum of two open through lanes, unless approved otherwise by ADOT.

Table 462-3
Allowable Lane Closure Periods

Nighttime Lane Closures	Full Weekend Closures
9:00 p.m. Sun to 5:00 a.m. Mon 9:00 p.m. Mon to 5:00 a.m. Tues 9:00 p.m. Tues to 5:00 a.m. Wed 9:00 p.m. Wed to 5:00 a.m. Thurs 9:00 p.m. Thurs to 5:00 a.m. Fri 10:00 p.m. Fri to 7:00 a.m. Sat 10:00 p.m. Sat to 9:00 a.m. Sun	10:00 p.m. Fri to 5:00 a.m. Mon

Developer shall not implement a full closure of mainline lanes in both directions at the same time.

Developer shall not implement rolling closures to transfer any equipment or perform any Work except at night with ADOT approval a minimum of 10 Business Days in advance of the proposed rolling closure. Developer shall not implement consecutive ramp closures unless both are within an ADOT-approved full closure.

Major Lane Closures are closures that reduce the number of mainline lanes to less than three as determined by ADOT at its sole discretion and that require a major Lane Closure approval process. In order to obtain approval for a major Lane Closure, Developer shall prepare Major Lane Closure Package(s) that contains the following:

A. Location and vicinity maps showing the State highway(s), local street network, and other adjacent Lane Closures or nearby work that may affect traffic during the same period (including special events)
B. Dates, times, and locations of the Lane Closure(s)
C. Description of the Work being performed during the Lane Closure(s)
D. Description of each Lane Closure and its anticipated effect on traffic
E. Amount of expected delay and corresponding queue length for each Lane Closure
F. Summary of TMP strategies that Developer shall use to reduce delay and motorist inconvenience during the Lane Closure(s)
G. A copy of the TMP
H. A contingency plan

During the Maintenance Period, shoulder closures will be allowed on weekdays as approved by ADOT. Weekday shoulder closures must be scheduled after 9:00 am and be opened by 3:00 pm.

A minimum of 15 Business Days in advance of the proposed major Lane Closure, Developer shall submit Major Lane Closure Package(s) to ADOT for approval in ADOT's reasonable discretion.

462.3.3.2 Crossroads

Acceptable Lane Closures on crossroads must be in accordance with permit requirements from the applicable Governmental Entity.

462.3.3.3 Holiday Restrictions

Lane or freeway closures are not allowed on holidays or weekends that are adjacent to or following a holiday. The restricted holidays include New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, and Christmas Day. Lane Closures will not be allowed between November 15 and the weekend following January 1. Developer shall remove all traffic control for temporary Lane Closures prior to holidays or weekends that adjoin a holiday.

462.3.3.4 Special Events Restrictions

Developer shall coordinate Work activities with local special events in the area so that the special events will not be affected. Special events are events that attract more than 30,000 people per day and may occur during the Term. Lane restrictions may be denied if severe traffic congestion is expected. Special events may include events that attract fewer people, but are considered special events by the applicable Governmental Entities due to economic impact to the community or events that attract dignitaries or politicians. Partial or full closures are not permitted where a special event is occurring.

Developer is responsible for identifying and verifying the actual dates of all special events and for planning Work activities around the events. Special events may take place at various venues, including the following locations:

A. University of Phoenix Stadium, Glendale;
B. Phoenix International Raceway, Avondale;
C. Chase Field, Phoenix;
D. US Airways Center, Phoenix;
E. Gila River Arena, Glendale;
F. Ak-Chin Pavilion, Phoenix; and
G. Arizona State Fair Grounds.

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. With the Traffic Control Plans, Developer shall submit Phasing and Construction Sequence Reports to ADOT for approval in ADOT's reasonable discretion.

462.4 SUBMITTALS

Table 462-4 reflects a nonexclusive list of Submittals identified in this Section DR 462 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, all Submittals must be submitted 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 110.10.2.1 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	2	1	Prior to issuance of NTP2	DR 462.2.3
TMP Update	4	2	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
Request for Pedestrian Access Modification/ Closure	4	2	1	15 Business Days prior to the planned modification/ closure	DR 462.3.1.3
Detour Plans	3	2	1	15 Business Days prior to implementation of the proposed detour	DR 462.3.1.4
Traffic Control Plans	3	2	1	Prior to Work involving traffic	DR 462.3.2
Written Request for Lane Closure	2	2	1	10 Business Days in advance of any Lane Closure	DR 462.3.3.1
Major Lane Closure Package	3	2	1	A minimum of 15 Business Days in advance of the proposed major Lane Closure	DR 462.3.3.1
Phasing and Construction Sequence Reports	3	2	1	With the Traffic Control Plans	DR 462.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

DR 466 INTELLIGENT TRANSPORTATION SYSTEM

466.1 GENERAL REQUIREMENTS

Developer shall perform all intelligent transportation system (ITS) Design Work in compliance with the requirements of this Section DR 466.

466.2 ADMINISTRATIVE REQUIREMENTS

466.2.1 Standards

Developer shall design the ITS in accordance with the standards, manuals, and guidelines listed in Table 466-1.

Table 466-1
Standards

No.	Agency	Name
1	ADOT	Intelligent Transportation System Design Guide
2	ADOT	Ramp Metering Design Guide
3	ADOT	ITS Standard Drawings
4	ADOT	Statewide Dynamic Message Sign Masterplan
5	ADOT	FMS Communication Masterplan

Note: Developer shall assume that all provisions in the standards, manuals, and guidelines, including figures and tables, in Table 466-1 are mandatory and Developer shall assume that all guidelines are requirements. All words such as “should,” “may,” “must,” “might,”, “could,” and “can” shall mean “shall” unless the context requires otherwise, as determined in the sole discretion of ADOT. Additionally, where the standards, manuals, guidelines indicate “desired,” Developer shall assume they are requirements. It shall be in ADOT’s sole discretion to determine when the context does not require a provision to be mandatory.

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 within the Project ROW. The ITS Inventory shall extend outside the Project ROW, where necessary, to show how the existing ITS will work 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
C. Inventory of ITS elements
    1. Listing of all ITS elements (Description, size, and type)
    2. Exact location of each ITS element
    3. The condition, adequacy, and compatibility with the proposed ITS
    4. 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 an ITS element, Developer shall submit the ADOT Systems Engineering Checklist to ADOT for approval in ADOT's reasonable discretion. Developer shall comply with the requirements in the FHWA approved ADOT Systems Engineer 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 of the ITS design. The ITS Master Plan must be an exhibit that includes the following:

A. Proposed locations of all ITS elements
B. Spacing between DMS
C. Spacing between DMS and traffic signs

With the first Initial Design Submittal of any ITS element, Developer shall submit the ITS Master Plan to ADOT. Developer shall update the ITS Master Plan as the development of the Project design proceeds. Prior to submitting an ITS design that is not consistent with the ITS Master Plan to ADOT, Developer shall submit the ITS Master Plan Update to ADOT.

466.3.3 ITS Elements

Developer shall design a fully operational ITS for the Project that integrates with the existing ADOT ITS elements at the proposed I-10 (Maricopa) and I-10 (Papago) freeways interchanges to the Traffic Operations Center (TOC). Developer shall inspect all existing ITS elements and software for adequacy and compatibility with the proposed ITS. The ITS elements include the following:

A. ITS Backbone Communication Network
B. Dynamic Message Signs
C. Closed Circuit Television Cameras
D. Detection Stations
E. Ramp Meters
F. Node Buildings
G. Weigh-In-Motion Systems

Developer shall prepare a Written Request for ITS Element Numbers that includes the element type, the 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 a Written Request for ITS Elements Numbers to ADOT. ADOT will provide ITS element numbers to Developer within 10 Business Days of receipt of the written request. Developer shall ensure that ITS element numbers are shown on the Plans.

466.3.3.1 ITS Backbone Communication Network

Developer shall design the ITS backbone communication network that includes fiber communication, power, and conduits. Developer shall design the ITS backbone communication network as a redundant system located on both sides of the freeway and in accordance with the

ADOT *Intelligent Transportation System Design Guide*. The ITS backbone conduit network must connect to the traffic signal cabinets and to all existing or proposed pump houses.

466.3.3.2 Dynamic Message Signs

Developer shall design 16 Dynamic Message Signs (DMS) as part of the ITS for the Project in accordance with the ADOT *Statewide Dynamic Message Sign Masterplan*. Developer shall not locate DMS between 51st Avenue and 17th Avenue. Developer shall locate DMS at locations where they are visible by CCTV cameras for message verification. Developer shall design DMS on ADOT standard structural details and in accordance with Section DR 460.3.4.2 of the TPs. Developer shall show all proposed DMS on the Signing Concept Plan and the signing Plans.

466.3.3.3 Closed Circuit Television Cameras

Developer shall design a CCTV system as part of the ITS that is compatible with the existing ITS system. Developer shall design all CCTV cameras with lowering devices integral to the pole. Developer shall place CCTV cameras to provide complete coverage of the freeway mainline, traffic interchanges ramps and gores, system interchange ramps from termini to termini, all interchange ramp junctions with crossroads, and DMS message verification. Developer shall account for all field conditions that may restrict required visibility and design the CCTV system accordingly.

466.3.3.4 Detection Stations

Developer shall include detection stations in the ITS in accordance with the ADOT *Intelligent Transportation System Design Guide*.

466.3.3.5 Ramp Meters

Developer shall prepare Ramp Meter Warrant Analysis(es) for all proposed entrance ramps in accordance with the ADOT *Ramp Metering Design Guidelines*. The Ramp Meter Warrant Analysis must be based on year 2020 traffic projections and must include, at a minimum, the following:

A. Cover Page
B. Table of Contents
C. Discussion
D. Warrant Analysis(es)
E. Exhibits

With the Initial Design Submittal of the ITS, Developer shall submit Ramp Meter Warrant Analysis(es) to ADOT.

466.3.3.6 Node Buildings

Developer shall design two new node buildings as part of the ITS located approximately at the following locations:

A. The I-10 (Maricopa)/SR 202 interchange
B. In the middle of the proposed SR 202 alignment

Developer shall size node buildings to house all associated equipment and must not have an inside dimension less than 8 feet 4.5 inches in height by 19 feet 7.5 inches in length by 10 feet 7.75 inches in width.

466.3.3.7 Weigh-In-Motion Systems

Developer shall design two weigh-in-motion (WIM) stations that will connect to the ITS located approximately at the following locations:

A. North or south of the Salt River
B. Between 51st Avenue and 17th Avenue

466.3.4 Specifications

Developer shall prepare ITS specifications using the ADOT *Draft Intelligent Transportation Systems Specifications for South Mountain Freeway* included in the RIDs and in accordance with Section GP 110.10.2.2.2 of the TPs.

466.4 SUBMITTALS

Table 466-2 reflects a nonexclusive list of Submittals identified in this Section DR 466 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs

Table 466-2
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 NTP2	DR 466.2.3
Systems Engineering Checklist	3	0	1	Prior to submitting an Initial Design Submittal for an ITS element	DR 466.3.1
ITS Master Plan	5	2	1	With the first Initial Design Submittal of any ITS element	DR 466.3.2
ITS Master Plan Update	5	2	1	Prior to submitting an ITS design that is not consistent with the ITS Master Plan	DR 466.3.2
Written Request for ITS Element Numbers	5	0	1	With each ITS Final Design Submittal	DR 466.3.3
Ramp Meter Warrant Analysis	5	0	1	With the Initial Design Submittal of the ITS	DR 466.3.3.5

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section DR 470. This Section DR 470 sets forth the Project ROW requirements, including pre-acquisition, acquisition, and post-acquisition activities. Developer shall provide all services necessary to acquire title to the Project ROW in the name of the State, in a manner acceptable to ADOT, including relocation of displacees and clearance/demolition of the improvements from the Project ROW as more fully described in this Section DR 470.

470.2 ADMINISTRATIVE REQUIREMENTS

470.2.1 Standards

Developer shall perform all Project ROW Work in accordance with the standards, manuals, and guidelines listed in Table 470-1.

Table 470-1
Standards

No.	Agency	Name
1	FHWA	Uniform Relocation Assistance and Real Property Acquisition Policies Act, 42 U.S. Code, Chapter 61 (the "Uniform Act")
2	FHWA	FHWA 49 CFR Part 24 Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs
3	FHWA	FHWA 23 CFR 710 Right-of-Way and Real Estate. (Note, CFR 710.313 Design-Build Projects applies to this Project.)
4	Arizona Revised Statutes (A.R.S.)	A.R.S. Title 28, Chapter 20, Article 6 and Article 7
5	Arizona Administrative Code	Title 17, Article 3
6	ADOT	Right of Way Procedures Manual

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 this Section DR 470. All ADOT forms referenced in this Section DR 470 may be found in the ADOT *Right of Way Procedures Manual* or in TP Attachment 470-1.

470.2.2 ROW Coordination Meetings

Developer shall hold weekly Project ROW coordination meetings with ADOT throughout the duration of the ROW Work, unless otherwise directed by ADOT, to discuss Project ROW Activities. The ROW Acquisition Manager must attend all ROW coordination meetings.

470.2.3 Documentation and Reporting

All correspondence with ADOT and property owners relating to Project ROW Work, and all reports and Submittals, must include, at a minimum, a heading with the following information:

A. Transportation Accounting System (TRACS)/Federal Project number Highway Designation
B. Project limits

C. ADOT parcel number (when applicable)
D. Name of record owner(s) (when applicable)

In administering and managing its Project ROW Work, Developer shall:

A. Prepare and maintain a Project ROW Status Report that provides the status for each parcel in the Project ROW. The Project ROW Status Report must include, at a minimum, the following information for each parcel:
   1. Actual cost expended to date for Project ROW (acquisition, relocation, and demolition);
   2. Monthly forecast of Project ROW costs;
   3. Actual cost obligated, but not yet expended to date for Project ROW;
   4. Appraisal status;
   5. Acquisition status;
   6. Relocation status; and
   7. Demolition status.

   Every week commencing upon the issuance of NTP1, Developer shall submit the Project ROW Status Report to ADOT for approval in ADOT's reasonable discretion.

B. Prepare and maintain a complete parcel file for each Developer-Acquired Parcel in accordance with the ADOT *Right of Way Procedure Manual*. Developer shall maintain all documentation related to the purchase of the real property interests (housed separately from the relocation files). Developer shall retain and secure the parcel files for Developer-Acquired Parcels in a locking file cabinet in the Project Collocated Office, or as otherwise approved by ADOT. Upon completion of the acquisition of each parcel, Developer shall submit all signed Original Documents to ADOT for approval in ADOT's good faith discretion.
C. Input and update parcel status in a web-based tracking system that is accessible by ADOT or its designees.

All ROW Submittals must include a written certification signed by the Project ROW Quality Control Specialist certifying that the ROW Submittal has been processed through QA/QC procedures and complies with the Contract Documents.

470.2.4 ROW Activity Plan

Developer shall prepare a ROW Activity Plan that must include, at a minimum, the following:

A. Developer's ROW organizational chart, including any Subcontractors;
B. A description of the approach to the Project ROW Work, the goals and milestones established for Project ROW acquisition, Project ROW Plans, ROW Exhibits, and Legal Descriptions, relocation assistance, Appraisals, Appraisal Review, and clearance/demolition of the improvements from the Project ROW (except for parcels where ADOT will remain responsible for demolition);
C. A sample of typical parcel acquisition schedule, including survey, Appraisal, acquisition, relocation, closing by deed of conveyance, and eminent domain, and how this schedule is integrated into the Preliminary Project Baseline Schedule;
D. Quality control procedures and quality review standards for the acquisition of Project ROW in accordance with Section GP 110.07 of the TPs;
E. The name of the title company(ies) licensed in the State to be used for title services; and
F. The name of the demolition Subcontractor to be used for demolition services. The demolition Subcontractor must comply with requirements in TP Attachment 470-2.

The ROW Activity Plan must establish the specific means by which Developer shall:

A. Ensure all ROW Work are properly documented and reported
B. Integrate the Project ROW schedule into the Project Baseline Schedule
C. Provide sufficient personnel to achieve, in accordance with the Project Baseline Schedule, the goals and milestones established for Project ROW acquisition, relocation assistance, Appraisals and Appraisal Review, and clearance/demolition of the improvements from the Project ROW.

Developer shall not contact property owners until ADOT approves the ROW Activity Plan. Developer shall ensure that the ROW Activity Plan remain valid and updated as appropriate throughout the Term. Developer shall propose updates to the ROW Activity Plan in the event of the following:

A. The occurrence of any changes to the ROW personnel, approach to the Project ROW Work, or ROW QC procedures;
B. The occurrence of other changes necessitating revision to the ROW Activity Plan; and
C. As otherwise directed by ADOT.

No later than 10 Business Days after the occurrence of the change or direction triggering the need for the revisions to the ROW Activity Plan, Developer shall submit the ROW Activity Plan Update to ADOT for approval in ADOT's good faith discretion.

470.2.5 Parcels within the Schematic ROW

Real property interests that must be acquired to construct the Project as identified in the ROD are identified in TP Attachment 470-3. TP Attachment 470-3 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 470-3. Pursuant to applicable Law, Developer shall acquire Project ROW parcels assigned to Developer as shown on TP Attachment 470-3 and any Developer-Designated ROW on behalf of the State, but without the direct participation of ADOT except as otherwise set forth in this Section 470.2.5, subject to ADOT's rights of review, approval, and audit.

470.2.6 Temporary Entry

Developer shall obtain all temporary entry necessary to perform the Work in accordance with the ADOT *Right of Way Procedures Manual*.

470.2.7 Utility Property Interests

Developer shall acquire Replacement Utility Property Interests (even though not part of the Project ROW) required to complete the Project in accordance with the requirements of the Contract Documents.

470.3 PRE-ACQUISITION ACTIVITIES

470.3.1 ROW Exhibits and Legal Descriptions

For each Developer-Acquired Parcel, Developer shall prepare a ROW Exhibit. The ROW Exhibits must include gross Project ROW acquisition area and net Project ROW acquisition area and notations that reference the *Results of Survey for Project No. 202L MA 000 H5439*, by Stanley Consultants, included in the RIDs.

Developer shall tie Legal Descriptions to existing section corners and/or quarter corners, identified on the *Results of Survey for Project No. 202L MA 000 H5439*, by Stanley Consultants, included in the RIDs. Said section corners and quarter corner references must include a description of the found monument. Developer shall ensure that ADOT parcel numbers are

consistent with these same plans. If Developer identifies parcels necessary for the Project, but said parcels do not have parcel numbers, then ADOT will assign the parcel number.

Developer shall prepare ROW Exhibits and Legal Descriptions for the Project. An Arizona registered land surveyor must sign and seal ROW Exhibits and Legal Descriptions. Developer shall perform all Work in the preparation of Project ROW Exhibits and Legal Descriptions in a manner that complies with the minimum requirements set forth by the Arizona Board of Technical Survey Registrants. Legal descriptions must also specify acquisition of underlying fee of public roadways that may exist by only easement.

Developer shall submit ROW Exhibits and Legal Descriptions for review and approval by ADOT in accordance with Section GP 110.10 of the TPs and Contract Documents. Whenever the Project ROW is updated, Developer shall prepare and submit ROW Electronic Files that include all sectional data, legal description coordinates and CAD files, survey centerlines, and Project ROW requirements to ADOT.

Developer shall stake the new Project ROW line prior to construction in a manner that complies with the requirements set forth by the Arizona State Board of Technical Registration and the requirements of Section CR 410.3 of the TPs.

Developer shall monument the new Project ROW line upon completion of construction in a manner that complies with the requirements set forth in Section CR 410.3.

Developer shall acquire fee title to Project ROW except in the following instances:

A. Temporary Construction Easements (TCEs)
B. Acquisitions occurring from public, municipal, Governmental, or utility entities where fee title is not routinely conveyed
C. Other easements for drainage and drainage slopes

Developer shall prepare all warranty deeds, special warranty deed and TCEs needed for the Project acquisition. Said instruments must include the ADOT parcel number, Federal project number, TRACS number, highway name, and section name.

470.3.2 Title Services

Developer shall perform title services Work in accordance with the relevant requirements of the ADOT *Right of Way Procedures Manual*. Developer shall:

A. Select and contract with one or more title companies licensed in the State and provide to ADOT a 5-year sales history, a preliminary title commitment or preliminary title report, and, if necessary or appropriate, copies of all underlying documents and a plot of all easements, including Existing Utility Property Interests, referenced therein for each parcel (including fee acquisitions and easements) to be acquired by ADOT for the Project. Each preliminary title commitment or preliminary title report must be dated not more than 90 days prior to the date of submittal to ADOT of the Acquisition Package or offer to the property owner for such parcel. Developer shall review each title report to ensure that it complies with the following required format: clearly indicate which exclusions and exceptions must be deleted upon acquisition of the subject parcel and must clearly indicate any required submittals to the title company to clear identified exclusions and exceptions. Title reports must be in accordance with Good Industry Practice. Developer shall notify the title company, by letter, which exceptions must be removed, including easements that (a) are appurtenant to and/or of benefit to the parcel but not included in the parcel to be acquired, and (b) are a burden on the parcel and not acceptable to ADOT.

B. Review the preliminary title commitment or report to ensure that all current owners of record title are contacted and that negotiations or condemnation actions are conducted with all appropriate parties.
C. Work with the current owners of record title to each parcel or interest in a parcel or their designee and all other appropriate parties to clear any title exceptions or exclusions not acceptable to ADOT.
D. Secure a standard owner's policy of title insurance in the amount of the total acquisition cost, which includes cost of the property, and improvements for each parcel from a title company acceptable to ADOT for each parcel acquired insuring title. Title insurance amount must exclude those amounts attributable to severance damages and cost to cure. All Project ROW must be acquired, and ADOT's title in the Project ROW must be insured, in fee simple absolute or easement interest, as appropriate, free and clear of any and all liens and encumbrances. The title policy must show title vested in the "State of Arizona by and through its Department of Transportation".

470.3.3 Introduction to Property Owners for Purposes of ROW Acquisition

Developer shall prepare Letters of Introduction for ADOT's signature introducing Developer to the property owners. The Letters of Introduction must clearly describe the Project, as well as ADOT's need for the owner's property, and must include the name and telephone number of a Developer's representative. Developer shall submit the Letters of Introduction to ADOT for approval in ADOT's good faith discretion. ADOT will sign the letters on ADOT letterhead. ADOT will mail the Letters of Introduction to all property owners of Developer-Acquired Parcels and will provide copies to Developer. Developer cannot contact property owners, for purposes of Project ROW acquisition, unless and until the following conditions have been met:

A. ADOT has issued NTP1;
B. ADOT has approved the ROW Activity Plan; and
C. 5 Business Days have passed since the mailing of the Letter of Introduction to the relevant property owner.

470.3.4 Environmental Site Assessment (ESA)

Unless previously prepared by or on behalf of ADOT, Developer shall cause a Phase I Environmental Site Assessment Report to be prepared documenting the environmental condition of each parcel to be acquired by Developer. An environmental professional that complies with the qualifications set forth in ASTM E-1527-13 *Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process* must prepare each Phase I Environmental Site Assessment Report that conforms to the American Society of Testing and Materials (ASTM) E 1527-13 requirements. As part of the Acquisition Package, Developer shall prepare and submit the Phase I Environmental Site Assessment Report to ADOT for review and approval by ADOT, in ADOT's sole discretion. Developer shall complete the Phase I Environmental Site Assessment Report in coordination with the Appraiser(s), and the Phase I Environmental Site Assessment Report must be available to the Appraiser(s). If it is determined that a potential environmental risk (recognized environmental condition, controlled recognized environmental condition, or possibly historical recognized environmental condition) exists based on the Phase I Environmental Site Assessment Report, and if not previously prepared by or on behalf of ADOT, then Developer shall cause the environmental professional to perform a phase II ESA investigation and prepare a Phase II Environmental Site Assessment Report. Before a payment request is submitted for the purchase of the parcel or a Condemnation Package is submitted for approval, Developer shall submit the Phase II Environmental Site Assessment Report to ADOT for approval in ADOT's good faith discretion. The Phase II Environmental Site Assessment Report must contain

sufficient information about the contaminant severity and distribution to estimate the approximate cost to remediate the parcel in accordance with applicable Law to achieve the goals of the Project. If, despite diligent efforts, Developer is unable to access a parcel to perform a phase II ESA or remedial efforts, Developer may submit a Condemnation Package to ADOT without the Phase II Environmental Site Assessment Report. However, Developer shall be responsible for performing and receiving approval from ADOT for all required ESAs after possession of the property has been obtained through condemnation.

470.3.5 Appraisals

470.3.5.1 Appraisal Services

Developer shall ensure that all Appraisals are prepared in conformance with applicable Law (including the Uniform Act), and in accordance with professional appraisal methods and USPAP for all parcels to be acquired, including a breakdown of realty vs. personality. Developer shall:

A. Select Appraisers that comply with the requirements in Section GP 110.08 of the TPs.
B. Require Appraisers to attempt to establish personal pre-appraisal contact with each owner of record title and each occupant, and document all contacts
C. Require Developer's Appraiser to contact the record title owners or their designated representatives, in writing, to offer them the opportunity to accompany the Appraiser on the Appraiser's inspection of the parcel, and to maintain a record of all such contacts and attempts to contact in the Appraiser's file.
D. Cause the Appraiser to prepare a complete Appraisal report for each parcel to be acquired, with the report covering the portion to be acquired, and any damage to the remainder, and cost to cure, when applicable. A complete before and after Appraisal must be performed for partial acquisitions. Appraisals must be completed for TCEs and any other easements needed for the Project. Each Appraisal must also apportion the just compensation between those with any compensable interest in the property. It must also include all improvements on the whole property. Developer shall include as part of each Appraisal special analyses, studies or reports, as necessary, shall be made a part of each Appraisal, including all ESA reports. The Appraiser must use the most current edition of USPAP and continually monitor these standards to ensure that the Appraisals conform to the most current requirements of professional appraisal practice and Federal requirements in Title 49 CFR Part 24.
E. Obtain copies of all written leases, licenses and other occupancy agreements, including outdoor advertising/sign agreements that are not already included in the title commitment in order to identify lessees, licenses and other occupants with potential compensable interests in each parcel and to determine the value of each such interest.
F. Enter into Subcontracts with the Appraisers that must require the Appraiser to update the Appraisal and to testify as an expert witness or provide expert witness services required by ADOT in connection with all eminent domain proceedings through the order to show cause hearing. Further, Subcontracts with all Appraisers must require the Appraiser to be available for depositions, other discovery, pre-hearings or pre-trial meetings and expert witness testimony at trial, as directed by ADOT in consultation with the Office of the Attorney General up though and including all appeals.
G. Cause the Appraiser to coordinate with the review Appraiser regarding corrections and/or additional information that may be required for a particular Appraisal.
H. Instruct the Approved Appraiser, upon notice by ADOT of the order to show cause, to prepare an Appraisal updated to the date of value for the condemnation suit (the date of the summons and complaint). No later than 5 Business Days before the order to show cause hearing date, Developer shall submit Appraisals to ADOT for review and approval

by ADOT, in ADOT's sole discretion. Developer shall also prepare an Appraisal review of the updated Appraisal, when required by ADOT. All updated Appraisals must include a copy of the Project Right-of-Way Plans, ROW Exhibits, and Legal Descriptions and current photographs of the property being acquired, clearly showing the area being acquired, even though the original Appraisal report contained photographs of the subject and the area of the acquisition. Developer shall discuss specific updating requirements for any complex Appraisals with ADOT before beginning the assignment.

I. Upon request by ADOT, Developer shall prepare and submit Appraiser's Parcel File(s) to ADOT.

J. Before the Appraisal is completed, complete and furnish, to the Approved Appraiser and relocation agent, *ADOT Realty Personally Classification Agreement*.

K. Enter into Subcontracts with any other experts retained by Developer to consult or provide opinions regarding the parcel to Developer or the Appraiser upon whom ADOT based the offer of just compensation, that shall require the expert to testify as an expert witness or provide expert witness services required by ADOT in connection with the eminent domain proceedings through the order to show cause hearing. Further, Subcontracts with all experts must require the expert to be available for depositions, other discovery, pre-hearings or pre-trial meetings and expert witness testimony at trial, as directed by ADOT in consultation with the Office of the Attorney General up though and including all appeals.

L. Ensure that, if other experts retained by Developer have consulted or provided opinions regarding the parcel to Developer or the Appraiser who prepared the Appraisal upon which ADOT based the offer of just compensation, then the other expert report must be completed and forwarded to the Appraiser before the Appraiser completes an Appraisal or updated Appraisal.

470.3.5.2 Appraisal Review

In connection with Appraisal Review, Developer shall:

A. Select Appraisal Reviewers that satisfy the requirements in Section GP 110.08 of the TPs.

B. Cause an Appraisal Reviewer to review all Appraisal reports for each parcel to determine consistency of methodology, supporting documentation related to the conclusion reached, and compliance with the requirements set forth in Section DR 470.3.5.1 of the TPs for Appraisal reports. The Appraisal Reviewer must use the most current edition of the standards referenced above and continually monitor these standards to ensure the Appraisals conform to the most current requirement of professional appraisal practice.

C. Cause the Appraisal Reviewer to determine, after reviewing an Appraisal and in consultation with ADOT, if additional appraisal reports are required in order to properly evaluate a parcel.

D. Cause the Appraisal Reviewer to personally inspect the subject properties and all the sale properties used in direct comparison for each Appraisal being reviewed.

E. Upon completion of the review outlined above, cause the Appraisal Reviewer to certify in writing to ADOT that all required standards have been met. This certification must occur by signing on page 1 of each *ADOT Form ROW-11.05 (Real Estate Appraisal Report)* or *ADOT Review Sheet (Real Estate Appraisal Report)* in the block provided.

F. In accordance with providing a Project ROW Quality Control Specialist(s) as stated in Section GP 110.08 of the TPs, ensure that Appraisal consistency and quality for the entire Project is monitored for Project-wide controls and consistency. Data and mapping must be maintained and readily available.

Developer shall prepare Appraisal Reviews in accordance with the requirements in this Section DR 470.3.5.2. With each Appraisal, Developer shall submit Appraisal Reviews to ADOT for review and approval by ADOT, in ADOT's sole discretion.

470.3.6 Project ROW Acquisition Package Approval

Developer shall prepare an Acquisition Package for each parcel that includes, at a minimum, the following:

A. A cover sheet setting forth the following information for each parcel:
   1. ADOT parcel number
   2. TRACS/Project number highway designation
   3. Name of record owner(s)
   4. Location of parcel
   5. Extent of acquisition (partial or whole acquisition)
   6. Type of conveyance (fee, easement, etc.)

B. A title report, current within 90 days, including copies of all documents identified in the exceptions listed therein and a plot of all easements identified therein.

C. Developer's analysis of each preliminary title report or title commitment to determine potential problems and proposed methods to cure title deficiencies. Developer shall perform title curative Work. Within 48 hours after obtaining knowledge of required curative measures, Developer shall submit copies of all Curative Documents to ADOT for approval in ADOT's reasonable discretion. Within 48 hours after obtaining knowledge, Developer will inform ADOT of bankruptcies or other federal tax liens which could require condemnation to resolve title requirements. Decision to proceed directly to condemnation must be made by ADOT.

D. A copy of the Project Right-of-Way Plans, ROW Exhibits, and Legal Descriptions.

E. A copy of the Approved Appraisal with a date of value no more than 180 days prior to the date of the submittal of the Acquisition Package, together with all supporting documentation.

F. A copy of the Appraisal Review.

G. The proposed initial offer letter, purchase agreement, conveyance document, and any other documents, prepared on Developer's letterhead or as otherwise directed. Developer shall use the forms of such documents as set forth in the ADOT *Right of Way Procedure Manual*. Documents referred to in this Section DR 470 are standardized by ADOT and modification of standardized documents must be kept to a minimum. All changes are subject to ADOT's written approval, in ADOT's sole discretion.

H. *Summary Statement of Offer to Purchase and Improvement Report*.

I. *Mortgage 3rd Party Authorization Release.*

J. Completed unsigned State *W-9 Form*.

K. Extended occupancy agreement on all fee acquisitions (three originals required), if applicable.

L. A copy of the environmental site assessment and all amendments as described in Section DR 470.3.4 of the TPs, and an estimate of the mitigation costs if applicable and available.

M. A completed and signed real/personal property report detailing the items making up each parcel classified as real estate, tenant-owned improvements or personal property. Developer shall pay particular attention to items that have questionable classifications.

N. Documentation establishing relocation eligibility and benefits, including, replacement housing calculations, notification of business eligibility, all comparables used in estimating the replacement housing calculations, and letter to displacee(s) explaining replacement housing calculations. Calculations and replacement housing benefit

package must be prepared and reviewed by relocation agent in conformance with the Uniform Act and all other applicable Laws.

O. Any other ADOT forms required by the ADOT *Right of Way Procedure Manual.*

Developer shall submit Acquisition Package(s) to ADOT for review and approval by ADOT, in ADOT's sole discretion to the extent provided in Section 5.5.2 of the Agreement.

470.4 ACQUISITION ACTIVITIES

470.4.1 Project ROW Negotiations

Developer shall conduct all negotiations in accordance with the requirements of applicable Law. In conjunction with negotiations, Developer shall:

A. Within 5 Business Days of ADOT's approval of the initial 20 Acquisition Packages, contact each property owner or owner's designated representative, in person where possible, to present the offer and deliver the approved Appraisal and appropriate brochures. The approved Appraisal must be provided to the property owner at the time of the initial offer. Developer shall also maintain a file record of receipt of Appraisal signed by the property owner. Developer shall also maintain follow-up contacts and secure the necessary documentation and title curative work upon acceptance of the purchase offer.

B. At the time of offer, distribute to all property owners and displacees, ADOT provided acquisition, relocation and Title VI brochures, as applicable.

C. Within 5 days after presenting the first written offer, post the notice required by A.R.S. 28-7098(C) for all parcels (whether commercial, residential or other).

D. Confirm lessees, licensees, occupants, or other parties with potential compensable interests including outdoor advertising sign owners and homeowner's associations and, if appropriate, after consultation with ADOT, negotiate with such parties for the acquisition of their compensable interests.

E. Advise the property owners, lessees, licensees, occupants, and other holders of compensable interests, as applicable, of the administrative settlement offer process. Developer shall confer with ADOT on any Administrative Settlement Offer from property owners, lessees, licensees, occupants, or other holders of any compensable interest, as applicable, including a detailed recommendation of whether to accept the offer or make a counter offer. Developer shall submit Administrative Settlement Offer(s) to ADOT for approval in ADOT's good faith discretion. ADOT will determine whether to accept or reject an Administrative Settlement Offer or continue negotiations. Delivery of the Administrative Settlement Offer and Developer's recommendation to ADOT must occur within 7 Business Days following Developer's receipt of the Administrative Settlement Offer request.

F. Provide a letter with ADOT's response to any Administrative Settlement Offer from the property owner, lessee, licensee, occupant, or other holder of a compensable interest, as applicable. Developer shall deliver ADOT's response to the owner's counter offer in person or by mail (return receipt requested) within 5 Business Days after receipt. If Developer selects the mailing option, Developer shall make a telephone call to the property owner to discuss the Administrative Settlement Offer prior to mailing the response letter.

G. Provide responses to the verbal or written inquiries of any property owner, lessee, licensee, occupant or other holder of a compensable interest, within 5 Business Days after receipt.

H. Prepare a negotiator contact report detailing each meeting, conversation, or attempt to contact property owners (or their appointed representative(s) supported by a written

confirmation of appointment) who has a compensable interest in each parcel, on the ADOT *Contact Report Form*.

I. Prepare and deliver to the property owner, lessee, licensee, occupant, or other holder of any compensable interest, as applicable, documents of conveyance, and obtain their execution of the same. All signatures on documents to be recorded must be notarized in accordance with Arizona Law.

J. All Administrative Settlement Offers must be approved by ADOT and ADOT reserves the right to require Developer to continue negotiations.

470.4.2 Relocation Assistance

Developer shall perform all activities necessary to relocate displacees in accordance with the Uniform Act and other applicable Laws. ADOT will determine relocation eligibility for all displacees.

Developer shall obtain and maintain a minimum of one relocation office along the 59th Avenue segment of the Project and one office along the Pecos Road segment of the Project. Developer shall not locate the relocation offices in the Project Collocated Office or field offices. The relocation offices must comply with all applicable building and fire codes and ADA requirements. Developer shall obtain all facility space, permits, licenses, and approvals and pay for all utility services for the relocation offices. The relocation offices must be staffed by qualified relocation personnel during office hours. Office hours must be posted and the office must, at a minimum, be open during the office hours below:

A. Monday through Friday: 8:00 am to 5:00 pm
B. Saturday: 9:00 am to 12:00pm
C. Sunday: office may be closed

In addition to the office hours listed above, Developer shall make reasonable attempts to be available to all displacees for relocation services at the convenience of the displacees.

With respect to relocation assistance, Developer shall:

A. Assist with all relocation appeal requests and be responsible for carrying out decisions made by ADOT or a court.
B. Direct in writing any questions as to the eligibility of a potential displacee to ADOT.
C. Locate available comparable functionally equivalent housing and maintain related files.
D. Locate available commercial, retail, and industrial sites and maintain related files.
E. Prior to submission to displaces, Developer shall compute and submit Requests for Relocation Supplements to ADOT for approval in ADOT's good faith discretion.
F. Maintain contact report on a relocation advisory assistance – parcel record.
G. Attend all closings on replacement properties, if requested by any party involved, and assure supplemental payments, if any, are properly distributed.
H. Notify ADOT immediately if a displacee has not moved after the required vacate date. Developer shall also prepare and submit a Written Recommendation to Facilitate the Displacee's Move to ADOT for approval in ADOT's good faith discretion.
I. Be available for any administrative appeals or court hearings.
J. Prepare and submit Relocation Payment Claim Submissions for all displacees and all relocation assistance benefits to ADOT for review and approval by ADOT, in ADOT's sole discretion.
K. Maintain a complete relocation file, separate from acquisition files, on each displacee and make available for inspection.
L. Be responsible for all relocation activities that occur after deposit or payment of the bond required by an order for immediate possession, when a parcel referred to the Office of

the Attorney General for eminent domain also has a relocation issue. Relocation computations must be adjusted based on the approved Administrative Settlement Offer or court award.

M. Prepare all correspondence to the displacees or their representative(s) on Developer's letterhead and have Developer's correspondence signed by Developer's relocation agent.
N. Maintain Utility service to occupied properties until relocation is complete.
O. Provide adequate access to all occupied parcels until relocation is complete

470.4.3 Closing Services

For purposes of closing services, Developer shall:

A. Deliver state warrant to title company as requested by ADOT.
B. Immediately after closing, obtain and submit all Original Recorded Instruments of Conveyance to ADOT for review and approval by ADOT, in ADOT's sole discretion.
C. Within 30 days following closing, obtain and submit an Original Issued Title Policy to ADOT for approval in ADOT's good faith discretion.

470.4.4 Payment of Property Owners and Displacees

Developer shall prepare a Payment Submittal for any item that ADOT is responsible to pay to or on behalf of property owners, displaces, and title companies. A Payment Submittal must include:

A. A completed *Payment Request* form for each type of payment
B. All required appropriate documents as shown on each *Payment Request* form.
C. A completed and signed *W-9 Form* for all payees.

The State's warrant will be returned to Developer's ROW Acquisition Manager. Upon request of ADOT, Developer shall deliver to the payee the State warrant. Developer shall submit Payment Submittal(s) to ADOT for approval inADOT's good faith discretion.

470.4.5 Condemnation Support

If Developer and the property owner cannot negotiate an agreed-upon conveyance by deed acceptable to ADOT, Developer shall prepare a Condemnation Package that must include two copies each of the following documents:

A. A condemnation transmittal
B. Condemnation briefing statement summarizing the significant issues and conditions that lead to the file being submitted to condemnation.
C. All contact reports, including contact logs associated with the negotiations of the property
D. A summary statement of offer to purchase and improvement report
E. ROW Exhibits
F. Legal Descriptions
G. Appraisal (not more than 180 days old) upon which the final offer was based
H. The Appraisal Review sheet
I. An updated title report (not more than 30 days old)
J. Copies of proposed condemnation letter
K. Documents creating a compensable interest as disclosed by the updated title report
L. ESAs relating to the parcel (if any)
M. A copy of the resolution of establishment adopted by the Arizona State Transportation Board authorizing the acquisition of the parcel

N. An Exhibit A (the legal description marked as Exhibit A)
O. An Exhibit B (a ROW Exhibit marked as Exhibit B)
P. An Exhibit C (a map of the Project marked as Exhibit C but without addresses)
Q. An Exhibit D (a "Parties Defendant List" marked as Exhibit D, with all parties' physical addresses for service of process)
R. Any purchase agreements, releases, property management agreements, lease agreements
S. Copies of all correspondence related to the parcel

Developer shall submit Condemnation Package(s) to ADOT for review and approval by ADOT, in ADOT's sole discretion. Upon written approval of the Condemnation Package by ADOT, Developer shall prepare and deliver an ADOT Condemnation Letter to the property owners. The ADOT Condemnation Letter must be on Developer's letterhead and must be signed by Developer's ROW Acquisition Manager. Within 2 days after delivery to the property owner, Developer shall submit a copy of the ADOT Condemnation Letter to ADOT for approval in ADOT's reasonable discretion. Developer shall not send an ADOT Condemnation Letter until ADOT provides written approval of the Condemnation Package.

Developer shall be responsible for providing condemnation support services as directed by ADOT. Such support services includes providing all expert witnesses requested by ADOT, including valuation experts and experts having sufficient knowledge of the design of the Project, to appear at all condemnation proceedings, including the order to show cause hearing for order for immediate possession and relocation appeals. (See Section DR 470.3.5.1(f) to (l) of the TPs) Developer shall be responsible for preparing all exhibits and photographs associated with condemnation services and proceedings requested by ADOT through an order to show cause hearing for order for immediate possession and any relocation appeals. ADOT will coordinate with the Office of the Attorney General to provide legal counsel to prepare and file complaint in condemnation. ADOT will obtain an order for immediate possession within 180 days of approval of the Condemnation Package. ADOT will provide a copy of the order for immediate possession to Developer within 5 Business Days after receiving the signed and certified order for immediate possession from the court.

Developer shall not contact the Office of the Attorney General or an Assistant Attorney General handling a specific parcel that has been filed for eminent domain action or is in the process of settlement unless authorized to do so by ADOT.

Developer shall conduct all applicable eminent domain-condemnation activities in accordance with the policies and procedures as described in Chapter 4.09 of the ADOT *Right of Way Procedure Manual*.

Developer shall require the Approved Appraiser to update the approved Appraisal as set forth in Section 470.3.5.1(h) of the TPs

470.4.6 Eviction

After an acquisition of a property or entry of an order from immediate possession, Developer shall use diligent efforts to obtain the cooperation of each parcel owner/tenant in vacating the property. Developer shall notify ADOT immediately if Developer is unable (or anticipates that it will be unable), after diligent efforts, to reach agreement with a parcel owner/tenant on vacating the parcel. Developer shall not have any discussions regarding eviction or evict property owners/tenants.

Developer shall prepare an Eviction Memorandum explaining the circumstances warranting eviction for each parcel with respect to which Developer requests an eviction. Developer shall

submit such an Eviction Memorandum for each parcel with respect to which Developer requests an eviction to ADOT for review and approval by ADOT, in ADOT's sole discretion. ADOT will determine if eviction proceedings will be commenced.

470.4.7 Clearance/Demolition of Project ROW

Developer is responsible for clearance/demolition of all parcels not retained by ADOT as identified in TP Attachment 470-3. Developer shall only use asbestos testing, asbestos abatement, and asbestos oversight and demolition Subcontractors that comply with ADOT's prequalification standards set forth in TP Attachment 470-1. Prior to executing any Subcontract with any such Subcontractor, Developer shall submit the Subcontractor Qualifications of such Subcontractor to ADOT for approval in ADOT's reasonable discretion.

Prior to demolition of any improvements, Developer shall prepare and submit Photographs of the Property and all improvements to ADOT. Developer shall also take photographs of personal property, real property, and any other disputed items in a quality suitable for presentation as evidence in court, following acquisition and prior to demolition and clearance.

Developer shall:

A. Within 10 days after vacancy of the property, complete the securing and protection of the buildings, improvements and fixtures on the property until they are disposed of or demolished. Developer shall board-up, mow, fumigate and winterize as required by applicable Law.
B. Secure swimming pools, spas and all other water features within 24 hours of ADOT's notification to Developer the property is vacated and drain in accordance with City of Phoenix codes/ordinances. Developer shall demolish and backfill swimming pools, spas, or any other depression or excavation exceeding 4-feet in depth within 48 hours of completion of asbestos testing and abatement and receipt of all necessary permits. Should no permits be required to backfill, then it shall be done within 48 hours of vacate.
C. Terminate all Utility service(s) to a parcel after the parcel is vacated. Developer shall assess all Utilities serving the property and make requests for each individual Utility Company to abandon their services to the Utility main in preparation for demolition.
D. Coordinate with the owner and occupants to ensure the clearance of personal property from the property as applicable.
E. Provide for any insect and rodent control and initiate extermination as required to protect the adjacent properties and rid the property from infestations.
F. Dispose of improvements, fixtures, and buildings in accordance with applicable Laws and promptly submit Complete Disposal Documentation to ADOT.
G. Prepare a Vacated Parcel Notification for any real and/or personal property remaining on the Project ROW after vacated by the occupants and not acquired as part of the acquisition, after vacated by the occupants. Before posting, Developer shall submit the proposed Notification to ADOT.
H. Assess property being demolished for any Hazardous Materials, endangered/protected animals/plants, dry wells, and water wells. If any of such items are discovered, Developer shall make arrangements to have those items abated and/or abandoned. Septic tanks must be removed and backfilled to natural grade.
I. Pending demolition, secure property to be demolished with temporary fencing or security, depending on individual circumstances associated with the subject property.
J. Prior to demolition, arrange for asbestos and lead paint testing by a Subcontractor that complies with State standards.
K. Obtain an Asbestos Hazard Emergency Response Act (*AHERA) Asbestos Report* completed by an AHERA certified building inspector and asbestos samples analyzed by

a National Voluntary Laboratory Accreditation Program accredited lab referenced by the aforementioned asbestos and lead paint survey report. In accordance with Maricopa Air Quality Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations, all expired reports must be updated with re-inspection. Before demolition of any improvements, Developer shall submit an AHERA Asbestos Report(s) to ADOT for approval in ADOT's reasonable discretion.

L. Cause the AHERA certified asbestos abatement Subcontractor to prepare a NESHAP Notification (based on the presence of any regulated asbestos material, if applicable) as required by 40 C.F.R. Section 61.145, and to prepare a NESHAP Notification for Renovation and Demolition Activities, Arizona Department of Transportation Facilities . Prior to submitting to ADEQ, Developer shall submit NESHAP Notification(s) to ADOT for review and approval. Prior to submitting to ADEQ, Developer shall submit the NESHAP Notification for Renovation and Demolition Activities, Arizona Department of Transportation Facilities to ADOT for review and approval.

M. Ensure that no Work begins prior to the 10 day maturity date of the NESHAP Notification, and the filing of the Maricopa County air quality dust permit, and after all utilities being abandoned at the Site.

N. Inspect during and after asbestos abatement in order to ensure NESHAP, OSHA, and air quality compliance.

O. Upon completion of abatement Work, submit all Demolition Closeout Documents to ADOT for approval in ADOT's reasonable discretion.

P. Remove any refrigerants or ammonia from all refrigeration systems per EPA guidelines. Reference EPA Guidelines: 40 CFR 82.162.

Q. Comply with the stormwater requirements in accordance with Section DR 420 and CR 420 of the TPs.

R. Hold a pre-demolition meeting on the site of demolition Work with Developer, ADOT, and the demolition contractor's superintendent and/or lead in order to familiarize everyone with the demolition Work.

S. Ensure that all necessary documents are present on site during demolition.

T. Cause the demolition Subcontractor to sign ADOT's demolition authorization form, a check list ensuring that all regulatory, environmental, and physical obligations will be met by Developer and demolition Subcontractor and any of their subcontractors.

U. Ensure that any salvaging operations are done only by the assigned demolition Subcontractor. ADOT property must not be used for staging and/or the sale of salvaged materials to anyone not within the employ of Developer.

ADOT may, but is not obligated to, inspect the demolition site during and upon completion of the demolition and to ensure compliance with applicable Law and Governmental Approvals. Developer shall resolve all issues during the demolition process including approval of removal of previously unidentified site improvements. Developer shall ensure that the demolition Subcontractor secures the site with a ditch, a berm and/or fencing, and implements a dust preventive measure prior to demobilizing from the demolition site. Within 48 hours after completion of the demolition, Developer shall submit a Written Notification of Demolition Completion to ADOT.

470.5 SUBMITTALS

Table 470-2 reflects a nonexclusive list of Submittals identified in this Section DR 470 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 470-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Project ROW Status Report	3	0	1	Every week beginning at issuance of NTP1	DR 470.2.3
Original Documents	2	1	1	Upon completion of the acquisition of each parcel	DR 470.2.3
ROW Activity Plan Update	2	0	1	First Business Day of each month until all ROW activities are complete	DR 470.2.4
ROW Exhibits, and Legal Descriptions	1	1	1	In accordance with Section GP 110.10 of the TPs and Contract Documents	DR 470.3.1
ROW Electronic Files	5	0	1	Whenever the Project ROW is updated	DR 470.3.1
Letter(s) of Introduction	2	1	1	Varies	DR 470.3.3
Phase I Environmental Site Assessment Report	1	1	1	As part of the Acquisition Package(s)	DR 470.3.4
Phase II Environmental Site Assessment Report	2	1	1	Before a payment request is submitted for the purchase of the parcel or a Condemnation Package is submitted for approval	DR 470.3.4
Appraisals	1	1	1	No later than 5 Business Days before the order to show cause hearing date	DR 470.3.5.1
Appraiser's Parcel File	5	1	1	Upon request by ADOT	DR 470.3.5.1
Appraisal Reviews	1	1	1	With each Appraisal	DR 470.3.5.2
Curative Documents	3	1	1	Within 48 hours after obtaining knowledge of required curative measures	DR 470.3.6
Acquisition Package(s)	1	1	1	As determined by Developer	DR 470.3.6
Administrative Settlement Offer(s)	2	1	1	As determined by Developer	DR 470.4.1
Requests for all Relocation Supplements	2	1	1	Prior to submission to displacees	DR 470.4.2

Table 470-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Written Recommendation to Facilitate the Displacee's Move	2	1	1	As requested by Developer	DR 470.4.2
Relocation Payment Claim Submissions	1	1	1	Varies	DR 470.4.2
Original Recorded Instruments of Conveyance	1	1	1	Immediately after closing	DR 470.4.3
Original Issued Title Policy	2	1	1	Within 30 days following closing	DR 470.4.3
Payment Submittal(s)	2	1	1	As determined by Developer	DR 470.4.4
Condemnation Packages	1	1	1	As requested by Developer	DR 470.4.5
ADOT Condemnation Letter(s)	3	1	1	Within 2 days after delivery to the property owner	DR 470.4.5
Eviction Memorandum	1	1	1	As requested by Developer	DR 470.4.6
Subcontractor Qualifications	3	2	1	Prior to executing any Subcontract with any such Subcontractor	DR 470.4.7
Photographs of the Property and all Improvements	5	1	1	Prior to demolition of any improvements	DR 470.4.7
Complete Disposal Documentation	5	1	1	Promptly	DR 470.4.7
Vacated Parcel Notification	5	0	1	After vacated by the occupants	DR 470.4.7
AHERA Asbestos Report(s)s	3	0	1	Before demolition of any improvements	DR 470.4.7
NESHAP Notification(s)	2	0	1	Prior to submitting to the appropriate regulating agency	DR 470.4.7
Demolition Closeout Documents	3	0	1	Upon completion of abatement work	DR 470.4.7
Written Notification of Demolition Completion	5	1	1	48 hours after completion of the demolition	DR 470.4.7

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

SECTION C
CONSTRUCTION REQUIREMENTS (CR)

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CR 408 THIRD-PARTY AGREEMENTS

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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 this Section CR 410. Developer shall provide all surveying, construction staking, and layout required to complete the Work in accordance with the Contract Documents. Developer shall ensure that all land survey Work is performed 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 standards, manuals, and guidelines listed in Table 410-1.

Table 410-1
Standards

No.	Agency	Title
1	Arizona State Board of Technical Registration	Arizona Revised Statues Title 33
2	Arizona State Board of Technical Registration	Arizona Boundary Survey Minimum Standards

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 acknowledges and agrees that the referencing and re-setting of any impacted aliquot corners and major street monumentation must be signed and stamped by the Survey Manager.

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 Schematic ROW boundaries and location as parcels become available for Developer's use, prior to construction staking at such parcels. Developer shall perform all construction surveying necessary to facilitate all construction operations for the duration of the Project.

410.3.3 Construction Survey Records, As-Built Surveys, and Reports

Developer shall maintain accurate and complete documentation for all land survey Work performed for the Project. 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 construction surveying 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 the Construction Survey Report is sealed by a land surveyor registered in the State of Arizona. With the Record Drawings Submittal, Developer shall submit the Construction Survey Report for review and comment to ADOT.

410.4 SUBMITTALS

Table 410-2 reflects a nonexclusive list of Submittals identified in this Section CR 410 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs.

Table 410-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Construction Survey Report	5	0	1	With the Record Drawings Submittal	CR 410.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section CR 416.

416.2 ADMINISTRATIVE REQUIREMENTS

416.2.1 Standards

Developer shall perform all geotechnical Construction Work in accordance with the standards, manuals, and guidelines listed in Table 416-1.

Table 416-1
Standards

No.	Agency	Name
1	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
2	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
3	FHWA	Geotechnical Engineering Circular No. 7, Soil Nail Walls, Report No. FHWA-IF-03-017, 2003

416.3 CONSTRUCTION REQUIREMENTS

416.3.1 Drilled Shaft Foundations

Developer shall construct drilled shaft foundations in accordance with the requirements of in the FHWA *Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods*.

If drilled shaft foundations load testing is performed, it must be in accordance with the recommendations presented in FHWA *Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods*. Such load tests must be performed on a sacrificial, non-production drilled shaft(s) and must be designed to measure the nominal axial resistance of the test drilled shaft and load transfer characteristics of the shaft/soil profile. Both conventional (top-down) and bi-directional Osterberg Cell ("O 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 (LVWDTs), 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;

E. Procedures for construction quality control of the test drilled shaft, including mechanical or sonic caliper, concrete sampling and strength testing, ultrasonic cross-hole logging, geophysical logging (gamma logging), thermal integrity profiling, or other proposed techniques;

F. 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;
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.

Twenty 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 5 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.

Developer shall perform quality assurance testing and integrity testing of all constructed drilled shaft foundations in accordance with Section GP 110.07 of the TPs. Quality assurance testing and integrity testing must include ultrasonic crosshole testing in accordance with ASTM D6760, geophysical logging (gamma logging) in accordance with ASTM D6274, and thermal integrity profiling in accordance with ASTM D7949.

Developer shall prepare a Drilled Shaft Quality Assurance Report which presents the results of quality assurance and integrity testing of drilled shaft foundations. Ten Business Days prior to construction of any structure on the associated drilled shaft foundations, Developer shall submit the Drilled Shaft Quality Assurance Report to ADOT for review and comment.

416.3.2 MSE Walls

Developer shall construction 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 that must be included in the Developer's special provisions 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 zones based on subsurface geotechnical conditions, with one value of design pull-out resistance assigned to each wall zone on the plans.

Developer shall perform a minimum of two verification load tests on sacrificial verification soil-nails for each wall zone before starting excavation for the wall zone. Developer's soil-nail load testing equipment must be calibrated by a qualified testing laboratory which is independent of 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 10 percent of the total number of production soil-nails. The locations of proposed proof test nails must be indicated on the Developer's 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. Tested nails which do not comply with the acceptance criteria must be rejected by Developer.

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 for Road and Bridge Construction*, and all other pertinent Federal, State, and local regulations. Whenever explosives are used by Developer, 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, including the City of Phoenix Fire Department. Developer is responsible for the effects, including damages, of his blasting operations on adjacent public or private property, including objects, structures, and utilities.

Developer shall control ground vibrations and air-blast when blasting near objects, structures, or utilities that may 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. Deleterious conditions is defined to include the following: (1) Individual drill holes whose remaining traces total more than 3 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 6 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. Blast damage is defined to include 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.

416.3.4.2 Protection of Utilities

Developer shall comply with the requirements of the Utility Owners relative to protection of their individual Utility from the effects of blasting operations. Developer shall also comply with the following requirements when blasting operations are within 1,000 feet of transmission line areas:

A. Electric detonators must not be used within 500 feet of any transmission line, unless the safety of their use is demonstrated and documented in the Blasting Plan, including measurements of stray and induced currents.

B. Developer shall provide written notification to Utility Owners a minimum of 10 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 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 500 feet of an existing building, box culvert, retaining wall, bridge structure, pipeline, utility pole, or transmission tower.

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 proposed 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;

   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; and

F. Proposed methods to protect the public during blasting operations, including notifying the public, locations and types of signage, fencing, and look-outs.

Fifteen Business Days prior to the first test blast, Developer shall submit a Blast Monitoring Plan to ADOT for approval in ADOT's reasonable discretion.

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 5 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 to be employed 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, to include general methods and approach to blasting which account for the full range of geologic settings and physical conditions present on the Site; and 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 intended to be used in or in support of blasting operations.

H. Methods to prevent 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 less than 10 Business Days prior to commencing drilling and blasting operations, Developer shall submit a Blasting Information Report to ADOT for approval in ADOT's reasonable discretion.

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. The 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.

Five Business Days after completion of each test blast, Developer shall submit the Test Blast Report to ADOT for approval in ADOT's reasonable discretion.

416.3.4.7 Blasting Plan

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.

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. Fly rock control measures to be used on each shot.

H. Estimated quantities of volume of rock in-place and length of both production and controlled blast drill hole.

I. Location and attitude of significant fracturing, rock type changes, faulting, and special circumstances to be accounted for in the shot design.

J. Vibration criteria, predicted ground motions at sensors, and sensor locations.

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. Five Business Days prior to commencing drilling and blasting operations, Developer shall submit a Blasting Plan to ADOT for approval in ADOT's reasonable discretion.

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 5 Business Days after blasting, Developer shall submit Blasting Report(s) to ADOT for approval in ADOT's reasonable discretion. .

416.3.5 Slope Stability & Protection

Developer is responsible for slope stability throughout the Project, both within and adjacent to the Schematic ROW. If any slope instability develops during construction, Developer shall cease all Work in the immediate area within and around the unstable ground until the situation is fully assessed by Developer. 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 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-01-026, 2002)* and the FHWA *Rock Slopes - Reference Manual (FHWA-NHI-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 which requires monitoring as described in Section DR 416.3.3.2 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. However, within 1 Business Day of each recording, Developer shall submit all Instrumentation Data for each recording to ADOT for approval in ADOT's reasonable discretion.

416.4 SUBMITTALS

Table 416-2 reflects a nonexclusive list of Submittals identified in this Section CR 416 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 416-2
Nonexclusive Submittals List

Submittal	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Drilled Shaft Load Test Program	4	2	1	20 Business Days prior to performing the load test(s)	CR 416.3.1
Drilled Shaft Load Test Report	4	2	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 Quality Assurance Report	4	2	1	10 Business Days prior to construction of any structure on the associated drilled shaft foundations	CR 416.3.1
Blast Monitoring Plan	3	2	1	15 Business Days prior to the first test blast	CR 416.3.4.4
Blasting Information Report	3	2	1	Not less than 10 Business Days prior to commencing drilling and blasting operations	CR 416.3.4.5
Test Blast Report	3	2	1	5 Business Days after completion of each test blast	CR 416.3.4.6
Blasting Plan	3	2	1	5 Business Days prior to commencing drilling and blasting operations	CR 416.3.4.7
Blasting Report(s)	3	2	1	5 Business Days after blasting	CR 416.3.4.7
Unedited Blast Videotapes	5	0	1	At the end of each month	CR 416.3.4.7
Instrumentation Report(s)	3	2	1	In accordance with the requirements in the Instrumentation Plan	CR 416.3.6
Instrumentation Data	5	2	1	Within 1 Business Day of each recording	CR 416.3.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the P3 Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section CR 417.

417.2 ADMINISTRATIVE REQUIREMENTS

Developer shall perform earthwork operation Work in accordance with the standards, manuals, and guidelines listed in Table 417-1.

Table 417-1
Standards

No.	Agency	Title
1	ADOT	Standard Specifications for Road and Bridge Construction
2	ADOT	Stored Specifications 203ERWK, 203PRWTR, and 203QCEW
Note: For ADOT Stored Specification 203ERWK, if borrow is called for in the Developer's Materials Design Report, Developer shall determine the formula value for Subsection 203-9.02		

417.3 CONSTRUCTION REQUIREMENTS

417.3.1 Waste Material

Developer acknowledges and agrees that all 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 located within ADOT ROW.

All material removed from the South Mountain must be processed, used, or placed within the vicinity of the South Mountain (51st Avenue to 17th Avenue), unless otherwise authorized by ADOT.

417.3.2 Borrow

Developer shall evaluate and determine that borrow source complies with the ADOT *Standard Specifications for Road and Bridge Construction.* Developer shall secure the borrow source, haul borrow material, and obtain all permits required by Governmental Entities.

417.3.3 Backfill

Developer shall evaluate and secure material source and obtain all necessary haul permits required by Governmental Entities.

End of Section

CR 419 PAVEMENT

419.1 GENERAL REQUIREMENTS

Developer shall perform all pavement Construction Work in compliance with the requirements of this Section CR 419.

419.2 ADMINISTRATIVE REQUIREMENTS

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419.3 CONSTRUCTION REQUIREMENTS

419.3.1 Pavement Subgrade Materials Requirements

Developer shall verify that the materials encountered or imported comply with the effective modulus of subgrade reaction (rigid pavement), resilient modulus (flexible pavement), or other design subgrade support value as utilized by Developer for the structural section design.

419.3.2 Asphaltic Concrete Pavement

Developer shall evaluate the Asphaltic Concrete Friction Course (ACFC) or Asphalt Rubber-Asphaltic Concrete Friction Course (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 within 10 Business Days of placement of the ACFC or AR-ACFC surface treatment. 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 50 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*.

419.3.3 Portland Cement Concrete Pavement

Developer shall prepare a Paving Plan(s) for each segment of the Project. Each Paving Plan must include the following:

A. A detailed sequence and schedule of concrete placement operations, including the following:
   1. Width of pavement to be placed,
   2. Proposed equipment,
   3. Production rates,
   4. Working hours,
   5. Concrete hauling,
   6. Placement methods, and
   7. Curing, sawing, and sealing 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 for a minimum of 7 days after concrete placement.

Not less than 20 Business Days prior to paving, Developer shall submit each Paving Plan(s) to ADOT for review and comment.

If Developer constructs paving widths that are less than the full main roadway width, Developer shall locate longitudinal construction joints on the lane line or at the edge of the main roadway. Developer shall not locate longitudinal construction joints in the wheel-paths.

Developer shall evaluate Portland cement concrete pavement (PCCP) thickness in accordance with Section 401-4.04 of the ADOT *Standard Specifications for Road and Bridge Construction* and the Contract Documents. Developer shall ensure that the PCCP thickness and compressive strength complies with the material and construction requirements of Developer's pavement designs and the Contract Documents.

Developer shall evaluate PCCP, whether it will be overlaid or not with ACFC or AR-ACFC, for smoothness in accordance with *Arizona Test Method 801* and Section 401-4.02 of the ADOT *Standard Specifications for Road and Bridge Construction* and the Contract Documents. The profile index of the PCCP must be a maximum of 9 inches/mile for every 0.1 lane mile section.

Developer shall test the PCCP surface with a 10-foot-long straightedge in accordance with Section 401-4.02 of the ADOT *Standard Specifications for Road and Bridge Construction* and the Contract Documents. The pavement surface must not vary in any direction by more than 1/8 inch, except at longitudinal and transverse construction joints. The pavement surface must not vary by more than 1/4 inch across any longitudinal or transverse construction joint. Developer must grind high areas or bumps not meeting the required pavement tolerances.

Upon completion of any necessary corrective actions, Developer shall retest repaired PCCP areas to verify that corrections have produced the required improvements.

419.3.4 Pavement Mix Design

Developer shall prepare Pavement Mix Design(s) for the Project. Pavement Mix Design(s) are considered Shop Drawings and Working Drawings. Not less than 20 Business Days prior to paving, Developer shall submit Pavement Mix Design(s) to ADOT for review and comment.

419.4 SUBMITTALS

Table 419-1 reflects a nonexclusive list of Submittals identified in this Section CR 419 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 419-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Paving Plan(s)	4	2	1	Not less than 20 Business Days prior to paving	CR 419.3.3
Pavement Mix Design(s)	4	2	1	Not less than 20 Business Days prior to paving	CR 419.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section CR 420.

420.2 ADMINISTRATIVE REQUIREMENTS

420.2.1 Standards

Developer shall perform all Construction Work in accordance with the standards, manuals, and guidelines listed in Table 420-1.

Table 420-1
Standards

No.	Agency	Title
1	ADOT	South Mountain Freeway (Loop 202) Final Environmental Impact Statement and Section 4(f) Evaluation (FEIS)
2	ADOT	South Mountain Freeway (Loop 202) Record of Decision (ROD)
3	ADOT	Noise Abatement Policy dated July 13, 2011

420.3 CONSTRUCTION REQUIREMENTS

420.3.1 Project Environmental Commitment Requirements

Developer shall comply with environmental commitments and requirements included in the ROD. The table provided in TP Attachment 420-1 includes the Project-specific environmental commitments associated with the ROD. Environmental mitigation measures have been reviewed and approved by FHWA for the construction of the Project. These mitigation measures are not subject to change without prior written approval from FHWA. Developer shall be responsible for all environmental commitment requirements in TP Attachment 420-1, except those requirements that are specifically identified as an ADOT action.

If, at any time, Developer is not in compliance with any applicable Laws, including any Environmental Laws, and Governmental Approvals, ADOT may suspend the Work, in whole or in part, under Section 18.2.1 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 to resolve violations 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 give attention to the effect of Developer's operations upon the landscape, and shall maintain natural surroundings undamaged.

The General Aquifer Protection Permit 1.12 has been established by the Arizona Department of Environmental Quality (ADEQ) requiring control of wastewater to an impoundment from washing concrete from trucks, pumps, and ancillary equipment. Developer shall comply with the

conditions set out in General Aquifer Protection Permit 1.12 (Arizona Administrative Code 18-9-B301.L).

Developer shall implement the requirements of the Arizona Pollutant Discharge Elimination System (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. That document is hereinafter referred to as the AZPDES general permit.

The Project may discharge runoff into watercourses designated by ADEQ as "Impaired", "Outstanding Arizona Waters" or "Not-Attaining." As a consequence, Developer shall include, in Developer's finalized Storm Water Pollution Prevention Plan (SWPPP), sufficient erosion and sediment control Best Management Practices (BMPs) to assure that discharges do not cause or contribute to non-attainment of Surface Water Quality Standards. In addition, Developer shall provide a monitoring plan, as specified in Section CR 420.3.2.2.2 of the TPs.

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 ADOT's "Erosion and Pollution Control Manual," available on the Department's website at http://www.azdot.gov/inside_adot/OES/WaterQuality/Stormwater/Erosion_Pollution_Control_Manual.asp. Except as otherwise specified herein, Developer's monitoring plan shall comply with ADOT's "Storm Water Monitoring Guidance Manual for Construction Activities," dated August 23, 2006, available from Engineering Records. That document is hereinafter referred to as the Monitoring Guidance Manual.

Developer shall ensure that the 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.

The Plans must include preliminary erosion control measures and additional information to be included in the Project's SWPPP, as specified in Section CR 420.3.2.2 of the TPs. Prior to issuance of NTP2 and submittal of the Notice of Intent (NOI), Developer shall prepare and submit a SWPPP to ADOT for approval in ADOT's reasonable discretion.. After the SWPPP has been approved by ADOT and prior to submission to ADEQ, Developer shall prepare and submit a NOI Form to ADOT for approval in ADOT's reasonable discretion. After ADOT approval, Developer shall submit a NOI to ADEQ and implement the SWPPP. By submission of the NOI, Developer shall be deemed to certify that Developer and its Subcontractors have read and will comply with all provisions of the AZPDES *general permit.*

Except with respect to the NOI, Developer shall provide all signatures required of [or from] Developer by the AZPDES general permit, including those required for the NOT, SWPPP, and Inspection reports, by [or from] 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 the SWPPP is reviewed and approved by ADEQ, the NOI is completed and filed in accordance with Section CR 420.3.2.3 of the TPs, and the SWPPP is implemented.

By submission of Developer's NOI, Developer shall be deemed to certify that Developer and the Subcontractors have read all provisions of the AZPDES general permit. Developer shall, and shall ensure that the Subcontractors, comply with such permit.

420.3.2.2 Stormwater Pollution Prevention Plan (SWPPP)

420.3.2.2.1 General

Developer shall include descriptions of the following in the Plans: 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 may be required during successive construction stages. The Plans may also include an initial schedule detailing the proposed sequence of construction and related erosion control measures.

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 by ADOT.

Developer shall designate the Erosion Control Coordinator as an authorized representative of Developer in accordance with Part VIII.J.2 of the AZPDES general permit.

The draft SWPPP must include all information required in the AZPDES general permit, including the following: a site map; identification of receiving waters and wetlands 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.

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 Limits, until temporary or permanent erosion control devices for that portion of the Project have been installed by Developer and accepted 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 construction activity has temporarily or permanently ceased for the affected sub-area. For areas within 50 feet of an impaired or unique water, as shown on the Plans, Developer shall install erosion control measures within 7 days after construction activity has temporarily or permanently ceased.

Temporary or permanent sedimentation basins may be required for reducing or eliminating sediment from stormwater runoff. When required, Developer shall complete such basins before

any clearing and grubbing of the Site is initiated. Developer shall evaluate the need and attainability of installing sediment basins as described in the AZPDES permit and, if approved by ADOT, include the basins in the SWPPP as appropriate. The Plans may also include sediment basins as part of the preliminary information. ADOT will not make any additional payment for such basins, the cost being considered as included in Price.

The draft SWPPP must also identify and address erosion control at on-site fueling operations, waste piles, material storage sites, and off-site dedicated asphalt and concrete plants, contractor-use areas, storage areas, and support activity locations which are used solely for the Project and are covered by the AZPDES general permit. The draft SWPPP must also accommodate all requirements for Developer's pollution prevention practices specified in Section CR 420.3.2.4 of the TPs. In addition, the 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. Changes to the monitoring plan, such as number or location of samples, or required testing, are considered revisions to the SWPPP. Developer shall submit revisions to ADOT for approval and signature before implementation. ADOT will have at least 48 hours to review any subsequent submittals required by Developer to revise or update the SWPPP.

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 maintain all related erosion control elements in proper working order throughout the Term. Work under this section also includes inspections, record-keeping, and implementation of pollution prevention practices as described in Section CR 420.3.2.4 of the TPs.

Developer shall update the approved SWPPP whenever a change in design, construction method, operation, maintenance procedure, or other activity may cause a significant effect on the discharge of pollutants to surface waters, or when a change is proposed 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 from the Site. Developer shall make all necessary modifications to the SWPPP within 7 days following the inspection that revealed the deficiency.

Developer shall keep a copy of the approved SWPPP at the site during the Construction Period.

ADEQ may notify Developer at any time that the SWPPP does not comply with the permit requirements. The notification may identify the provisions of the permit that are not being met 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 the requested changes have been made.

Developer 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 Erosion Control Coordinator must maintain a current copy of the SWPPP, including all associated records and forms, at the Site during the Construction Period. The SWPPP must be available for inspection by ADEQ, FHWA, and other entities identified in the AZPDES general permit, and for use by ADOT. Developer shall ensure that the Erosion Control Coordinator provides copies

of any or all of such documents to ADOT upon request. When requested, Developer shall ensure that such copies are provided within 3 Business Days of the request.

Developer shall provide the SWPPP (including inspection forms) and all data used to complete the NOI and NOT to ADOT at the Substantial Completion Date. Developer shall retain its own records for a period of at least 3 years from the filing of Developer's NOT.

Developer shall not be released from any responsibilities or 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

Developer shall prepare a construction monitoring plan to monitor discharges into the affected receiving water.

The monitoring plan must comply with the Monitoring Guidance Manual, and must include a description of the pollutant of concern, the activities or materials that may generate the pollutant, the location of such activities or materials, and methods to ensure that transport of the pollutant to the waterway is minimized. The monitoring plan must specify the location of monitoring points, as well as the methods, equipment, and reporting processes necessary to accurately measure water quality.

Except as specified herein, the monitoring plan and related work activities must comply with all applicable elements of the Monitoring Guidance Manual, including sample locations, monitoring schedule, documentation, and reporting requirements. ADEQ may require revisions to the monitoring plan during the review process. Developer shall make such revisions before beginning any Work involved in the SWPPP.

The minimum number and type of monitoring points must be as specified herein. Developer shall determine the appropriate locations based on the Monitoring Guidance Manual.

Developer shall contact roadside development for specific restrictions for the affected waterway. Information must include type of pollutant and receiving water, and allowable numeric concentration value (tmdl), if required. Developer shall include project-specific requirements, such as number of monitoring points and type of monitoring, as provided by roadside development.

Developer shall ensure that the Erosion Control Coordinator, or other qualified personnel as approved by ADOT, performs sampling and any onsite testing called for in the Monitoring Guidance Manual.

Monitoring techniques for all locations must include visual monitoring, photo documentation, and analytical monitoring, including turbidity. When included in the special provisions, specific impairment monitoring and subsequent laboratory testing is also required. Developer shall complete a monitoring report after each inspection and shall include the report in the SWPPP. The monitoring plan must include a process to evaluate of the effectiveness of the erosion control measures at controlling runoff. Developer shall use the form provided in the Monitoring Guidance Manual.

Should laboratory testing of water be required, Developer shall select an appropriate laboratory that is licensed, accredited, and certified by the Arizona Department of Health Services. Developer shall submit laboratory testing location to ADOT for approval at least 15 days before submittal of any samples for analysis.

Developer shall ensure that the Erosion Control Coordinator is responsible for the preparation, accuracy, and completeness of all reports and readings required by the monitoring plan, and submits all submittals required in the Monitoring Guidance Manual, including the monthly discharge monitoring report to ADEQ.

Developer shall initiate the monitoring plan concurrently with the start of ground disturbing activity or when any water, including storm water, is discharged from the Site, whichever occurs first, and shall ensure that such adherence to the plan continues throughout the Term.

420.3.2.2.3 Preliminary Submittal

When approved, ADOT and Developer will sign the finalized SWPPP. Developer shall file a NOI. Developer shall also submit the finalized SWPPP to ADEQ for review and approval as specified in Section CR 420.3.2.3 of the TPs.

After the review and approval process specified in Section CR 420.3.2.3 of the TPs. 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 the SWPPP has been approved, the NOI completed and filed in accordance with Section CR 420.3.2.3 of the TPs and the SWPPP implemented.

420.3.2.3 Notice of Intent (NOI) and SWPPP Submittal

After the Storm Water Pollution Prevention Plan (SWPPP), including monitoring plan, has been approved by ADOT, Developer shall submit the SWPPP to ADEQ at the address shown below for review.

Arizona Department of Environmental Quality
Surface Water Section/Permits Unit/Stormwater NOIs (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to (602) 771-4528

Developer shall also complete a NOI form for the Project and submit the form to ADEQ at the same time. Developer shall ensure that a responsible corporate officer of Developer, as defined in Part VIII.J.1 of the AZPDES general permit, signs and dates the certification statement included in the NOI and that the name and title of that officer is included in the certification.

ADOT typically receives notification from ADEQ within 32 Business Days of submittal as to whether Work may proceed under the AZPDES general permit, or whether the SWPPP needs revisions. ADOT expects to receive an authorization certificate issued by ADEQ if the NOI and SWPPP have been accepted. If notification is not received in this time-frame, Developer shall contact ADEQ and verify that the NOI and SWPPP have been received and accepted prior to commencement of Work. Developer shall provide a copy of the authorization certificate to ADOT, and keep a copy with the NOI.

Developer may also submit the NOI electronically, through ADEQ's Smart NOI website at http://az.gov/webapp/noi/main.do. Regardless of the method of submittal, Developer shall provide a copy to ADOT.

If ADEQ determine that revisions are needed, the Erosion Control Coordinator must make the necessary changes and, after acceptance by ADOT, resubmit the SWPPP to ADEQ for approval. Prior to approval, ADEQ may require that the SWPPP be modified to implement specific controls or design criteria, or may require changes to the monitoring plan. When re-submittal is required, Developer shall not begin SWPPP implementation until final approval is received from ADEQ.

Developer shall anticipate needing a minimum of 7 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.

At any time after authorization, ADEQ may determine that Developer's stormwater discharges may 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 MS4, Developer shall submit a copy of the authorization certificate to the owner/operator of the system. Also, if Developer is operating under an approved local sediment and erosion plan, grading plan, or 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 Construction Period. Developer shall also keep a copy of the AZPDES general permit shall at the Site at all times.

420.3.2.4 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. Changes to Developer's pollution prevention practices that are related to construction phasing must also be shown on the SWPPP.

Developer shall prevent pollution of streams, lakes, and reservoirs with fuels, oil, bitumen, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. Developer shall not discharge any of these materials into any channels leading to streams, lakes, or reservoirs. 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 which 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 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 stream bed adequate to prevent the discharge of any contaminants. The SWPPP must identify the location of streams that may be affected 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.

Developer shall not operate equipment in running streams.

Developer shall clear streams, lakes, and reservoirs 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 the obstruction was first observed.

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 Ste exceeds 1,320 gallons.

In the event of a spill of a hazardous material, the Erosion Control Coordinator must modify the SWPPP as necessary within 14 days of the discharge. The Erosion Control Coordinator must modify the SWPPP to include a description of the release, the circumstances leading to the release, and the date of the release.

420.3.2.5 Inspections

420.3.2.5.1 General

The Erosion Control Coordinator must inspect the Project with ADOT at least every 7 days, and also within 24 hours after any storm event of 0.50 inches or more. The inspections must include disturbed areas that have been temporarily stabilized, 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 submit rainfall records to ADOT on a weekly basis.

For each inspection, the Erosion Control Coordinator must complete and sign a Compliance Evaluation Report as described in the permit. Developer shall retain copies of the completed reports at the Site in the SWPPP file throughout the Construction Period. The Erosion Control Coordinator must also provide a copy of the report to ADOT following each inspection.

All inspections must be made jointly with ADOT.

420.3.2.5.2 Adjustments

When deficiencies are noted during scheduled inspections, Developer shall take immediate steps to make the required corrections as soon as practical. Developer shall correct deficiencies, to the satisfaction of ADOT, within 4 Business Days or by the next anticipated storm event, whichever is sooner. Developer shall correct deficiencies noted between designated inspections within the time period directed by ADOT, but not later than 4 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 the inflow was observed.

420.3.2.6 Non-Compliance

ADOT may reject the Erosion Control Coordinator if the conditions of the AZPDES general permit or the approved SWPPP are not being fulfilled. ADOT may reject the Erosion Control Coordinator for failure to complete any of the following:

(1) Should ADOT determine that the SWPPP is not being properly implemented, ADOT may notify Developer in writing of such deficiencies. The Erosion Control

Coordinator must fully implement the requirements of the approved SWPPP within 3 Business Days.

(2) Should any corrective measures required in Section CR 420.3.2.5 of the TPs not be completed within the time periods specified therein, ADOT may notify Developer in writing. Developer shall complete all required corrective measures within 2 Business Days of such notification, except that Developer shall correct direct inflows of sediment into a watercourse within 24 hours.

(3) Should ADOT determine that routine maintenance of the Project's erosion control measures is not being adequately performed, ADOT may notify Developer in writing. Within 3 Business Days, the Erosion Control Coordinator must demonstrate to ADOT that such steps have been taken to correct the problem.

In the event of the Erosion Control Coordinator's failure to comply with any of the above requirements, ADOT may direct Developer to stop all affected work and propose a new Erosion Control Coordinator as soon as possible. However, Developer must maintain all erosion and pollution control items specified in the SWPPP at all times. Developer shall not perform any additional work on construction items affected by the SWPPP until a new Erosion Control Coordinator has been approved by ADOT.

420.3.2.7 Record of Major Construction and Erosion Control Measures

In addition to the Compliance Evaluation Report, Developer shall record the dates, of the following activities, including the erosion control measures associated with these activities:

(1) When major grading activities (including clearing and grubbing, excavation, and embankment construction) occur in a particular area or portion of the site.
(2) When construction activities cease in an area, temporarily or permanently.
(3) When an area is stabilized, temporarily or permanently.

Developer shall note such information within 2 Business Days of the occurrence of any of the listed activities, and shall include a copy of the report in the SWPPP. Developer shall also provide one copy of such records, and any subsequent updated information, to ADOT within 3 days of completion or amendment of the report.

420.3.2.8 Notice of Termination (NOT)

Upon final acceptance by ADOT, and as specified herein, Developer shall complete and mail a Notice of Termination (NOT) for the Project to the address shown below.

Arizona Department of Environmental Quality
Surface Water Section/Stormwater & General Permits (5415A-1)
1110 W. Washington Street
Phoenix, Arizona 85007
or fax to 602 771-4528

The NOT submitted by Developer must include a certification statement which is signed and dated by an authorized representative of Developer, as defined in Part VIII.J.2 of the AZPDES general permit, and include the name and title of that authorized representative.

Alternatively, Developer may submit the NOT electronically, through ADEQ's Smart NOI website at http://az.gov/webapp/noi/main.do. Regardless of the method of submittal, Developer shall provide a copy to ADOT.

When the approved SWPPP includes the use of Class II seeding as an erosion control measure, Developer shall maintain seeded areas for 45 calendar days, as specified in the

special provisions, and approved by ADOT before Developer's NOT can be submitted. Seeding, when used in the SWPPP as an erosion control measure, is not considered as part of any Landscape Establishment Phase that may be included with the Project.

420.3.3 Developer's Responsibility for Work:

Developer shall implement the requirements of the AZPDES for erosion control due to storm water runoff during construction, as specified in Section CR 420.3.2 of the TPs.

Until Final Acceptance, Developer shall have the charge and care thereof 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 nonexecution of the Work. Developer shall rebuild, repair, restore, and make good all injuries or damages to any portion of the Work occasioned by any of the above causes before final acceptance.

In case of suspension of 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 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 is in compliance 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 construction and for the life of the Project. Specific guidelines for stormwater management can be found in the ADOT *Erosion and Pollution Control Manual*. With the first Initial Design Submittal, Developer shall submit a Stormwater Management Plan to ADOT for approval in ADOT's reasonable discretion.

420.3.5 Prevention of Air and Noise Pollution:

Developer shall control, reduce, remove or 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 Arizona Revised Statutes Section 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 which apply to any work performed pursuant to the Contract.

Each internal combustion engine used for any purpose on the Work or related to the Work must be equipped with a muffler of a type recommended by the manufacturer. Developer shall ensure that no internal combustion engine be operated without its muffler being in good working condition.

Burning of trash, debris, plant material, wood, or any other waste materials is not allowed.

420.3.6 Source of Supply and Quality Requirements

Unless otherwise specified, Developer shall be responsible for furnishing all water required for construction. Water obtained from sources within the Salt River or Verde River watersheds and administered by Salt River Project, or obtained from Salt River Valley Water Users Association

(SRVWUA) delivery canals within the Phoenix metropolitan areas, are subject to the following conditions:

a) For water obtained from rivers, streams, lakes, or other sources within the watershed, Developer shall execute a Construction Water Exchange Permit. Water obtained from surface water sources or wells in close proximity to a river, stream, or lake located within the watershed may also require a Construction Water Exchange Permit.
b) For water obtained from SRVWUA canals, Developer shall contact SRP to determine the most appropriate delivery method and associated permits and costs. As an example, a Permit for Operation of Mobile Tank Trucks is required for water pumped into mobile water trucks.

Developer shall contact SRP at the address shown below to determine whether its anticipated water sources is subject to SRP regulations and, if necessary, the appropriate requirements, permits, and fees.

Salt River Project
Water Contract Accounting & Data Services SSW302
PO Box 52149
Phoenix, Arizona 85072-2149
(602) 236-2255
(602) 236-3313
Fax (602) 236-5082

Developer shall not obtain water from sources as specified herein until Developer has furnished ADOT with a completely executed copy of the appropriate permits.

420.3.7 Archaeological Features

The attention of Developer is directed to Title 41, Article 4, Archaeological Discoveries, Sections 41-841, et seq., of the Arizona Revised Statutes, which 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 Arizona State Museum.

Section 6(a) of the Federal Archaeological Resources Protection Act of 1979 specifies that no person may 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 considered a felony and are punishable by fine and imprisonment.

Although ADOT will make every effort prior to construction to identify all cultural resources in a Schematic ROW, previously unidentified archaeological materials could be found during the construction of the Project. When archaeological, historical or paleontological features are encountered or discovered during any activity related to the construction of the Project, Developer shall stop Work immediately at that location and shall take all reasonable steps to secure the preservation of those features and notify ADOT.

ADOT will direct how to protect the features. Developer shall not resume work until it is so directed by ADOT.

420.3.8 Historic Preservation

The attention of Developer is directed to Title 41, Chapter 4.2, Historic Preservation, Section 41-861 et seq., Arizona Revised Statutes, which makes it a felony to intentionally possess, sell or transfer any human remain, funerary object or other artifact.

Although ADOT will make every effort prior to construction to identify all items that require Historic Preservation in the Schematic ROW, previously unidentified human remains, funerary objects, or artifacts may be found during the construction of the Project. When human remains or funerary objects are encountered or discovered during any activity related to the construction of the Project, Developer shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those items and notify ADOT.

ADOT will direct how to protect the items. Developer shall not resume Work until it is so directed by ADOT.

420.4 SUBMITTALS

Table 420-2 reflects a nonexclusive list of Submittals identified in this Section CR 420 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 420-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Stormwater Pollution Prevention Plan	3	2	1	Prior to issuance of NTP2 and submittal of the Notice of Intent	CR 420.3.2.2
NOI Form	3	2	1	Prior to submission to ADEQ	CR 420.3.2.1
Notice of Termination	3	2	1	15 Business Days after final stabilization in accordance with ADEQ	CR 420.3.2.8
Stormwater Management Plan	3	2	1	With the first Initial Design Submittal	CR 420.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

CR 425 PUBLIC INFORMATION

425.1 GENERAL REQUIREMENTS

Developer shall perform all public information Work in compliance with the requirements of this Section CR 425. This Section CR 425 includes provisions for activities occurring in the design phase.

425.2 PUBLIC INVOVEMENT PROGRAM

Developer acknowledges and agrees that the residential and business characteristics of the Project requires that Developer shall engage in a high degree of personal contact with property owners and residents, which personal contact Developer shall make possible by a "real time' public involvement program that must provide rapid responses to Public concerns. Developer also acknowledges and agrees that an exceptional awareness of the importance of the Project's public involvement program and close coordination with ADOT is required of Developer to ensure that the communications effort in support of the public involvement program is considered to be effective as the Project advances.

Developer shall develop and implement a public involvement program for the Project that includes extensive community outreach to the general public, Project stakeholders (e.g., adjacent neighborhoods, schools, business owners), and Governmental Entities. Developer shall design the public involvement program to:

A. Allow for two-way flow of information and successful implementation of the Project
B. Enable identification of community issues early in the Term, so that issues may be addressed and/or mitigated
C. Reduce the probability of Project delays
D. Work closely with stakeholders within the Project ROW to keep them apprised of the Project Schedule and progress achieved to ensure that their issues and concerns are addressed by the appropriate staff
E. Actively seek and respond to input from the public throughout the design and construction of the Project
F. Prevent unnecessary disruptions for motorists and neighboring properties
G. Ensure access to and from businesses, park-and-ride lots, and agricultural fields
H. Ensure safe movement of construction equipment, personnel, and materials to and from work zones, in a manner least disruptive to others
I. Minimize noise and dust pollution
J. Avoid encroachment on private properties adjacent to the highway corridor
K. Maximize effectiveness of traffic control schemes
L. Coordinate with other projects that might occur within the adjacent to the Project concurrent with this Project

Developer shall provide task-specific Project information that must contribute to early identification of community relations and information issues that must be addressed by the public involvement program, under the direction of ADOT.

Developer may, at ADOT's discretion, accompany ADOT and other designated ADOT representative(s) to preconstruction briefings to be held with primary stakeholders (e.g., neighborhood groups, business owners, property managers, government officials, media), as required following Contract execution. In conjunction with ADOT, Developer shall become familiar with Project customers and allow these customers 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 Project.

Allocation of public involvement 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
Community events	Review	Develop master list of potential events, coordinate and manage participation
Documentation, reporting, and tracking	Review, determine strategy for final resolution; review and approve Construction Operations Survey	Create Stakeholder Inquiry Form and Construction Operations Survey and associated processes for implementation
Emergency communication	Review and approve	Develop crisis communications plan as part of the PIP
GRIC Community	Lead and provide direction to Developer	Create Project flyers, brochures, notification material, PowerPoint presentations, maps, and other collateral as needed to implement the PIP
Hotline	Maintain phone account	Manage, monitor, log, respond, and document all calls
Media relations	Lead and provide direction to Developer	Establish media tour procedures; log and forward all media inquiries to ADOT; provide information, materials, and staff
Meetings	Determine level of Developer assistance and participation	Manage notification, conduct, and documentation of meetings
Notification	Review and approve	Manage notification process, including creating collateral material
Project collateral	Review and approve	Create Project fliers, brochures, notification material, PowerPoint presentations, maps, and other collateral as needed to implement the PIP consistent with the South Mountain Freeway Summary Report: Public Involvement for the Draft Environmental Impact Statement (DEIS) provided in the RIDs
Public interaction	Provide guiding protocols as appropriate	Develop and document processes for developing and maintaining stakeholder relationships and for responding to and resolving public inquiries, comments, or complaints
Public Involvement Plan (PIP)	Review and approve	Prepare, implement, and revise as needed
Speakers bureau	Review and approve	Develop list of speakers, coordinate logistics, and provide support/materials
Stakeholder database	Provide existing relevant database(s) and/or database template instructions	Develop and maintain, including regular updates

Table 425-1 Public Involvement Program Responsibility Matrix		
Activity	**ADOT**	**Developer**
Title VI	Review and approve	Develop activities/techniques as part of the PIP to meet needs of all populations, including Title VI populations
Website	Host the site; provide templates/specifications; manage all information updates	Create content, including text and graphics; and provide timely updates

425.2.1 Staffing

Developer shall provide a Public Relations Officer and additional public information staff as required to work in conjunction with ADOT to implement the public involvement program. Developer shall ensure that its staff provides day-to-day identification of community relations and public information issues and needs, including response to customer inquiries, rapid resolution of job-site customer-related conflicts, and handling of complaints from the public. Developer shall coordinate appropriate responses to these issues and needs in concert with ADOT.

Developer shall coordinate and notify property owners, businesses, schools, residents, and Governmental Entities regarding disruptions attributable to the Work scheduled in their respective areas.

425.2.2 Public Involvement Plan

425.2.2.1 Goals and Objectives

Developer shall create a PIP that addresses the following goals and objectives:

A. Develop public understanding of the Project.

B. Provide opportunities for early and continuing public participation in the decision-making process, including during the design phase, as appropriate, and encourage participation.

C. Develop and maintain accountability, credibility, and accessibility of ADOT and Developer.

D. Obtain input from a broad range of community representatives, such as business owners, residents, and community organizations.

E. Provide support to ADOT in its efforts to inform the media and maximize potential for informed media coverage.

425.2.2.2 Guiding Principles

Developer shall coordinate with ADOT in developing a PIP to implement the public involvement 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 public involvement and time for public review and comment must be made available.

C. Reasonable access to technical and policy information must be available to the public throughout the design and construction of the Project.

D. Demonstration of explicit consideration and response to public input must be provided whenever possible.

E. Solicitation and consideration of the needs of those traditionally underserved by existing transportation systems must be obtained to ensure that their involvement in decision-making prevents disproportionately high and adverse impacts on these stakeholders and to ensure that they receive a proportionate share of benefits. Traditionally underserved populations include low-income and minority households, ADA populations, Title VI protected populations, and Native Americans.

F. Quarterly reviews of the effectiveness of the public involvement program must be conducted to ensure that full and open access is being provided to all who are interested or who could be interested in the Project.

G. Coordination with Governmental Entities and other stakeholders, such as business owners, residents, and community organizations.

H. Provision of timely information to Government Entities and other stakeholders, including those representing other local jurisdiction concerns.

Prior to issuance of NTP2, Developer shall submit the PIP for approval in ADOT's good faith discretion.

425.2.2.3 Description of Activities

The PIP must include full details and descriptions for accomplishing the goals, objectives, and activities described in this Section CR 425, including:

A. Activities and processes for preparing and distributing public information, including:

1. Notice of traffic, utility, or other 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 the Project website updates and the development of public information and marketing communications.
4. Collateral materials (e.g., Project newsletter, fact sheet, media briefing kit).
5. Public and stakeholder meetings, including timing and method of meeting notification.

B. Schedule of activities (e.g., website updates, collateral production, public meetings, summary reports, public comment/contact and response logs).

C. Identification of and participation in community activities such as community and neighborhood celebrations and fairs, business organization events, and homeowners' association meetings.

D. Creation and management of a Project speakers bureau.

E. Project "hotline" management and maintenance.

F. Strategies and techniques for addressing the communication needs of all populations, including Title VI populations, members of the disabled community, and culturally diverse populations.

G. Media relations procedures.

H. Crisis communications plan.

I. Process for developing and maintaining a stakeholder database, using ADOT's existing Loop 202 South Mountain Freeway stakeholder database as a starting point.

J. Procedures for logging, responding to, and documenting stakeholder and public comment, contact, and inquiry.

425.2.3 Roles and Responsibilities

425.2.3.1.1 Meetings

Developer shall attend meetings as described in the PIP, including construction progress meetings as needed 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 Officer and/or other Developer public involvement staff as deemed appropriate by ADOT.

Developer shall assist ADOT in planning, coordinating details of, and participating in Project public involvement kickoff meetings with ADOT and property owners and tenants in location(s) within 5 miles of the Project that are selected to maximize convenience for potential attendees. For those meetings, Developer shall be prepared to address community concerns and provide information on its construction approach and emergency plan.

Developer, in coordination with ADOT, shall ensure that the subjects of community relations and community impact from construction operations are included on the agenda of each construction progress meeting.

Developer shall participate in any other Project-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 planning and scheduling meetings and any meetings associated with the development of traffic control planning by Developer.

425.2.3.1.2 Public Inquiries

ADOT is primarily responsible for coordinating the resolution of complaints from the property owners and tenants. Developer shall process complaints and provide logs or other notification on a regular basis, as defined in the PIP.

Developer shall manage a 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, develop appropriate messages and response protocols for after-hours callers, and log, respond to, and document calls in accordance with the PIP.

425.2.3.1.3 Media Relations

Developer shall not speak to the media about the Project without prior authorization from ADOT and shall direct all questions from the media to ADOT. ADOT is primarily responsible for interfacing with the media and the general public; however, Developer shall provide information, materials, and/or a designated representative to be available for media interviews as determined by ADOT.

Developer shall establish in the PIP procedures and processes to facilitate media tours of the Project Site. Developer shall ensure that media on the Site is accompanied by ADOT at all times.

425.2.3.1.4 Emergency Communication and Management

Developer shall create a crisis communications plan that identifies an individual and an alternate who must be available and can be contacted 24 hours per day when an emergency is identified by ADOT. At all times, Developer shall make Emergency and alternate telephone numbers available to the public. The crisis communications plan must include the following commitments:

A. In the event of an Emergency, Developer shall follow the crisis communications plan prepared as part of the PIP and in accordance with procedures established by ADOT.

B. In the event of an Emergency, the Developer's designated contact person must contact the key individuals (as identified in the crisis communications plan approved by ADOT) within a half hour.

C. Developer shall prepare a written report documenting the incident and submit it to person(s) identified in the crisis communications plan within 24 hours of the incident. The report shall document the time, location, participants, and cause of the incident, as well as the Developer's action (or intended action) to resolve the incident.

425.2.3.1.5 Notification

Developer shall keep ADOT informed of construction activities and traffic changes on a daily basis to assist the program for community awareness and to avoid major congestion or other site-specific conflicts. Developer shall:

A. Provide a minimum 72-hour advance notice to ADOT of any change in construction activities or traffic changes.

B. Provide information as requested for weekly construction status reports and traffic control reports in coordination with ADOT. Developer provided information must discuss the next 7 days of traffic control schemes, locations and types of construction, potential impacts on traffic, and the date and time for such impacts. Developer provided information shall form the basis for weekly email and fax newsletters to be shared with the public.

C. Provide day-to-day coordination and notification to affected property owners, businesses, and residents regarding disruptions attributable to the Work scheduled in their areas. Developer shall establish the timing of notifications in the PIP.

D. Provide advance notice to the public using portable changeable message signs (PCMS) in the following situations with the indicated minimum duration of advance notice shown:

1. Full street closure – Minimum of 7 days advance notice to the public.
2. Peak hour reduction in through lanes on arterial and/or collector streets – Minimum of 7 days advance notice to the public.
3. Left-turn prohibitions at signalized intersections of arterial and/or collector streets – Minimum of 3 days advance notice to the public.

Advance notice using PCMS may be required in other situations as determined solely by ADOT.

The PCMS must be placed at adjoining arterial and collector roadways. The PCMS must be removed 48 hours after the indicated traffic restrictions have commenced, unless otherwise determined by ADOT.

Use of static signs for advance notice may be feasible in limited situations. Use of static signs must be approved by ADOT in advance in the Traffic Control Plan (TCP).

E. Provide information as required to ADOT; however, ADOT will respond to news media inquiries and news media assignments will be determined by ADOT.

425.2.3.1.6 Reporting and Tracking

Developer shall track all stakeholder-initiated communications, coordinate a response with ADOT, provide a record of response times to such communications, and a review of actions taken in response, all as described in and consistent with the PIP. ADOT will conduct periodic surveys of customers to determine overall satisfaction ratings with the conduct of the Project and the effectiveness of its public information and community relations endeavors. Developer shall use two tracking mechanisms, as follows:

A. Developer shall prepare and submit to ADOT for review and comment a "Stakeholder Inquiry Form" to record all community member-initiated inquiries. Developer shall record the nature of the inquiry and recommend a response. Within 5 Business Days of receipt of an inquiry from a community member, Developer shall submit Stakeholder Inquiry Form to ADOT. At the end of each month, Developer shall provide a monthly report outlining the number and nature of community member-initiated inquiries and a summary of those inquiries.

B. Developer shall develop and submit a quarterly "Construction Operations Survey" to ADOT to be issued by Developer on behalf of ADOT 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. Developer shall disseminate surveys in areas affected by construction, with the Project locations to be surveyed to be determined in concert with ADOT and based on magnitude of Work (i.e., where magnitude of Work has the greatest potential for adverse impacts to properties or the traveling public). Developer shall poll residents, schools, businesses and motorists affected by construction using a methodology agreed to by ADOT in the PIP.

425.3 SUBMITTALS

Table 425-2 reflects a nonexclusive list of Submittals identified in this Section CR 425 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 425-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Public Involvement Plan	2	2	1	Prior to issuance of NTP2	CR 425.2.2
Stakeholder Inquiry Form	5	2	1	Within 5 Business Days of receipt of an inquiry from a community member	CR 425.2.3.1.6
Construction Operations Survey	5	2	1		CR 425.2.3.1.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

CR 430 UTILITIES

430.1 GENERAL REQUIREMENTS

Developer shall perform all Utility Construction Work in compliance with the requirements of this Section CR 430.

430.2 ADMINISTRATIVE REQUIREMENTS

430.2.1 Standards

Developer shall perform all Utility Construction Work in accordance with the standards, manuals, and guidelines listed in Table 430-1.

Table 430-1
Standards

No.	Agency	Name
1	ADOT	Guide for Accommodating Utilities on Highway Right-of-Way
2	ADOT	Encroachment Permit (http://azdot.gov/business/permits/encroachment-permits)
3	Varies	Utility Company Standards

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 *Guide for Accommodating Utilities on Highway Right-of-Way*. All materials for Utility Adjustment Work must comply with "Buy America" requirements. Developer shall perform all Utility Adjustment Work and shall protect and work around existing Utilities so as to avoid damage to all Utilities. Until issuance of the Maintenance NTP, 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.

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. Unless otherwise agreed to in writing between Developer and the Utility Company, all other Utilities in conflict with the Project must be constructed by the appropriate Utility Company.

Developer shall perform well relocation and abandonment Work in accordance with the requirements of the Arizona Department of Water Resources and Section 5.8 of the Agreement.

430.3.1.1 Inspection

Developer acknowledges and agrees that the Utility Company, through its representative, has the right to inspect the construction 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 Utilities for inspection by the Utility Companies if the installation

is covered prior to the Utility Company's inspection and approval. Developer shall contact the respective Utility Company at least 5 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 Owner is unwilling to provide a written acceptance, Developer shall submit a copy of the Request for Written Acceptance of the Utility Work to ADOT as a notification that the Utility Work has been completed but 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 Developer's submittal of a Request for Written Acceptance of the Utility Work, if the Utility Company is not satisfied with the Work, Developer shall remain responsible for the reconstruction portions or all of the Utility Work.

430.3.1.3 Access Responsibilities during Construction

Developer shall take all appropriate measures to make certain that all Utilities remain fully operational during all phases of construction to the greatest extent practicable, including coordinating with Utility Companies to develop a plan so Utility Companies may access their facilities for maintenance and repair during Project construction. Developer shall construct any replacement access roads prior to disruption of the existing access roads.

430.3.1.4 Utility Record Drawings

Developer shall prepare Utility Record Drawings for Utility Adjustments performed by Developer. Utility Record Drawings must be prepared in the format required by each Utility Company. The Utility Record Drawings must show the location of, and label as such, all abandoned Utilities. The Utility Record Drawings 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 the Original Letter of Acceptance of the Utility Adjustment Work from the Utility Owner to ADOT. The Utility Record Drawings must be incorporated into the Project Record Drawings.

430.3.2 Providing Magnetic Detection for Underground Facilities

All new underground utility, drainage facilities, and ITS empty conduits, including service connections, placed within Project ROW must be magnetically detectable with standard locating instruments. Developer shall place continuous detectable tracer for all the underground facilities that lack a continuous and integral metal component capable of detection by standard locating instruments, in accordance with Section 104.15 of the ADOT *Standard Specifications*.

Developer shall submit Final test results to ADOT.

430.3.3 Utility Adjustment Work by Utility Companies

Developer shall coordinate with Utility Companies to develop a plan so Utility Companies may 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 request and receive, or alternatively create, Utility Record

Drawings that include horizontal and vertical control with size and materials noted for the Utility Adjustments performed by the Utility Companies. 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. Within 10 Business Days of receipt of the Written Developer Construction Inspection Approval Letter from the Utility Company, Developer shall submit a copy of the Written Developer Construction Inspection Approval Letter and the Utility Record Drawings to ADOT. Developer shall immediately notify ADOT in writing regarding any noncompliance.

430.3.4 Utility Abandonment

Developer shall perform abandonment of Utilities within the Project ROW in accordance with the ADOT *Guide for Accommodating Utilities on Highway Right-of-Way*.

430.4 SUBMITTALS

Table 430-2 reflects a nonexclusive list of Submittals identified in this Section CR 430 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 430-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Request for Written Acceptance of the Utility Work	5	1	1	If the Utility Owner is unwilling to provide a written approval	CR 430.3.1.2
Original Letter of Acceptance	5	1	1	Within 10 Business Days of receipt	CR 430.3.1.4
Written Developer Construction Inspection Approval Letter and the Utility Record Drawings	5	1	1	Within 10 Business Days of receipt	CR 430.3.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

CR 436 RAILROAD

436.1 GENERAL REQUIREMENTS

Developer shall perform all Construction Work impacting the railroad in compliance with the requirements of this Section CR 436.

436.1.1 Existing Railroad Crossings

The Project interfaces with the railroad corridor owned and operated by UPRR. There is an existing railroad at-grade crossing of the UPRR within the Project, which has a specific USDOT number as reflected in Table 436-1.

Table 436-1
Existing Railroad Crossing Locations

Railroad Crossing Locations	USDOT Crossing No.	Railroad MP
59th Avenue	741811U	899.69

436.2 ADMINISTRATIVE REQUIREMENTS

436.2.1 Standards

Developer shall perform all construction Work impacting the railroad in accordance with the standards, manuals, and guidelines listed in Table 436-2.

Table 436-2
Standards

No.	Agency	Name
1	BNSF/UPRR	Guidelines for Railroad Grade Separation Projects
2	AREMA	Manual for Railway Engineering

Developer shall perform the construction Work impacting the railroad in accordance with the 23 CFR 646, UPRR Construction and Maintenance Agreements, and Arizona Corporation Commission (ACC) authorization.

436.2.2 Railroad Scope

Developer's construction and coordination related railroad Work includes at least the following activities:

A. Obtaining and complying with all applicable construction specifications and requirements for each Work location that is on or adjacent to UPRR right-of-way.
B. Complying with the requirements of the UPRR Construction and Maintenance Agreements.
C. Arranging for and obtaining all temporary rights-of-entry and access onto railroad property, and comply with all railroad requirements for access, entry, and safety training for all personnel involved.

D. Identifying and coordinating with UPRR for railroad flagging operations, and pay for costs of flagging as set forth in Section 5.11 of the Agreement.
E. Complying with and performing roadway worker training courses for all personnel that may enter UPRR right-of-way.
F. Coordinating with UPRR during construction activities within UPRR right-of-way.

Developer shall ensure that all railroad track Work, all railroad signal Work, removal Work, and any Work on UPRR-owned facilities impacted by the Project are performed by UPRR.

436.2.3 UPRR Requirements

Developer shall obtain a UPRR temporary construction license to construct the improvements at each crossing location within UPRR right-of-way. Developer shall arrange for UPRR to provide flagging services necessary for the safety of UPRR's property and the operation of UPRR's trains during all Project-related activities which occur within UPRR right-of-way. Developer shall ensure that the initial UPRR contact is the Manager of Industrial and Public Projects. As part of obtaining the necessary rights of entry and licenses, Developer shall arrange for UPRR to provide a contract project coordinator to serve as the UPRR contact.

436.2.4 UPRR Agreements

Developer shall comply with the requirements of all executed UPRR Construction and Maintenance Agreements in connection with the performance of the Work on proposed railroad crossings. Standard language and requirements of a UPRR Construction and Maintenance Agreement is included in the example agreement included in the RIDs. Each final executed UPRR Construction and Maintenance Agreement language may differ, from the example provided in the RIDs. Developer's rights and responsibilities regarding UPRR Construction and Maintenance Agreements and ACC approval is included in Section 5.11.2 of the Agreement.

Prior to entering the UPRR right-of-way, Developer shall obtain railroad *Right-of-Entry Agreements* with UPRR and shall coordinate entry directly with UPRR. Additionally, Developer shall obtain any other permits and approvals necessary to perform Work in UPRR right-of-way.

436.3 CONSTRUCTION REQUIREMENTS

436.3.1 Railroad Operations

Developer shall coordinate and schedule with UPRR all activities that affect the railroad. Developer shall coordinate and schedule all Work within the UPRR right-of-way to occur within the time gaps between trains.

Prior to performing any Work within UPRR right-of-way, Developer shall execute Exhibit C and C-1 of the "Agreement between UPRR and the Contractor," which is attached to each executed UPRR Construction and Maintenance Agreements between ADOT and UPRR.

436.3.2 Railroad Flagging

Developer shall determine the number of flagging days required and submit a request to UPRR for any flagging Work. Developer shall be responsible for any schedule impacts and costs associated with flagging required for the Project, and such flagging Work must be performed by UPRR flaggers in accordance with the executed UPRR Construction and Maintenance Agreements.

Developer shall not commence the Work or permit the Work to be commenced until Developer receives, in writing, assurance from UPRR's designated representative that arrangements have been made for flagging service, as may be necessary, and receives permission from UPRR's designated representative to proceed with the Work.

436.3.3 Operational Safety

Developer shall prove successful completion of roadway worker training courses by all personnel entering UPRR right-of-way. Developer shall ensure that all personnel working within UPRR right-of-way comply with roadway worker training courses requirements and the railroad requirements regarding personal protective equipment (PPE) and Work within UPRR right-of-way.

End of Section

CR 440 ROADWAY

440.1 GENERAL REQUIREMENTS

Developer shall perform all roadway Construction Work in compliance with the requirements of this Section CR 440.

440.2 ADMINISTRATIVE REQUIREMENTS

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440.3 CONSTRUCTION REQUIREMENTS

Prior to installation, Developer shall submit Barrier, End Treatment, and Crash Cushion Certifications to confirm that the proposed barriers, barrier end treatments, and crash cushions comply with the requirements of NCHRP Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features*, or AASHTO *Manual for Assessing Safety Hardware (MASH)* to ADOT for review and comment. Developer shall not install barriers, barrier end treatments, or crash cushions prior to ADOT approval of the certifications.

440.4 SUBMITTALS

Table 440-1 reflects a nonexclusive list of Submittals identified in this Section CR 440 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 440-1
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Barrier, 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 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

CR 445 DRAINAGE

445.1 GENERAL REQUIREMENTS

Developer shall perform all drainage Construction Work in compliance with the requirements of this Section CR 430.

445.1.1 Providing Magnetic Detection for Underground Facilities

All new drainage facilities placed within Project ROW must be magnetically detectable and comply with the requirements specified in Section CR 430.3.2 of the TPs.

End of Section

CR 450 AESTHETICS AND LANDSCAPING

450.1 GENERAL REQUIREMENTS

Developer shall perform all aesthetics and landscaping Construction Work in compliance with the requirements of this Section CR 450.

450.2 ADMINISTRATIVE REQUIREMENTS

450.2.1 Standards

Developer shall perform all aesthetics and landscaping Construction Work in accordance with the standards, manuals, and guidelines listed in Table 450-1.

Table 450-1
Standards

No.	Agency	Title
1	Arizona Nursery Association	Container Grown Tree Guide
2	American Nursery and Landscape Association	Z60 American Standard for Nursery Stock

450.2.2 Meetings

450.2.2.1 Pre-construction 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.

450.2.2.2 Weekly Task Force meetings

Developer shall hold weekly Aesthetics and Landscaping Task Force Meetings throughout the duration of the construction of the aesthetics and landscaping for the Project, unless otherwise directed by ADOT. The purpose of the Aesthetics and Landscaping Task Force during construction is to review and refine Developer's aesthetics and landscaping construction shop drawings and working drawings.

450.3 CONSTRUCTION REQUIREMENTS

450.3.1 Aesthetics

450.3.1.1 Mockups

Developer shall prepare full-size Mockups with cement finish and paint colors of each character areas rusticated elements. These include:

A. Bridge barrier wall rustication, including the Salt River Bridge. The Mockup size for the bridge barrier wall rustication must be a minimum of 10 feet long x 34 inches high.
B. Full size Mockups of the angled accent rustication for the sound wall of one character area. The minimum width shall be 20 feet, capturing the full angled accent rustication

and the taper along the top of the wall, by the full height of the intended sound wall and accent. This Mockup will double as the Mockup for the typical sound wall and retaining wall.

C. Full size Mockups of the angled accent rustication of the other four character areas
D. Full size Mockups of a bridge pier for each character area. For character area 5, the height of the bridge pier mockup shall be an average between the tallest pier and the shortest pier.
E. Full size Mockups of each character areas corner rustication pattern at the wing walls.
F. Full size Mockups of slope paving for each character area, where applicable. The minimum size shall be 20 feet wide by the height at the respective location.

At least 40 Business Days prior to construction of the associated Element, Developer shall submit Mockups to ADOT for review and comment. Mockups for each character area shall be placed on site in the respective character area in context with the environment of the intended rustication pattern.

450.3.1.2 Paint Draw Downs

Developer shall prepare Paint Draw Downs of each color to be used. At a minimum there will be seven colors: the base color, the accent color for each character area, and the accent color for the Salt River Bridge. At least 40 Business Days prior to painting, Developer shall submit Paint Draw Downs to ADOT for review and comment.

450.3.1.3 Paint Quality

All paint used in the project area shall resist chipping, flaking, fading, staining, and chalking.

450.3.2 Landscaping

Developer shall install plants in such a manner as to provide optimum growth and health of the plants.

All nursery stock plant material must comply with the applicable requirements and standards of the Arizona Nursery Association *Container Grown Tree Guide* and the American Nursery and Landscape Association *Z60 American Standard for Nursery Stock*.

Developer shall be aware there often shortages of plant materials in the Phoenix area. Contract growing is one allowable option for ensuring the plants needed for the project will be available at the time of construction.

450.3.2.1 Seeding

Developer shall install seed such that the growth coverage success rate is 80 percent. Success is measured by a growth coverage area with bare spots no larger than 8 square inches and with barren areas not exceeding 20 percent of the total seeded area. Plants in the growth coverage areas must be healthy and must contain a sufficient number of the plants within the seed mix.

450.3.2.2 Irrigation

Developer shall install a fully functional automatic drip irrigation system to all plant material within the Project ROW. Plant material within the City of Phoenix ROW must be on a separate drip irrigation system.

Developer shall install irrigation system(s) in accordance with all applicable national, state, and local plumbing and health and safety codes.

Developer shall establish all plants for 12 months after installation and then maintain appropriate irrigation levels to all plant materials to promote sustained growth and health of all

plants while not exceeding the maximum allowable available water use requirements on an annual basis.

450.3.2.3 Ground Treatment

Developer shall install granite mulch and decomposed granite so that the installed material resists erosion (rilling of the slope) based on a 50-year, 30-minute rainfall, equivalent to a precipitation intensity of approximately 0.0052 feet/minute.

Developer shall prepare Color Samples of each ground treatment material proposed and in each color and supplier proposed. The sample must be spread to 10-foot x 10-foot area to a minimum depth of 2 inches to represents how the desert pavement will look. Materials include, but are not limited to, granite mulch, decomposed granite, and rock mulch. At least 40 Business Days prior to the scheduled construction of the associated Element. Developer shall submit Color Samples to ADOT for review and comment.

The approved suppliers of granite mulch and decomposed granite are included in Table 450-2.

Table 450-2
Granite Mulch and Decomposed Granite

Color	Granite Name	Supplier
Coral	Yavapai Coral	Pioneer Landscape Materials
	Pink Coral	Red Mountain Mining
	Palomino Coral	Kalamazoo Materials
	Grande Rose	Pioneer Landscape Materials
Brown	Express Brown	Granite Express
	Mountain Vista Brown	Kilauea Crushers
	Apache Brown	Kalamazoo Materials
	Table Mesa Brown	Pioneer Landscape Materials
Gold	Express Gold	Granite Express
	Madison Gold	Madison Granite
	Palomino Gold	Kilauea Crusher

450.3.2.4 Landform Graphic Layout

The Landform Graphic Artist must layout the landform graphic and submit a written notification to ADOT for approval. Construction of the final landform graphic shall not begin until final approval is given for the layout by ADOT.

Adjustments may require multiple enlargements, reductions, shaping, and positioning to achieve the satisfactory visual results to fit the site conditions and provide maximum visual appeal from the roadway, ramps, and bridge perspectives.

The graphic configurations shall be laid out with flexible material and spray painted florescent along the centerlines of the graphics, for approval. Paint shall not conflict with Blue Stake standard colors.

Rebar with safety caps and line string shall be installed with PVC pipe to provide reference points and centerlines for subsequent paver and/or metal edging installation.

Spray point shall be used to mark graphic beginning and ending points and other lines.

Traffic control shall be coordinated with the Engineer and landscape contractor.

The approved artist shall be responsible for, and shall review, the landscape contractor's layouts and installation of metal edging, pavers, placement of granite mulch and river rock materials for conformance to graphic layout and colors specified on landscape design plans.

450.3.3 Landscape Establishment for Non-Maintained Elements

For landscape Non-Maintained Elements to be owned by ADOT, Developer shall maintain and establish the landscape elements for the landscape establishment period specified in Section 6.12.3 of the Agreement. The landscaping establishment work shall consist of the care of all salvaged and installed plant materials as part of the project in accordance with accepted horticultural practices; supplying and applying all irrigation water; repairing, adjusting or replacing bracing; repairing public or weather damage to all landscape areas; furnishing and applying sprays, dust and/or cages to combat vandalism, disease, insects and other pests; noxious weed control, pruning; and the reconfiguring, maintaining, and operating the temporary drip irrigation system as specified by the Developer.

The landscape establishment activities shall include providing sufficient water to keep the installed plants in a healthy condition and the reconfiguration, modification maintenance, repair, replacement and operation of the temporary water distribution system by the Developer to meet the landscape establishment needs of the Project. The Developer shall be responsible to keep a log of all landscape establishment activities. 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 provide for approval the format for recording these activities prior to undertaking the work. Developer has the option of maintaining the nursery(ies) past the salvage and replanting operations completed as part of the D&C Period for use during the landscape establishment project. The continuation of maintaining these nursery(ies) as part of the landscape establishment project is at the discretion of Developer, as approved by ADOT, and all cost associated with this effort is considered incidental to the work included in landscape establishment.

The tree ties and stakes shall be removed at the end of the landscaping establishment period or as directed by ADOT. All trees shall stand erect on their own without stakes when brought to this site. If the tree cannot stand on its own when nursery stakes are removed, the tree shall be removed and replaced.

450.3.3.1 Plant Protection

All landscape plants shall be provided protection which shall include, but not be limited to, eradication or control of insects, mites, fungi, and non-fungus diseases. The application of appropriate insecticide, miticide and fungicide may only be used with the prior approval of ADOT. No insecticides, fungicides and miticides employed during the term of the contract shall cause the extermination of any landscape plant material, or cause damage to the growth characteristics such that plants will not be able to recover in a normal manner.

No chemical shall stain or cause damage to any portion of the site or improvements including landscape plant materials. If staining or damage occurs, repairs or replacements shall be made at Developer's expense to the satisfaction of ADOT. Application of chemicals shall be in such a manner so as to not cause injury to the personal health of anyone working on the project, observing, or passing by. Care shall be taken such that no puddles or pools of water which may contain toxic amounts of chemicals shall remain after completion of operations. Chemicals shall not be allowed to fall on or migrate to areas other than the work site. All laws and local codes shall be followed regarding application methods and personnel.

Subcontracting of the landscaping establishment work shall not be permitted except for weed eradication with herbicides, because of the special licensing required as covered under Subsection 807-3.02 of the ADOT *Standard Specifications*.

450.3.3.2 Establishment Irrigation

During each watering cycle during the landscape 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 plant establishment period.

450.3.3.3 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 as directed by ADOT. Saguaro measurements identified in Section 806 of the ADOT *Standard Specifications* will be conducted every 4 months, as applicable.

During the landscape 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 known as; 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 will include items such as; 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. The previously mentioned criteria shall be used by ADOT to determine if both the salvage and new plant material is in close conformity in health and/or vigor and acceptable for payment or determined unacceptable for no payment by the ADOT. Developer is required to replace the unacceptable or dead stock plant materials with the same species, size, appearance and quality as originally planted, as determined by ADOT. No further payment will be made to Developer for maintenance of any plant materials determined as unacceptable by ADOT. Local stock shall be the priority for replacement plants and the use of any collected/open stock requires advance approval.

Transporting of any plant materials for the landscape establishment activities shall be in compliance with all State and local requirements. Developer shall be responsible to obtain all necessary permits and tags for transporting plant materials on public roadways; no separate payment will be made to Developer for the permits. Permits and tags shall be made available to ADOT upon request. Developer shall maintain all non-planted areas within the freeway right-of-

way and project limits, including the freeway median, drainage basins, cross-street medians, shoulder areas, and all other areas as depicted on the project plans.

450.3.3.4 Planted Stock and Seeding Establishment

The tree ties and stakes shall be removed at the end of the landscaping establishment period or as directed by ADOT. All trees shall stand erect on their own without stakes when brought to this site. If the tree cannot stand on its own when nursery stakes are removed, the tree shall be removed and replaced.

Developer shall apply approved pre-emergent herbicide according to manufacturer recommendations on all unpaved or landscaped areas of the right-of-way including the freeway median, maintenance pathways, areas of decomposed granite, granite mulch, rock mulch, and ADOT AB as depicted on the project plans, and as directed by ADOT.

The application shall first be completed midway through the landscape establishment period and the second application shall be completed 30 days prior to completion of the landscape establishment period. Watering shall be completed in accordance with the manufacturer's recommendations, as included and as related to each application.

The pre-emergent herbicide shall be applied in accordance with the recommendations of the preemergent herbicide manufacturer, as approved by ADOT. The control of weeds shall be accomplished by the use of herbicides or manual removal. Manual removal of weeds shall be required in the seeded areas, and in the decomposed granite and granite mulch areas after herbicides have taken effect.

Developer shall maintain the existing seeded areas on the project, including any erosion repair, reseeding and/or restoration, as directed by ADOT.

The work associated with this seeding restoration will be considered included in the price of Landscape Establishment item.

450.3.3.5 Plant Replacement

During the second half of the landscaping establishment period, Developer shall provide, where required, plant replacements based on the original size. The plant material replacement shall be considered as included in the D&C work.

All dead or unhealthy plant stock shall be removed and replaced as directed, at no additional cost to ADOT, within 21 days from the date of the inspection and Developer shall notify ADOT in writing when the replacement work has been completed.

450.4 SUBMITTALS

Table 450-3 reflects a nonexclusive list of Submittals identified in this Section CR 450 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 450-3
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Mockups	4	26	0	At least 40 Business Days prior to construction of the associated Element	CR 450.3.1.1
Paint Draw Downs	4	7	0	At least 40 Business Days prior to painting	CR 450.3.1.2
Color Samples	4	7	0	At least 40 Business Days prior to construction of the associated Element	CR 450.3.2.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 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 this Section CR 455.

455.2 ADMINISTRATIVE REQUIREMENTS

455.2.1 Standards

Developer shall perform the structures Construction Work in accordance with the standards, manuals, and guidelines listed in Table 455-1.

Table 455-1
Standards

No.	Agency	Title
1	AASHTO	Guide Specifications for Bridge Temporary Works
2	AASHTO	Construction Handbook for Bridge Temporary Works
3	ADOT	Bridge Load Rating Guidelines

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 455-2.

Table 455-2
Minimum Concrete Strength

Components	f'c (ksi)
Decks (except barriers)	4.5
Bridge concrete barriers	4.0
Substructures (abutments, piers, foundation, and drilled shafts)	3.5
All other class 'S' concrete	3.0

455.3.2 Working Drawings

Working drawings, which include drawings for falsework, shoring, soldier piles, cofferdams, temporary bridges, and other major temporary support structures, must be prepared by and bear the seal and signature of a Professional Engineer.

Developer shall prepare MSE Wall and Falsework Shop Drawings and Working Drawings for the Project. MSE Wall and Falsework Shop Drawings and Working Drawings are considered Shop Drawings and Working Drawings. Not less than 10 Business Days prior to implementation,

Developer shall submit MSE Wall and Falsework Shop Drawings and Working Drawings to ADOT.

The following 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 working drawings for atypical structures as specified in the special provisions.

455.3.3 Falsework and Forms

Design and construction of falsework and forms must be in accordance with the following:

A. AASHTO *Guide Specifications for Bridge Temporary Works*
B. AASHTO *Construction Handbook for Bridge Temporary Works*
C. AASHTO *LRFD Bridge Construction Specifications*

455.3.4 Steel Fabrication

Lap splices or mechanical connectors must be used for all reinforcing steel splices and connections. Developer shall not allow or permit welding of reinforcing steel.

455.3.5 Concrete

Developer shall ensure that concrete pours are not conducted over live traffic.

455.3.6 Load Rating Report

Developer shall prepare an As-Built Load Rating Report(s) based on As-Built condition in accordance with ADOT's *Bridge Load Rating Guidelines* and shall include both inventory and operating ratings of the "as-built" structures to ADOT. With the Record Drawing Submittal, Developer shall submit As-Built Load Rating Report(s) to ADOT for review and comment.

455.4 SUBMITTALS

Table 455-3 reflects a nonexclusive list of Submittals identified in this Section CR 455 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 455-3
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
MSE Wall and Falsework Shop and Working Drawings	5	2	1	Not less than 10 Business Days prior to implementation	CR 455.3.2
As-Built Load Rating Report(s)	4	2	1	With the Record Drawing Submittal	CR 455.3.6

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Contract)
2. Good faith discretion approval (Section 3.1.3.2 of the Contract)
3. Reasonableness approval (Section 3.1.4.2 of the Contract)
4. Review and comment (Section 3.1.5 of the Contract)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Contract)

End of Section

CR 457 BRIDGE HYDRAULICS

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End of Section

CR 460 TRAFFIC

460.1 GENERAL REQUIREMENTS

Developer shall perform all traffic Construction Work in compliance with the requirements of this Section CR 460.

460.2 ADMINISTRATIVE REQUIREMENTS

460.2.1 Standards

Developer shall perform all traffic Construction Work in accordance with the relevant requirements of the standards, manuals, and guidelines listed in Table 460-1.

Table 460-1
Standards

No.	Agency	Title
1	FHWA	Manual on Uniform Traffic Control Devices (MUTCD)
2	ADOT	Arizona Supplement to the MUTCD
3	ADOT	Manual of Approved Signs

460.3 CONSTRUCTION REQUIREMENTS

460.3.1 Pavement Marking

Temporary pavement marking must comply with the FHWA *Manual on Uniform Traffic Control Devices (MUTCD)* and the ADOT *Arizona Supplement to the MUTCD*. Developer shall not place temporary or interim pavement markings on the final pavement surface course. Pavement markings must not be placed on the final pavement surface course unless it is the final pavement marking at its final location.

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 coordinate with Grand Canyon State Logo Signs, a program of ADOT, for the engineering of integration and locations of specific service logo signs at each interchange in the ROW and exit ramps. Grand Canyon State Logo Signs is responsible for contracting the fabrication and installation of the specific service logo signs.

460.3.3 Traffic Signal Systems

Developer shall design and implement any temporary traffic signal timing or any phasing required for traffic management during construction. Fifteen Business Days prior to implementing the proposed timing or phasing changes, Developer shall submit Written Request for Traffic Signal Modifications for any proposed timing or phasing changes, including temporary signal head placement, to ADOT for review and comment.

10 Business Days prior to implementing temporary phasing changes, Developer shall submit a Written Request for Temporary Phasing Controller Programing to ADOT for review and

comment. ADOT will program the controller, no greater than 7 Business Days after receipt of the written request, after which Developer may implement the temporary phasing.

Developer shall deliver permanent traffic signal cabinets to ADOT Traffic Operations, 2104 S. 22nd Avenue, Phoenix, AZ 85009, for testing by ADOT 30 Business Days prior to turning on the traffic signal. Upon successful testing, Developer will pick up the cabinet for installation.

460.3.4 Lighting

Developer shall maintain existing lighting levels during construction where existing lighting exists. All luminaires must be individually fused. Developer shall place the in-line fuse of high mast light fixtures that are mounted on lowering devices in the fixture housing. Developer shall place the in-line fuses of all other fixtures in the nearest pull box.

In accordance with the ADOT *Standard Specifications for Road and Bridge Construction* and the ADOT *Stored Specifications,* Developer shall record Global Positioning System (GPS) positions for each pull box and submit the Pull Box GPS Locations 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 Request for Maintenance Unit Device Decals 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 Written Request for Maintenance Unit Device Decals. 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.

Developer shall provide, erect, and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices and shall take all necessary precautions for the protection of the work and safety of the public. Highways closed to traffic must be protected by effective barricades, and obstructions must be illuminated during hours of darkness. Suitable warning lights shall be provided to control and direct traffic properly.

Developer shall erect warning signs in advance of any place on the Project where operations may interfere with the use of the road by traffic, and at all intermediate points where the Work crosses or coincides with an existing road.

All signs, barricades, lights, temporary signals, and other protective devices must conform to the requirements of the Manual of Uniform Traffic Control Devices (MUTCD) and associated Arizona Department of Transportation Supplement (ADOT Supplement).

460.4 SUBMITTALS

Table 460-2 reflects a nonexclusive list of Submittals identified in this Section CR 460 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, all Submittals must be submitted 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 110.10.2.1 of the TPs:

Table 460-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Written Request for Traffic Signal Modifications	4	3	1	15 Business Days prior to implementing the proposed timing or phasing changes	CR 460.3.3
Written Request for Temporary Phasing Controller Programing	4	3	1	10 Business Days prior to implementing temporary phasing	CR 460.3.3
Pull Box GPS Locations	4	3	1	In accordance with the ADOT *Standard Specifications for Road and Bridge Construction* and the ADOT *Stored Specifications*	CR 460.3.4
Written Request for Maintenance Unit Device Decals	5	1	1	As determined by Developer	CR 460.3.4

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

CR 462 MAINTENANCE OF TRAFFIC

462.1 GENERAL REQUIREMENTS

Developer shall perform all maintenance of traffic Construction Work in compliance with the requirements of this Section CR 462.

462.2 ADMINISTRATIVE REQUIREMENTS

462.2.1 Standards

Developer shall perform all maintenance of traffic Construction Work in accordance with the standards, manuals, and guidelines listed in Table 462-1.

Table 462-1
Standards

No.	Agency	Name
1	FHWA	Manual on Uniform Traffic Control Devices (MUTCD)
2	ADOT	Arizona Supplement to the MUTCD

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*, and the Developer's Traffic Control Plans.

Developer shall not close lanes on the mainline, ramps, adjacent freeways, or local roadways, prior to approval of the TMP by ADOT.

462.3.2 Traffic Control Devices

All traffic control devices must comply with the requirements of the NCHRP Report 350*, Recommended Procedures for the Safety Performance Evaluation of Highway Features* or AASHTO *Manual for Assessing Safety Hardware (MASH)*, in accordance with Federal Guidelines, Part VI of the MUTCD and the ADOT *Arizona Supplement to the MUTCD*.

Developer shall inspect and maintain all traffic control devices a minimum of two times a day.

All orange signs must use fluorescent orange sheeting.

462.3.2.1 Signs

Developer shall provide advance signing notifying all users of the proposed closure a minimum of 5 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. Advance signing notification must be provided as noted in Table 462-2.

Table 462-2 Advance Signing Notification	
Event	**Advance Notification**
Major weekend restrictions	5 Business Days
Construction phase changes	5 Business Days
Lane restrictions or closures of ramps and crossroads	5 Business Days
Lane restrictions with detour implications or if traffic delays are expected	5 Business Days

The text for all temporary guide signs must be at least 10-inches in height.

Developer shall cover all signs that are in conflict during construction.

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 the following:

A. Fixed objects within the clear zone;
B. Drop-offs greater than 2 inches that are not in accordance with the traffic control treatment of longitudinal joint and edge drop-off guidelines;
C. Slopes steeper than 4:1 (H:V);
D. Separate opposing travel lanes; and
E. Separate work zones.

Developer shall install glare screens when barriers are less than 42 inches in height.

462.3.3 Staging Areas

Developer shall secure all proposed staging areas, including obtaining and performing all applicable environmental and ROW Work in accordance with the Contract Documents.

462.3.4 Arizona Department of Public Safety

Developer may request DPS officers to be on-site for freeway Lane Closures. Developer shall submit a request for DPS services directly with 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 this Section CR 466.

466.2 ADMINISTRATIVE REQUIREMENTS

466.2.1 Standards

Developer shall construct the ITS in accordance with the standards, manuals, and guidelines listed in Table 466-1.

Table 466-1
Standards

No.	Agency	Name
1	ADOT	ITS Standard Drawings

466.2.2 ITS Preactivity Meetings

Developer shall conduct ITS preactivity meetings in accordance with Section 738.7 of the ADOT *Draft Intelligent Transportation Systems Specifications for South Mountain Freeway* included in the RIDs.

466.3 CONSTRUCTION REQUIREMENTS

466.3.1 General

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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 Skyline VMSLED-W-3-18F-27x125-I.

466.3.2.3 Closed Circuit Television Cameras

CCTV cameras must be one of the following models:

A. Cohu 3960 HD 720-30x HD35-7000,
B. WTI Sidewinder SW720-H.264-HD30,
C. Bosch MIC-7130-PW4, or
D. Approved equal.

466.3.2.4 Count Stations

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466.3.2.5 Ramp Meters

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466.3.2.6 Node Buildings

A minimum of 5 Business Days prior to any planned Work within an existing node building, Developer shall submit a Written Request to Access Existing ADOT Node Buildings to ADOT for approval in ADOT's reasonable discretion.

466.3.2.7 Weigh-In-Motion Systems

Developer shall construct weigh-in-motion system in accordance with ADOT Standard Drawings T.S. 6-3, T.S. 6-4, and T.S. 6-7.

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 manufacturer's requirements and the testing requirements identified in the ADOT *Draft Intelligent Transportation Systems Specifications for South Mountain Freeway* included in the RIDs. Developer shall prepare ITS Testing Documentation that includes all test results as identified in this Section CR 466.3.3. Prior to issuance of Final Acceptance, Developer shall submit all ITS Testing Documentation to ADOT for approval in ADOT's reasonable discretion.

466.3.5 Certificates

Developer shall prepare and obtain ITS Certifications as required by the ADOT *Draft Intelligent Transportation Systems Specifications for South Mountain Freeway* included in the RIDs. 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 the Section 747 of the ADOT *Draft Intelligent Transportation Systems Specifications for South Mountain Freeway* included in the RIDs and Section GP 110.10.2.3.4 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 being taught. Training materials must not be copyrighted. 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 10 Business Days from addressing ADOT comments on the ITS Training Material.

466.4 SUBMITTALS

Table 466-2 reflects a nonexclusive list of Submittals identified in this Section CR 466 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs.

Table 466-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Written Request to Access Existing ADOT Node Buildings	3	2	1	A minimum of 5 Business Days prior to any planned Work within an existing node building	CR 466.3.2.6
ITS Testing Documentation	3	2	1	Prior to Final Acceptance	CR 466.3.3
ITS Certifications	5	1	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 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

CR 470 RIGHT-OF-WAY

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End of Section

SECTION D
MAINTENANCE REQUIREMENTS (MR)

TABLE OF CONTENTS

MR 200 REFERENCES

200.1.1 Applicable Standards

Refer to Sections GP 110.01.2.1 of the TPs and MR 200.2 of the TPs.

200.2 MODIFICATION TO STANDARDS FOR CERTAIN MAINTENANCE WORK

A. For Maintenance Services Work, not designated Capital Asset Replacement Work, Developer shall replace materials, equipment, and facilities to the original design using standards required at time of original construction in accordance with the General (Section A), Design (Section B), and Construction (Section C), requirements of the TPs. If a part or materials called for by these requirements is commercially unavailable, Developer shall propose Maintenance Services Work be performed to a new standard acceptable to ADOT. To obtain acceptance by ADOT for new standards proposed, Developer shall follow the requirements set forth in Section GP 110.01.1.1 of the TPs.

B. For Capital Asset Replacement Work, Developer shall use then-current ADOT standard specifications, standard drawings, and ADOT engineering directives, including all currently approved statewide and regional modifications to control and specify the Capital Asset Replacement Work; or alternatively Developer shall propose a new standard acceptable to ADOT. To obtain acceptance by ADOT for new standards proposed, Developer shall follow the requirements set forth in Section GP 110.01.1.1 of the TPs.

C. Devices and systems used to control traffic for temporary traffic control must be in accordance with then-current ADOT standard specifications, standard drawings, and ADOT engineering directives, including all currently approved statewide and regional modifications.

200.3 TECHNICAL PROVISIONS

All maintenance design and construction during the maintenance period must comply with the requirements and specifications for design and construction set forth in the RFP Technical Provisions:

A. Section A General Requirements of the TPs
B. Section B Design Requirements of the TPs
C. Section C Construction Requirements of the TPs

which describe requirements that must be met in executing the Maintenance Services Work.

MR 201 COOPERATION WITH ADOT

Developer shall reasonably accommodate ADOT activities in Maintenance Services Limits and in the Project area, including:

A. ADOT operations activities, such as traffic signals, ITS, Incident and Emergency management, vehicle recovery, patrols, and other operations
B. Traffic control and MOT activities related to ADOT operations
C. ADOT or third party related transportation facilities and Adjacent Work in the Project area as set forth in the Agreement
D. Third party infrastructure improvements and maintenance such as encroachment permits and Utility Adjustment Work. Work by third parties will be coordinated through ADOT

E. ADOT requests for Developer to review plans and/or construction documents produced by ADOT or by others, describing improvements to be constructed by others in the Project area that may affect the Project.

ADOT may request Extra Work from Developer such as additional signage, capacity improvements, safety improvements, or other Work, all in accordance with Article 15 of the Agreement.

ADOT may conduct document audits, document reviews, Inspections or Surveillance of the Project, in addition to specific instances enumerated in this Section D. Developer shall accommodate any such requests, including requests to uncover Work, in accordance with terms of the Agreement.

End of Section

MR 400 MAINTENANCE SERVICES WORK

400.1 GENERAL REQUIREMENTS

Throughout the Maintenance Period, Developer shall be responsible for and shall carry out Maintenance Services Work for the Elements identified in TP Attachment 500-1 Maintenance Table within the Maintenance Service Limits.

For Elements in the Developer's design not addressed in TP Attachment 500-1, Developer shall propose additions to the Asset Condition Score Table for ADOT's approval. The proposed additions to the Asset Condition Score Table must set forth the proposed Inspection intervals, condition requirements, temporary and permanent cure times, and condition target for the subject Elements.

The Maintenance Service Limits that correspond to the Schematic Design are shown in the Schematic Design Map in the RIDs. The Maintenance Service Limits does not include areas that third parties agree to maintain as stated in the third party agreements. The Maintenance Service Limits for the Maintenance Period must be as shown on the Final Design Documents as described in Section GP 110.10 of the TPs; and as updated during the Maintenance Period.

Developer shall establish and maintain an organization that effectively manages all Maintenance Services Work in a manner set forth in the approved Maintenance Management Plan (MMP) and the requirements of the TPs. Developer shall:

A. Establish a maintenance organization, including management, coordination, reporting, Inspection, Surveillance, design, construction, documentation, quality, traffic management, maintenance and repairs functions.
B. Prepare and update the MMP, including supplementary plans as required in Section MR 400.2.1 of the TPs as elements of the Project Management Plan as set forth in Section GP 110.04 of the TPs.
C. Provide an annual report on all Maintenance Services Work that is compatible with ADOT maintenance management systems.
D. Participate in annual review of Maintenance Services Work jointly with ADOT.
E. As part of the Handback Requirements, Developer shall submit a Handback condition report and Handback transition plan to ADOT for approval in ADOT's good faith discretion.
F. Deliver the Project at the end of the Maintenance Period in the condition required by the Contract Documents.
G. Provide evidence of insurance coverage and bonds for Maintenance Services Work in accordance with Section 10.4 of the Agreement.
H. Provide and maintain a secure web–accessible database of Elements, Maintenance Services Work, asset condition, and other pertinent information.
I. Conduct periodic Inspections and Surveillance of Project and Elements within the Project as set forth in Section MR 400.3 of the TPs and in Attachment 500-1 of the TPs.
J. Respond to Notifications from ADOT and other entities regarding Project deficiencies.
K. Make Emergency repairs, temporary repairs, and permanent repairs to the Project in accordance with Contract Documents.
L. Perform Capital Asset Replacement Work.
M. Minimize the risk of damage, disturbance, or destruction of third-party property during the performance of Maintenance Services Work.
N. Coordinate with and permit ADOT and others with statutory duties or functions in relation to the Project to perform such duties and functions.

O. Perform routine and preventative maintenance, systematic Inspections, and Surveillance of the Project.
P. Perform Maintenance Services Work in accordance with the provisions of MMP and the Contract Documents.
Q. Perform periodic sweeping and litter removal.
R. Provide location information to others in the Project regarding subsurface Elements through the "Arizona 811" utility locates program.
S. Maintain a current record drawing set accurately describing the Project in accordance with Section GP 110 of the TPs.
T. Participate in joint Inspections/Surveillance with ADOT or other jurisdictions' personnel as reasonably required by ADOT.
U. Provide qualified field and supervisory personnel to perform the Inspections, specialty Inspections, Maintenance Services Work, Capital Asset Replacement Work, and all required related activities.
V. Promptly investigate reports or complaints received from all sources.

In carrying out the Maintenance Services 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 must be in accordance with the Contract Documents.

400.2 ADMINISTRATIVE REQUIREMENTS

400.2.1 Maintenance Management Plan

The MMP comprises an update to the PMP referenced in Section GP 110.04 of the TPs that addresses the Maintenance Services Work activities during the Maintenance Period.

400.2.1.1 Maintenance Management Plan Content

The MMP must address the following:

A. Organization of maintenance establishment;
B. Coordination responsibilities and lines of communications;
C. Coordination with others and response to Notifications;
D. Establishment of Maintenance Information System;
E. Required certifications, training, and expertise for different classifications of Work;
F. Qualifications and availability of personnel;
G. Staffing plan;
H. Dedicated Maintenance Services Work staff, qualifications, requirements, hiring, personnel policies, adjustments to staff, and adequacy in meeting requirements of Maintenance Services Work, including response times and nature of the Maintenance Services Work;
I. Dedicated Maintenance Services Work equipment fleet, adjustments to fleet mix, and adequacy in meeting requirements of Maintenance Services Work, including response times and nature of the Maintenance Services Work;
J. Safety during maintenance activities; address safety of workers and the public in a Maintenance Safety Management Plan (MSMP);
K. Asset Condition Score reporting;
L. Maintenance Quality Management Plan (MQMP);
M. Transportation Management Plan (TMP), and process for preparing and submitting associated Traffic Control Plans (TCPs) in accordance with Section 8.4 of the Agreement;
N. Environmental Management Plan (EMP);

O. Stormwater management (may be within the EMP);
P. Remediation of Nonconforming Work (may be within the MQMP);
Q. Inspections and Surveillance;
R. Design and construction standards for Maintenance Services Work;
S. Routine, preventative, temporary, and permanent Maintenance Services Work;
T. Capital Asset Replacement Work; and
U. Maintenance Services Work during Emergencies as set forth in Section MR 400.4 of the TPs.

The MMP must include supplementary plans as follows:

A. Maintenance Safety Management Plan (MSMP) as referenced in Section MR 400.2.7 of the TPs
B. Maintenance Quality Management Plan (MQMP) as referenced in Section MR 400.2.8 of the TPs
C. Transportation Management Plan (TMP) as referenced in Section MR 400.2.9 of the TPs
D. Environmental Management Plan (EMP) as referenced in Section MR 400.2.10 of the TPs

400.2.1.2 MMP Acceptance and Reviews

No less than 90 days prior to Substantial Completion, Developer shall provide a draft MMP, complete with all required supplementary plans, attachments, and appendices to ADOT for approval in ADOT's good faith discretion. .

ADOT will review and provide comments to the draft MMP within 30 days after receipt. Within 10 days after Developer receives ADOT's comments, Developer and ADOT will convene a review meeting to resolve ADOT's comments.

No less than 30 days after the comment resolution meeting, Developer shall resolve all comments to satisfaction of ADOT and submit the final MMP to ADOT for approval in ADOT's good faith discretion. . Approval of the MMP is a condition of Substantial Completion.

Prior to the annual maintenance meeting as described in Section MR 400.3.4.D of the TPs, Developer shall submit revisions to the MMP, as required and at least annually, to ADOT for approval in ADOT's good faith discretion.

400.2.2 Maintenance Establishment

Developer shall provide a maintenance organization facilities, staff and equipment to manage and provide the Maintenance Services.

400.2.2.1 Maintenance Organization

Organization of the maintenance establishment must address at least the following:

A. Management
B. Administration
C. Document control
D. Reporting
E. Safety
F. Quality
G. Environmental compliance
H. Maintenance of Traffic
I. Inspections and Surveillance
J. Routine and preventative maintenance practices

K. Communications
L. Emergency response
M. Staffing / personnel
N. Equipment
O. Maintenance Services Work Disciplines
    1. Roadway
    2. Drainage
    3. Landscaping
    4. Structures
    5. Lighting and Traffic
    6. Pavements

400.2.2.2 Maintenance Facilities

Developer shall provide support facilities in proximity to the Project. See Section MR 400.2.6 of the TPs for information concerning use of ROW for these facilities.

400.2.2.2.1 Maintenance Office

Developer shall provide office space within a 10-mile distance of the Project to house management and data storage functions. Developer shall provide secure, (off-site) back-up 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.

400.2.2.2.2 Maintenance Yard

Developer shall provide a maintenance yard(s) for equipment, supplies, and materials, staff parking, and other staff facilities within a 10-mile distance of the Project.

400.2.3 Coordination Responsibilities

Developer shall timely receive communications and Notifications from ADOT and third parties reasonably requested by ADOT on deficiencies. Developer shall timely respond to these communications with:

A. Acknowledgement of receipt of communications
B. Planned response
C. Report of progress of response
D. Final quality documentation of any Maintenance Services Work
E. Final disposition and closeout of Emergencies and Incidents to extent that Developer's forces were involved in resolving or rectifying conditions on the Project.

Developer shall provide 24-hour Emergency contact information for responsible in-charge party and alternate(s).

Developer shall coordinate with ADOT and others to develop a reporting system that properly prioritizes and delivers Notifications. Developer shall provide documented "work-flow" protocols for all communications, including routing, timelines, responsibilities, and final disposition of Incident.

400.2.4 Maintenance Information System

Developer shall develop a web accessible electronic database addressing the Maintenance Services Work documentation and reporting requirements. The MIS is supplementary to and must be compatible with the Electronic Document Management System (EDMS) described in Section GP 110.04.2 of the TPs. Developer shall coordinate with ADOT on information

technology requirements in developing the MIS architecture including ADOTs maintenance management and inventory systems. Currently available reference information on ADOTs maintenance management structure designated the “feature inventory system.” is provided for information in the RIDs. Developer is cautioned that the architecture, reporting categories and technical systems requirements of ADOTs maintenance management system may change from time to time. Developer shall be required to accommodate any such reasonable changes. The MIS must be compatible with the ADOT maintenance management system at the database level by periodic batch or data transfer.

Developer shall log all incidents and Maintenance Services Work in a secure web-accessible searchable database that is coordinated with the maintenance requirements in TP Attachment 500-1, the Auditable Sections, inventory Elements, required and achieved response times, Noncompliance Points reporting requirements, and other pertinent characteristics.

Developer shall maintain a user log of the MIS. Developer shall manage access to the MIS database to allow ADOT personnel, and other third parties that ADOT may reasonably request, to access the database in real-time.

Developer shall provide a link and web interface through ADOT’s website for public input to address Project conditions; and Developer shall also publically post Project status information.

Developer shall provide documentation of the MIS in work breakdown system (WBS), along with flow charts of the work-flows for the Notifications, work orders, and other required processes.

Developer shall update the MIS documentation as required, and at least annually, to maintain a current documentation of the MIS. It is the intent that the architecture of the MIS remains relatively stable through the term. However, from time to time if warranted for clarity in reporting or management, Developer may propose changes to MIS architecture for approval in ADOT’s reasonable discretion. Changes to MIS architecture must also change the MMP (which is a controlled document) and, therefore, must be approved by ADOT.

400.2.4.1 Timeliness for MIS reporting

MIS source documents will be placed in MIS within 5 days of origin and must be finally QC’d within 10 days of origin of data. Reporting timelines for other documents in the MIS, in accordance with the approved MMP must also be met.

400.2.5 Qualifications and Availability of Personnel

A. Maintenance Manager is a designated Key Person; Developer’s management approach, Maintenance Manager’s time on-site and method of communication with ADOT, with the deputy maintenance manager(s), and with the rest of the maintenance organization must be set forth in the MMP.
B. Deputy Maintenance Manager must report directly to the Maintenance Manager and must be assigned full time to the Project. This person must not have any other responsibilities on the Project. The Deputy Maintenance Manager or designee must be available on call within 1 hour of Emergency Notifications.
C. Bridge Inspectors must meet the qualifications stated in *29 CFR Part 650.309 National Bridge Inspection Standards* for types of bridges and Inspections that they perform.
D. Maintenance workers working on traffic, lighting, ITS, and other electrical systems must have the relevant International Municipal Signal Association and/or American Traffic Safety Services Association certifications.
E. Specialty Inspectors – Elements may require Specialty Inspectors or specially qualified inspectors not listed in the MR documents. Developer shall follow current FHWA and

ADOT guidance, and Best Industry Practice in furnishing specialty or specially qualified inspectors for such Elements.

F. The above list of qualifications is not exhaustive. All workers must be properly qualified for the duties they are performing and must be adequately supervised. The MMP must set forth the required certifications and training for the various classifications of work as required for the Maintenance Period.

400.2.6 Use of ROW

Developer may occupy Project ROW and other ROW in the Project area controlled by ADOT using a duly authorized TCP and/or ROW permit as reasonably needed to perform Maintenance Services Work.

Use of ROW during Emergencies will be as authorized by ADOT personnel.

Portions of ROW in the Project area may be made available to Developer to establish an equipment storage yard, laydown area, maintenance shop, and/or office facilities. Any such use will be governed by Section GP 110.05.5 of the TPs.

400.2.7 Safety Management

Developer shall conduct all Maintenance Services Work in a safe manner. Developer shall assign a Maintenance Safety Officer to the Project for the Maintenance Period. The Maintenance Safety Officer must develop and administer the MSMP.

Developer shall prepare a MSMP that specifically addresses safety for Maintenance Services Work. The MSMP must be a supplement to the SMP described in Section GP 110.09 of the TPs; and must adopt all of the requirements of the SMP. It must address at least the following topics as they relate to the Maintenance Services Work:

A. Safety of the travelling public; vehicular, bicycle, and pedestrian
B. Railroad safety
C. Safety during Inspections and Surveillance
D. Safety during routine and preventative Maintenance Services Work
E. Safety of Maintenance Services Work performed during Emergencies
F. Safety during Capital Asset Replacement Work

400.2.8 Quality Management

Developer shall perform Maintenance Services Work under the authority of a Maintenance Quality Management Plan (MQMP). The MQMP must be a supplement to the Quality Management Plan (QMP) described in Section GP 110.07 of the TPs; and must adopt all of the requirements of the QMP. It must address at least the following topics as they relate to the Maintenance Services Work:

A. Administration and document control
B. Inspections and Surveillance
C. Routine and preventative Maintenance Services Work
D. Maintenance Services Work performed during Emergencies
E. Capital Asset Replacement Work

400.2.9 Transportation Management

Developer shall perform Maintenance Services Work that affects the travelling public under the authority of the TMP. The TMP must be as described in Section DR 462.2.3 of the TPs. It must address at least the following topics as they relate to the Maintenance Services Work:

A. Inspections and Surveillance

B. Routine and preventative Maintenance Services Work
C. Maintenance Services Work performed during Emergencies
D. Capital Asset Replacement Work

Developer shall follow the requirements of Section DR 462 of the TPs, and the then-current ADOT standard specifications, standard drawings, and ADOT engineering directives, including all currently approved statewide and regional modifications to standards. Developer shall provide separate current TCPs for each activity that requires temporary traffic control. Developer shall use the then-current ADOT practice in filing TCPs and notifying the Highway Condition and Reporting System.

400.2.10 Environmental Management

Developer shall summarize remaining environmental commitments delegated to Developer that require continued action by Developer in an Environmental Management Plan (EMP) update for the Maintenance Period. The EMP must set forth the responsibilities and activities that remain Developer's responsibility during the Maintenance Period.

The EMP must address environmental management and compliance related to

A. Routine preventative and emergency Maintenance Services Work;
B. Capital Asset Replacement Work;
C. Stormwater compliance efforts as they relate to Maintenance Services Work, further detailed in Section MR 400.2.10.1 of the TPs below;
D. Protection of cultural resources in the Project area as they relate to Maintenance Services Work; and
E. Emissions or other limitations placed on equipment used for Maintenance Services Work such as limitations on emission's for mechanical sweeper trucks.

400.2.10.1 Stormwater Reporting

Developer shall create a separate section within the MIS and shall report on stormwater Elements and report annually to ADOT. The calendar year for stormwater reporting must be the 12 calendar months starting July 1 each year, and the annual stormwater report, covering the previous year's activities is due by August 31 each year. The following Elements and activities must be addressed:

A. how many miles of ditch and canals are cleaned
B. how much sediment removed
C. how much trash collected
D. how many outfalls are Inspected
E. how any illicit discharges are detected, classified, eliminated
F. how many post-construction best management practices (BMP) Elements are Inspected

A list of BMP Elements for reporting follows:

A. Inspect outfalls for dry weather discharges
B. Investigate illicit discharges
C. Number of storm drain cross connections investigated
D. Number of illicit discharges investigated
E. Respond to Complaints
F. Number of complaints received
G. Number of complaints responded to
H. Average response time (in days)

I. Take Action to Eliminate Existing Dry Weather Flows
J. Number of existing dry weather discharges eliminated
K. Take Action to Eliminate Sources of Illicit Discharges
L. Number of storm drain cross connection eliminated
M. Number of illicit discharges eliminated
N. Number of dry weather discharges eliminated
O. Coordinate with Local Jurisdictions for Complaint Response and Investigation
P. Number of illicit discharges reported to other jurisdictions for follow-up
Q. Number of highway accident spills responded to
R. Number of highway accident spills prioritized (potential for discharge)
S. Install Post-Construction Stormwater Control BMPs
T. Number of new post-construction stormwater control BMPs installed
U. Inspect Storm Sewer System
V. Number of Inspections performed
W. Develop Maintenance Schedules and Priorities
X. Perform Repair, Maintenance, and Cleaning
Y. Number of miles of roadways repaired/maintained
Z. Number of inlets cleaned
AA. Number of drain inlets containing significant materials
BB. Require Certification/License
CC. Number of licensed pesticide applicators
DD. Stabilize roadway slopes
EE. Acres of roadway slopes stabilized

400.2.11 Underground Facilities

Developer shall timely provide information to ADOT and third parties on horizontal and vertical location of subsurface Elements as requested. Developer shall become member of the locates organization administered by the Arizona Corporations Commission designated the "Arizona 811" program and shall respond to call-outs for information through this system during the Maintenance Period.

400.2.12 Intelligent Transportation Systems

Developer's Maintenance Services do not include the obligation to maintain or repair the ITS, except that Developer shall be responsible to repair or replace damage from an Incident or other event to conduit (but not fiber) located in or on any structure within the Maintenance Service Limits. Developer shall have no obligation to pay for electric utility consumption by the ITS.

400.3 INSPECTIONS, SURVEILLANCE, ROUTINE PREVENTATIVE MAINTENANCE AND CAPITAL ASSET REPLACEMENT WORK

400.3.1 Auditable Sections

For purpose of conducting preventative maintenance, Inspections and reporting, Developer shall divide the Project into Auditable Sections. The Auditable Sections must comprise discrete measurable separate Project segments such as:

A. A mainline roadway segment no longer than 1 mile long; e.g., Mainline Westbound MP 2.0 – 3.0
B. A bridge or major structure
C. An exit or entrance ramp to mainline

D. A minor linear Element that is not mainline or ramp such as fence, conduit or conductor system, or sound wall between interchanges (can be more than 1 mile)
E. An intersection

Developer shall prepare a map or exhibit of the proposed Auditable Sections with a corresponding WBS and a table indicating the inventory of Elements within each auditable section. As a part of the MMP, Developer shall submit the Auditable Sections exhibit and WBS to ADOT for approval in ADOT's reasonable discretion.

Together the Auditable Sections must comprise the entirety of the Project with no overlap of inventory between Auditable Sections. It is the intent that the Auditable Sections remain relatively stable through the term. However, Developer may propose changes from time to time if warranted for clarity in reporting or management. Changes to Auditable Sections must also change the MMP (which is a controlled document) and, therefore is subject to approval by ADOT.

400.3.2 Inspections and Surveillance

400.3.2.1 Surveillance

Developer shall ensure that Surveillance of the entire project occurs monthly and is carried out with adequate personnel to note deficiencies that are visually apparent. Developer shall develop a checklist for this surveillance activity and include it in the MMP.

Project Elements subject to surveillance include:

A. Pavement breaches/gaps/potholes
B. Pavement cracks
C. Pavement markings
D. Expansion joints
E. Deck joints
F. Ponding/flooding
G. Erosion/slope stability
H. Fence condition
I. Sound wall condition
J. Lighting
K. Sign condition
L. Landscaping
M. Debris
N. Litter
O. Graffiti
P. Traffic signal function
Q. Barrier condition, including end treatments
R. Attenuator condition

400.3.2.2 Inspections

Developer shall carry out Inspections as indicated in this Section MR 400.3.2 and as set forth in TP Attachment 500-1. For each Inspection an entry must be made into the MIS concerning the Inspection and the results and actions resulting from that Inspection.

A. Deficiencies noted from Surveillance must be the subject of an Inspection.

B. For Elements that require an annual Inspection, Developer shall develop a protocol that randomly selects 10 percent of the Auditable Sections each month and shall Inspect all of the Elements within those Auditable Sections for that month.

C. For Elements that require Inspection every other year, Developer shall develop a protocol that randomly selects 5 percent of the Auditable Sections each month and shall Inspect the Elements within those Auditable Sections for that month.

D. The pavement condition for the entire mainline lanes, ramps, and intersections are not subject to any modifications to Inspection frequency, but must be Inspected every other year for ride quality and pavement condition. In addition, Developer shall conduct Inspections and repairs of the pavement when the Capital Asset Replacement Work is being performed.

E. Developer shall conduct overhead sign Inspections such that 20 percent of overhead signs are Inspected annually. This must include visual Inspection for structural integrity, lighting (if present) and legibility, and measured reflectivity readings.

F. Six months prior to the interim asset condition scoring and Handback condition scoring as set forth in Sections MR 400.6.3 and MR 400.6.4 of the TPs, Developer shall provide specialty Inspection of the following Elements:
   A. Bridge expansion joints
   B. Steel structure coating systems

   The Inspections must be carried out in a manner and at a level of detail such that the remaining useful life of these Elements is determined. Included in the planned annual activities section of the annual maintenance services report in accordance with Section MR 400.3.4.B of the TPs, Developer shall submit a Specialty Inspection plan for the required Elements, including qualifications of Specialty Inspectors, proposed testing and diagnostics protocols, as well as proposed reporting, to ADOT for approval in ADOT's reasonable discretion.

G. In addition to the above Inspection frequency requirements, when notified of a deficiency by ADOT or by a third party, or if a deficiency is discovered in Surveillance activity, Developer shall Inspect the Element in question, and shall report to ADOT the results of the Inspection. If the nature of the deficiency is routine, Developer may report via the normally scheduled Inspection and reporting. If the nature of the deficiency is non-routine, Developer shall report in accordance with the provisions of Section MR 400.3.5 of the TPs.

400.3.3 Inspections by ADOT

ADOT and third parties may make Inspections of the Project or Elements. ADOT will make reasonable efforts to communicate and coordinate with Developer concerning ADOT and third party Inspections.

ADOT will perform the FHWA required bridge Inspections and will share the bridge Inspection reports with Developer. ADOT Inspections of bridges will discharge the regulatory requirements for bridge Inspections; however, Developer shall still be responsible for undertaking bridge Surveillance and periodic visual Inspections.

400.3.4 Reporting

A. Monthly Maintenance Services Report – On or before the 15th of each month during the Maintenance Period, Developer shall submit a monthly report of previous month's Maintenance Services Work to ADOT. Developer shall address format and outline for this report and method of making this report available in the MMP. The preferred form of transmission of this report is through the MIS.

B. Annual Maintenance Services Report – On or before the 30th of January each year during the Maintenance Period, Developer shall submit an annual report of previous year's Maintenance Services Work to ADOT for approval in ADOT's reasonable discretion. The format and outline for this report, and method of making this report available, must be addressed in the MMP. The annual report must include an electronic tabular summary of all Maintenance Services Work carried out in the previous year that is formatted to conform to requirements of ADOT's then-current maintenance management system. The report must address planned activities for the forthcoming year. A section of the annual report must address stormwater reporting in accordance with Section MR 400.2.10.1 of the TPs.

C. Annual maintenance services meeting – Developer shall participate in an annual maintenance services meeting with ADOT to be mutually scheduled in the 1st quarter of every year during the Maintenance Period. Developer shall provide an agenda for this meeting. The meeting must address at least the following: results, safety, MOT/TCP issues, management, Emergency for which Maintenance Services Work was required, process improvement, Capital Asset Replacement Work, changes to the MMP, and planned activities for the forthcoming year. Developer shall revise the planned activities as agreed in the annual meeting if necessary, and within 15 days of the annual meeting, Developer shall present revised annual planned activities to ADOT for approval in ADOT's reasonable discretion.

D. MMP and Supplementary Plans Updates – Developer shall update the MMP, MSMP, MIS, MQMP, TMP, and EMP at least annually and as required during the life of the Maintenance Period. These documents are all controlled documents that require ADOT approval for changes. At least 30 days prior to the annual maintenance meeting, Developer shall submit proposed changes to ADOT for approval in ADOT's good faith discretion. Within 15 days after the annual meeting, Developer shall submit final revised documents in accordance with changes agreed at the annual meeting to ADOT for approval in ADOT's good faith discretion.

400.3.5 Routine Preventative Maintenance

Routine preventative maintenance consists of periodic system checks, minor refurbishments, cleaning, and repairs that prevents unexpected downtime and improves reliability of Elements. Developer shall prepare checklists for appropriate Elements and undertake routine preventative maintenance in accordance with schedule set forth in the MMP.

Developer shall perform routine preventative maintenance on all Elements that benefit from routine preventative maintenance. The routine preventative maintenance must address at least the Elements shown in TP Attachment 500-1.

400.3.6 Capital Asset Replacement Work

This Section addresses Capital Asset Replacement Work other than in connection with satisfying the Handback Requirements. For Capital Asset Replacement Work in connection with satisfying the Handback Requirements, refer to Section MR 501 of the TPs.

Developer shall plan and execute needed Capital Asset Replacement Work in accordance with this Section and Section 8.3 of the Agreement. The following Elements are subject to Capital Asset Replacement Work requirements:

A. Roadway Pavement
B. Signage

400.3.6.1 Capital Asset Replacement Work Trigger

400.3.6.1.1 Roadway Pavement

When either of the following occurs with respect to roadway pavement, Developer shall initiate and complete Capital Asset Replacement Work.

A. Pavement Ride: Auditable Sections representing 35% or more of area of roadway of the Project, exhibit an pavement ride condition score of D or worse in accordance with TP Attachment 500-1 reference line 2.1 and Table 400-2.
B. Other Pavement Distress Factors: Auditable Sections representing 35% or more of area of roadway of the Project, exhibit an pavement distress condition score of D or worse in accordance with TP Attachment 500-1 reference line 3.1 and Table 400-1.

400.3.6.1.2 Signage

When the following occurs with respect to signage, Developer shall initiate and complete Capital Asset Replacement Work.

Auditable Sections representing 35% or more of the Project signage, exhibit a signage condition score of D or worse in accordance with TP Attachment 500-1 reference line 4.5 and Table 400-1.

400.3.6.2 Capital Asset Replacement Work Reporting

As part of the annual report required in Section MR 400.3.4.B of the TPs, and in addition to the information to be reported under Section 8.11.3 of the Agreement, Developer shall present a summary of the:

A. Roadway – pavement ride
B. Roadway – other pavement distress factors
C. Signage condition

Aggregate condition shall be expressed as a percentage of the Project totals for each of these Elements.

400.4 EMERGENCIES

When Developer receives Notification or otherwise becomes aware of an Emergency, Developer shall mobilize an Inspection team within 1 hour to provide a preliminary Inspection of the Element in question. Developer shall mobilize needed resources to begin effecting Emergency repairs within 2 hours of Notification. As soon as practicable, but in no case later than 24 hours of the Emergency, Developer shall submit to ADOT a preliminary action plan that includes the temporary repairs necessary to rectify the situation to protect the life safety of the travelling public. Within 30 days after the temporary or permanent repairs have been completed, Developer shall prepare an Emergency response report that describes the particulars of the Emergency, nature of the repairs, need for follow up permanent repairs, and lessons learned from the Emergency.

400.5 CONTROL OF WORK

Developer shall adhere to the following:

A. Conduct Maintenance Services Work in compliance with General Provisions, Construction Provisions, and as applicable with Design Provisions of the TPs; all in accordance with the timelines required in TP Attachment 500-1.
B. If Maintenance Services Work is proposed that requires a modification to standards, conform to the requirements of Section GP 200.1 of the TPs.

C. Report status of Maintenance Services Work in the MIS.
D. Provide Notification of routine or preventative Maintenance Services Work through the MIS system and in accordance with other ADOT practices.
E. For Maintenance Services Work during Emergencies, follow the communication protocols set forth in Section MR 400.3.5 of the TPs and in the MMP.
F. Nonconforming Work requires noncompliance reporting, corrective action, and remedial work protocol as set forth in the MQMP.
G. Final disposition of Maintenance Services Work will require a suitable record entry in the MIS that the work has been successfully completed (including closure of any related Nonconforming Work process).

Record changes to Project on a set of record drawings accurately describing the Project in accordance with Section GP 110 of the TPs at least annually.

400.6 ASSET CONDITION BASELINE AND ASSET CONDITION SCORING

400.6.1 Asset Condition Baseline

Developer shall advance the Maintenance Table into a comprehensive Asset Condition Score Table (ACS Table). The ACS Table must comprise all Elements for all Audible sections, thus creating an inventory of the entire Project. ADOT will review and approve of the ACS Table as part of the MMP reviews. Developer or ADOT may suggest changes to the ACS Table from time to time. Such changes must be documented as modifications to the MMP, and thus are subject to ADOT approval.

ADOT may propose changes in the ACS Table as follows:

A. Changes related to changes in inventory for Auditable Sections
B. Changes in measurement method, or test method
C. Changes in maintenance services practices

Developer shall propose changes if the following occurs:

A. Changes related to changes in inventory for Auditable Sections
B. Changes in measurement method, or test method
C. Changes in maintenance services practices

ADOT and Developer may also mutually agree to other changes that aid effectiveness in discharge of Maintenance Services, Work, or aid in reporting or documentation.

Within 30 days after Final Acceptance of Construction, ADOT will use the accepted Asset Condition Score Table and will Inspect and surveil the Project and create a Baseline Asset Condition Score. Developer shall make the Maintenance Manager and appropriate support staff available to accompany ADOT in the asset condition scoring. This asset condition score must be used as a baseline for Developer's ongoing asset condition scoring.

400.6.2 Annual Asset Condition Scoring

Developer shall score the asset (that is, Developer shall perform asset condition scoring based upon Performance Inspections and Surveillance of the Project) annually prior to the annual maintenance services meeting

400.6.3 Asset Condition Scoring for Interim Asset Recovery

In addition to complying with the annual asset condition scoring requirements, at year 10 and year 20 of the Maintenance Period, Developer shall perform asset condition scoring of all Auditable Sections for purposes of establishing an Interim Asset Recovery Plan. Developer shall derive the Asset Condition Score for each Auditable Section from current Inspections or

Inspections undertaken within the immediately preceding 24 months in accordance with the following: The Asset Condition Score of an Auditable Section that was the subject of a Performance Inspection within 24 months of the Maintenance Period year 10 and year 20 asset condition scoring is acceptable and such Auditable Section does not need to be the subject of an additional Performance Inspection and re-scored if Surveillance indicates that the condition of the Auditable Section has not significantly changed.

400.6.4 Interim Asset Condition Recovery

Developer shall prepare an Interim Asset Condition Recovery Plan, acceptable to ADOT, and shall fully implement all improvements required by the accepted plan within 2 years of the interim asset condition scoring. Within 60 days after interim asset scoring has been completed, Developer shall submit the Asset Condition Recovery Plan to ADOT for approval in ADOT's reasonable discretion.

Developer shall perform Maintenance Services Work and Capital Asset Replacement Work necessary to bring the asset up to the adjusted baseline condition, as indicated in the accepted Asset Condition Recovery Plan within 24 months of the interim asset condition scoring.

Developer shall implement Capital Asset Replacement Work to conform to the recommendations of the accepted interim asset recovery plan.

400.6.5 Exceptions to Interim Asset Condition Recovery

Developer shall not be required to perform Maintenance Services Work with respect to the following:

A. Minor age-related non-structural weathering of concrete structures consisting of minor scaling and/or non-structural hairline cracks classified as shrinkage, mass concrete or temperature related, (as referenced in FHWA publication NHI 03-001).

B. Bridge expansion joints, provided that they are determined to have 20 years of remaining life by Inspection carried out in accordance with Section MR 400.3.2.2.F of the TPs.

C. Steel structures coating systems, provided that steel structures coating systems are determined to have 20 years of remaining life by Inspection carried out in accordance with Section MR 400.3.2.2.F.of the TPs. However, Developer shall include touch-ups and local repairs of steel coating in Interim Asset Recovery Plan and perform these Maintenance Services.

D. Retroreflectivity and legibility of overhead signs, provided that they are within 75 percent of specified requirements for new materials.

E. Retroreflectivity and legibility of other signs, provided that they are within 75 percent of specified requirements for new materials.

F. Landscape plantings provided that 85 percent plant establishment is achieved.

Developer is cautioned that an Element that may be excluded from interim asset scoring recovery because of its remaining useful life or its condition at the time of the interim asset condition scoring may be required to be renewed during the course of the Maintenance Period or at Handback because of its remaining useful life or its condition at that time.

400.6.6 Development of Asset Condition Score and Adjectival Rating System

For purposes of arriving at an Asset Condition Score each Element of each Auditable Section scored must be rated with an adjectival score. The rating must reflect how each Element

compares to the target condition listed in TP Attachment 500-1. The adjectival scoring system must be as shown in Table 400-1.

Table 400-1
Adjectival Rating System

Rating	Numeric score	Condition	Description
A	5	Excellent	Element is fully functional, in new or near new condition and appearance, in correct location, and fully achieves target value.
B	4	Good	Element is functional, in good condition and appearance. Element may be slightly displaced or weathered, but substantially achieves full ride rating or full capacity or condition target.
C	3	Average	Element is fully functional, may have some appearance problems. Element may be slightly displaced or not achieve full ride rating or full capacity, but is significantly above replacement ratings, displacement or capacity target
D	2	Poor	Element is functional, has significant appearance or displacement problems. Element is at or only slightly above replacement values or displacement tolerances, and does not meet target condition
F	0	Unacceptable	Lacking in functionality, capacity, or condition. Does not meet target values for condition. Is below target values for replacement.

400.6.6.1 Pavement Ride Scoring

Developer shall use Table 400-2 for pavement ride (Element 2.1 in TP Attachment 500-1). Developer shall use the adjectival rating Table 400-1 for all other entries. Nothing in these specifications prohibits Developer and ADOT from mutually establishing a rating system for Element or Elements based on a specific Inspection metric to aid in adjectival scoring; such as assigning numeric values for certain conditions.

Table 400-2
Pavement Ride Condition Scoring

Location	Rating				
	A=5	B=4	C=3	D=2	F=0
Mainline lanes	60 or lower	61 - 94	95 - 119	120 - 150	>150
Ramps	60 or lower	61 - 94	95 - 119	120 – 150	>150
Frontage Roads	70 or lower	71 - 104	105 - 144	145 – 170	>170

The IRI scale for pavement smoothness is as follows:

Table 400-3 IRI Scale for Pavement Smoothness	
IRI Scale (inches/mile)	**Description**
< 60	Very Smooth
61 – 120	Smooth
121 – 170	Fair
171 – 220	Rough
> 220	Very Rough

400.6.7 Calculation of ACS

Annually, Developer shall calculate an Asset Condition Score using the most recent values for condition of each Auditable Section for the Project. At years 10, 20, 25, and 29 of the Maintenance Period, the score from each Auditable Section must be derived from Inspections undertaken within the immediately preceding 24 months, as provided in in Sections MR 400.6.2 of the TPs. For Elements where no Inspections have been completed, Developer shall use the Baseline Audit Condition, unless a recent Surveillance indicates need for an Inspection. In which case Developer shall carry out the required Inspection and the more recent results used.

Every Inspection of every Element must result in an adjectival rating for that Element. The adjectival rating must be displayed in the associated Inspection report, and must be duly reported in the monthly maintenance report described in Section MR 400.3.4 of the TPs. ADOT will have the right to dispute an adjectival rating within 30 days from submittal of the monthly report. If ADOT does dispute an adjectival rating of an Element that disputed Element will be jointly inspected by ADOT and Developer.

If ADOT and Developer subsequently agree on an adjectival score in the follow-up joint Inspection, that score must be used for that Element. The monthly report will then be corrected to reflect the agreed adjectival score. A record of corrections will be kept and duly reported month by month.

If ADOT and Developer cannot agree on the condition to be assigned to an Element within 60 days from original reporting of the disputed condition, then dispute resolution procedures in accordance with Section 22.2 of the Agreement must be followed. For purposes of the annual Asset Condition Score, Elements for which the condition is in dispute will be excluded from the Asset Condition Score calculation by reducing total available points for calculation.

The rating of each element in each auditable section must be weighted by multiplying the rating by the weighting factor presented in Table 400-4.

Table 400-4 ACS Weighting Table			
Item	**Description**	**ACS TP Attachment 500-1 reference line**	**Weight**
1	Public appearance factors (Debris, Curb and sidewalk condition, sweeping, litter, graffiti, sound-walls, signals, landscaping)	1.1-1.8	20%
2	Pavement Ride	2.1	35%
3	Other pavement distress factors	3.1-3.2	10%
4	Safety and security (Attenuators, barrier, fences, sign, lighting pavement markings) Structures	4.1 – 4.5	15%
5	Structures	5.1-5.3	10%
6	Ponding, flooding, drainage, slopes	6.1-6.4	10%

The Asset Condition Score is the sum of each Element in each Auditable Section multiplied by the Adjectival rating numeric score multiplied by the appropriate weighting factor in the ACS Weighting Table 400-4.

The total available points for baseline Asset Condition Score is the sum of each Element in each Auditable Section multiplied by five (which is the highest Adjectival rating numeric score) multiplied by the appropriate weighting factor in the ACS Weighting Table 400-4.

Developer shall present the overall condition of the asset (Asset Condition) as a percentage of the adjusted Baseline Asset Condition Score.

In years 10-30 of the Maintenance Period, Developer shall adjust the baseline asset condition score downwards in accordance with the Baseline Asset Condition Score Adjustment Table 400-5 to account for weathering and normal aging of the asset.

Table 400-5 Baseline Asset Condition Score Adjustment	
Maintenance Period Year	**Baseline Asset condition score adjustment factor**
0-9	100%
10-19	96.0%
20-24	92.0%
25-29	88.0%
30	85.0%

For clarity, an example of the Asset Condition Scoring Table, partially filled out is shown in TP Attachment 500-2.

400.6.7.1 Actions resulting from Asset Condition Score

A. If the Asset Condition Score is between 100 percent and 85 percent of the Adjusted Baseline Asset Condition Score, then no Noncompliance Points will be assessed for asset condition.
B. If Asset Condition Score is below 85 percent but not below 60 percent of the Adjusted Baseline Asset Condition Score, then Noncompliance Points will be assessed in accordance with the Agreement
C. If Asset Condition Score is below 60 percent of the Adjusted Baseline Asset Condition Score, then Developer shall, within 90 days, accelerate the Maintenance Services Work to bring the Asset Condition Score to at least 85 percent of the Adjusted Baseline Asset Condition Score, as demonstrated by a new asset condition scoring exercise.

If Developer fails to bring the Asset Condition Score up to at least 85 percent of the Adjusted Baseline Asset Condition Score within 90 Days, ADOT may begin maintenance activities using their own forces or pursue other remedies under terms of the Agreement.

400.6.8 Summary of Asset Condition Scoring during the Maintenance Period

A summary of Asset Condition Scoring requirements is set forth below to summarize the timing number, basis, and purposes for required Asset Condition Scoring activities during the Maintenance Term. Asset Condition Scoring will be carried out using the then-current approved ACS Table in accordance with Section MR 400.6.1 of the TPs; and will be scored in accordance with Section MR 400.6.1 through MR 400.6.7 of the TPs. In addition to the summary presented here, other asset condition scores may be required of Developer in accordance with Section MR 400.6.7.1 of the TPs; or may be generated by ADOT as part of their oversight activities discussed in Section MR 201 of the TPs.

400.6.8.1 Asset Condition Baseline Score

ADOT with cooperation and participation by Developer will, within 30 days of Final Acceptance for Construction, perform a comprehensive Inspection and Surveillance of Project of all Elements for purpose of establishing a Baseline Asset Condition Score. This is further discussed in Section MR 400.6.1 of the TPs.

400.6.8.2 Annual Asset Condition Scores for Years 1-9 of the Maintenance Period

Developer shall, within 30 days prior to Annual Maintenance Meeting for each of years 1-9 of the Maintenance Period, develop an Asset Condition Score for the Project. Developer shall use the previous year's random Inspections and Surveillance as representative of the condition of the Project to develop the asset condition score. The Asset condition score so derived must be compared to the Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities for the upcoming year. This is further discussed in Section MR 400.6.2 of the TPs.

400.6.8.3 Interim Asset Condition Score for Year 10 of the Maintenance Term

Developer shall, within 30 days prior to Annual Maintenance Meeting for year 10 of the Maintenance Period, develop an Asset Condition Score for the Project. Developer shall use the previous year's Inspections and Surveillance, supplemented by additional Inspections and Surveillance to ensure that all Elements have received an Inspection within the last 24 months and that those Inspections are representative of current conditions as established by a Surveillance activity. Results of Inspections must be used to develop the Asset Condition Score.

Specialty Inspections are required for bridge Expansion Joints and for steel coatings to establish remaining useful life for these Elements. The Asset condition score so derived must be compared to the Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities for the upcoming year. This Asset Condition Score must also be used to establish needed Capital Asset Recovery Work to bring the asset up to required Baseline Conditions and remaining useful life. This is further discussed in Section MR 400.6.3 of the TPs.

400.6.8.4 Annual Asset Condition Scores for Years 11-19 of the Maintenance Period

Developer shall, within 30 days prior to Annual Maintenance Meeting for each of years 11-19 of the Maintenance Period, develop an Asset Condition Score for the Project. Developer shall use the previous year's random Inspections and Surveillance as representative of the condition of the Project to develop the asset condition score. The Asset condition score so derived must be compared to the Adjusted Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities for the upcoming year. This is further discussed in Section MR 400.6.2 of the TPs.

400.6.8.5 Interim Asset Condition Score for Year 20 of the Maintenance Term

Developer shall, within 30 days prior to Annual Maintenance Meeting for year 20 of the Maintenance Period, develop an Asset Condition Score for the Project. Developer shall use the previous year's Inspections and Surveillance, supplemented by additional Inspections and Surveillance to ensure that all Elements have received an Inspection within the last 24 months and that those Inspections are representative of current conditions as established by a Surveillance activity. Results of Inspections must be used to develop the Asset Condition Score. Specialty Inspections are required for bridge Expansion Joints and for steel coatings to establish remaining useful life for these Elements. The Asset condition score so derived must be compared to the Adjusted Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities for the upcoming year. This Asset Condition Score must also be used to establish needed Capital Asset Recovery Work to bring the asset up to required Baseline Conditions and remaining useful life. This is further discussed in Section MR 400.6.3 of the TPs.

400.6.8.6 Annual Asset Condition Scores for Years 21-24 of the Maintenance Period

Developer shall, within 30 days prior to Annual Maintenance Meeting for each of years 21-24 of the Maintenance Period, develop an Asset Condition Score for the Project. Developer shall use the previous year's random Inspections and Surveillance as representative of the condition of the Project to develop the asset condition score. The Asset condition score so derived must be compared to the Adjusted Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities for the upcoming year. This is further discussed in Section MR 400.6.2 of the TPs.

400.6.8.7 Asset Condition Score for Handback Recovery

ADOT with cooperation and participation by Developer will, within 30 days prior to Annual Maintenance Meeting for year 25 of the Maintenance Period, perform a comprehensive Inspection and Surveillance of the Project including all Elements for purpose of establishing an Asset Condition Score for Handback recovery. Specialty Inspections are required for bridge Expansion Joints and for steel coatings to establish remaining useful life for these Elements. The Asset Condition Score so derived must be compared to the Adjusted Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities for the upcoming year. This Asset Condition Score will also be

used to establish needed Capital Asset Recovery Work to bring the asset up to required Adjusted Baseline Conditions and remaining useful life for Handback. This is further discussed in Section MR 501.2.1of the TPs.

400.6.8.8 Annual Asset Condition Scores for Years 26-29 of the Maintenance Period

Developer shall, within 30 days prior to Annual Maintenance Meeting for each of years 26-29 of the Maintenance Period, develop an Asset Condition Score for the Project. Developer shall use the previous year's random Inspections and Surveillance as representative of the condition of the Project to develop the asset condition score. The Asset condition score so derived must be compared to the Adjusted Baseline Asset Condition Score for purposes of assessing Noncompliance Points and in establishing the proposed maintenance activities, and Handback recovery activities for the upcoming year. This is further discussed in Section MR 400.6.2 of the TPs.

400.6.8.9 Asset Condition Score for Final Punchlist

ADOT with cooperation and participation by Developer will, approximately 6 months prior to the end of the Maintenance Period, perform a comprehensive Inspection and Surveillance of the Project including all Elements for purpose of establishing an Asset Condition Score for Final Punchlist. Developer shall submit an engineering report that documents remaining useful life in accordance with Section MR 501.1 of the TPs to ADOT for approval in ADOT's good faith discretion. The Asset condition score so derived must be compared to the Adjusted Baseline Asset Condition Score for purposes of assessing Noncompliance Points, ensuring that asset condition at Handback is at or above adjusted baseline asset condition, and in order to establish a punchlist of deficiencies that must be rectified as a condition of Final Acceptance for the end of the Maintenance Period. This is further discussed in Section MR 501.2.2 of the TPs.

400.7 SUBMITTALS

Table 400-6 reflects a nonexclusive list of Submittals identified in this Section MR 400 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, all Submittals must be submitted 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 110.10.2.1.1 of the TPs:

Table 400-6
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Draft MMP	2	2	1	90 days prior to Substantial Completion	MR 400.2.1
Final Approved MMP	2	2	1	Before Substantial Completion	MR 400.2.1
MSMP	2	2	1	With MMP Submittals	MR 400.2.7
MQMP	2	2	1	With MMP Submittals	MR 400.2.8

Table 400-6 Nonexclusive Submittals List					
Submittals	**Level of Review***	**Number of Copies**		**Submittal Schedule**	**Section Reference**
		Hardcopies	**Electronic**		
TMP	2	0	Thru MIS	With MMP Submittals and for each incidence where temporary traffic control measures are required.	MR 400.2.9
EMP	2	2	1	With MMP Submittals	MR 400.2.10
Auditable Sections Table	3	2	1	With MMP Submittals	MR 400.3.1
MIS architecture	3	2	1	With MMP Submittals	MR 400.3.4
Proposed Updates to MMP	As indicated for sections above	2	1	Annually by 30th of January maintenance meeting	MR 400.2
Final approved update to MMP	As indicated for sections above	2	1	Within 15 days of Annual maintenance meeting	MR 400.2
Monthly maintenance services report of previous month's maintenance activities	5	0	Thru MIS	By 15th of each month	MR 400.2
Annual maintenance services report of previous years maintenance activities	3	2	1	Annually 30 days prior to annual maintenance meeting	MR 400.2
Planned Maintenance Activities	3	2	1	Annually 30 days prior to annual maintenance meeting	MR 400.2
Emergency Incident Reports	5	0	Thru MIS	Within 30 days of incident	MR 400.3.5
Inspection plan and results of remaining useful life for Bridge expansion Joints and steel coatings for interim asset condition score for year 10	3	2	Thru MIS	6 months prior to year 10 Interim Asset Scoring	MR 400.3.2.2.f.
Interim Asset Condition Score for Year 10	3	0	Thru MIS	Year 10 of the Maintenance Term	MR 400.6.3

Table 400-6
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Year 10 Asset Recovery Plan	3	2	1	Within 60 days of 10 year interim asset recovery scoring	MR 400.6.3
Inspection plan and results of remaining useful life for Bridge expansion Joints and steel coatings for interim asset condition score for year 20	3	2	Thru MIS	6 months prior to year 20 Interim Asset Scoring	MR 400.3.2.2.f.
Interim Asset Condition Score for Year 20	3	0	Thru MIS	Year 20 of the Maintenance Term	MR 400.6.3
Year 20 Asset Recovery Plan	3	2	1	Within 60 days of 20 year interim asset recovery scoring	MR 400.6.3

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section

MR 500 NONCOMPLIANCE EVENT REPORTING

500.1 GENERAL REQUIREMENTS

Developer shall perform all Noncompliance Event Reporting in compliance with Section 17.2.1 of the Agreement.

End of Section

MR 501 HANDBACK

501.1 GENERAL REQUIREMENTS

Developer shall perform all Handback Work in compliance with the requirements of this Section MR 501.

501.2 ADMINISTRATIVE REQUIREMENTS

501.2.1 Asset Condition Score for Handback Recovery

At year 25 of the Maintenance Term, ADOT will use the then-current accepted Asset Condition Score Table and will Inspect and surveil the Project and create an Asset Condition Score for Handback recovery. Specifics on Asset Conditions Scoring are in Section MR 400.6 of the TPs. Adjustments to the Asset Condition Score Table must be made in accordance with Section 400.6.1 of the TPs. Developer shall make the Maintenance Manager and appropriate support staff available to accompany ADOT in the asset condition scoring. ADOT's Asset Condition Score for Handback recovery must be used to guide Developer's actions for Handback recovery.

501.2.2 Handback Recovery Plan

Developer shall prepare a Handback recovery plan, acceptable to ADOT, and shall fully implement all improvements required by the accepted Handback recovery plan by the end of the Maintenance Period.

In preparing the Handback recovery plan, Developer shall compare the Asset Condition Score developed under Section MR 501.2.1 of the TPs to the Adjusted Baseline Asset Condition Score, and shall describe the steps necessary to bring the Project from the then-current condition to the adjusted baseline asset condition.

The Handback recovery plan shall include (a) a detailed description, by Element, of all planned Capital Asset Replacement Work and Routine Maintenance necessary to bring the Project from the then-current condition to the Adjusted Baseline Asset Condition Score, (b) a resource and cost-loaded schedule for carrying out such Capital Asset Replacement Work and (c) a schedule for carrying out such Routine Maintenance, with substantial completion targeted to be no later than 6 months before the end of the Maintenance Term and completion of punch list items by the end of the Maintenance Term.

501.2.3 Handback Reviews

No less than 60 days after ADOT presents the Asset Condition Score for Handback recovery, Developer shall submit a draft Handback recovery plan to ADOT for approval in ADOT's good faith discretion.

ADOT will review and provide comments to the draft Handback recovery plan within 30 days after receipt. Within 10 days after Developer receives ADOT's comments, Developer and ADOT will convene a review meeting to resolve ADOT's comments.

No less than 30 days after the comment resolution meeting Developer shall resolve all comments to satisfaction of ADOT and submit the final Handback recovery plan to ADOT for approval in ADOT's good faith discretion.

501.2.4 Handback Transition Plan

The Parties will prepare and implement a Handback transition plan as provided in Section 24.13 of the Agreement. In addition to the matters described in Section 24.13 of the Agreement, the Handback transition plan must include:

A. Current Status of Handback recovery Work, and expected status at end of Maintenance Period of Handback recovery Work
B. Remaining Useful Life
C. Current MIS architecture documentation
D. MIS training protocols for ADOT personnel
E. Inventory, location, and condition of any spares and materials on hand, and method of Handback of these items to ADOT maintenance yard
F. Relinquishing any portions of the ROW used by Developer during the Maintenance Term in accordance with land use agreement(s)
G. Punch list protocol to begin Handback acceptance procedures with ADOT
H. Transition protocols for stormwater management and for "Arizona 811" locates responsibilities
I. Document turnover for maintenance records
J. Final walk-through and Final Acceptance

501.2.5 Asset Condition Score for Final Punchlist

Within 6 months of the end of the Maintenance Term, or such earlier time as mutually agreed, ADOT will use the then-current accepted Asset Condition Score Table and will Inspect and surveil the Project and create an Asset Condition Score for final punchlist. Developer shall make the Maintenance Manager and appropriate support staff available to accompany ADOT in the asset condition scoring. ADOT's Asset Condition Score for final punchlist recovery must be used to guide Developer's actions in completing the final punchlist.

501.3 REMAINING USEFUL LIFE AT HANDBACK

Project must have remaining useful life at Handback as required in these provisions. Table 501-1 sets forth the required remaining useful life at Handback for different categories. Remaining useful life must be determined by a licensed engineer. The remaining useful life must be documented in an engineering report duly stamped and sealed by a professional engineer licensed in the state of Arizona. The report must address:

A. Scope
B. Methods of measurements tests and Inspections
C. Remaining useful life requirements
D. Results of measurements, tests and Inspections
E. Calculations of remaining useful life for Elements within each reporting category
F. Results showing the remaining useful life for each Element
G. Noted deficiencies and areas where future Inspections or investigations may be warranted.

This report must demonstrate that the Handback requirements are met.

This report must accompany the Handback Transition Plan and is subject to the same review requirements of the Handback Transition Plan set forth in Section MR 501.2.4 of the TPs.

Table 501-1 Remaining Useful Life at Handback			
Ref.	**Category**	**Performance Requirement**	**Elements**
2.5	Traffic Signals	10 year	Lens, supports, conductor, cabinets
2.6	Landscaped areas (Character Areas 1,3,4,5)	85% plant establishment 10 years	All landscaped areas are maintained Irrigation systems
2.7	Landscaped areas (Character Area 2)	85% plant establishment	All landscaped areas are maintained
3.1	Pavement and structural section	10 years	All Mainline Lanes Frontage roads and Ramps
4.1	Subgrade	20 years	All Mainline Lanes pavement Frontage roads and Ramps pavement
5.1	Safety Barriers	20 years	
5.2	Fence/Gates	10 years	
5.3	Signage and delineators	10 years	Retro-reflectivity and legibility of overhead signs must be within 75 % of specified requirements
5.5	Lighting	10 years	Luminaires
5.6	Pavement marking	5 years	
6.1	Bridges	45 years	All components except expansion joints and structural steel coatings
6.2	Bridge Expansion Joints	20 years	
6.3	Retaining walls	45 years	
6.4	Sign and lighting supports	10 years	
6.5	Miscellaneous concrete	20 years	
6.6	Structural Steel	45 years	
6.7	Structural Steel Coatings	20 years	
7.2	Detention and retention basins	50 years	
7.3	Pied and open channel Drainage systems	10 years 20 years	Exposed Buried
7.4	Slopes	50 years	Stability, erosion

Pavement must exhibit a remaining service life of 10 years with a ride quality of “good” in accordance with Table 400-3; using traffic forecasts approved by ADOT for the 10 years subsequent to the Maintenance Period.

501.4 HANDBACK REQUIREMENTS

501.4.1 Handback Asset Condition Recovery

Developer shall implement the accepted Handback recovery plan and shall bring the Project to adjusted baseline Asset Condition Score by the end of the Maintenance Period. The only exceptions allowed are those stated in Section MR 501.3 of the TPs, and certain categories enumerated herein below for which Developer may propose fee-in-lieu for improvements as described in the Agreement. Fee in Lieu and exceptions must be addressed in the Handback Plan.

- Pavement and structural section condition – reference line 3.1 of Table 501-1
- Signage – reference line 5.3 of Table 501-1
- Pavement markings – reference line 5.6 of Table 501-1

Developer shall determine the excepted remaining useful life as part of the Asset Condition Score at Handback described in Section MR 501.2.1 of the TPs, and shall reassess the remaining useful life for these categories annually for the remaining Maintenance Period. The remaining useful life determination for these categories will be used by ADOT to determine the fee-in-lieu payment procedures in accordance with Section 8.11.4 of the Agreement.

This is then be used to determine the in lieu payment procedures on the three items which will be outlined in the Agreement.

501.4.2 Final Punchlist

Remaining Handback recovery Work identified in the Asset Condition Score for final punchlist described in Section MR 501.2.5 of the TPs must be completed by Developer to the satisfaction of ADOT.

Developer's resolution of the punchlist items is a condition of final acceptance and the Final Payment.

ADOT may, but is not obligated to, allow minor call outs or final resolution of ongoing minor issues to continue up to 90 days after the end of the Maintenance Term.

If any items of punchlist Work remain incomplete at the end of the Maintenance Term or any such continuation as ADOT may allow, then ADOT has the right to complete it at Developer's expense and adjust Final Payment accordingly.

501.4.3 Transition

Within 90 days after end of Maintenance Term or as otherwise agreed, Developer shall submit all Maintenance Services Work documentation to ADOT for approval in ADOT's reasonable discretion or for comment as needed.

Vacate all ROW used by Developer within 90 days after end of Maintenance Term or as otherwise agreed.

501.5 SUBMITTALS

Table 501-2 reflects a nonexclusive list of Submittals identified in this Section MR 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. Unless otherwise indicated, all Submittals must be submitted 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 110.09.2.1.1 of the TPs:

Table 501-2
Nonexclusive Submittals List

Submittals	Level of Review*	Number of Copies		Submittal Schedule	Section Reference
		Hardcopies	Electronic		
Draft Handback Recovery Plan	2	2	1	Within 60 days of Asset Condition Scoring for Handback recovery by ADOT	MR 501.2.3
Final Handback Recovery Plan	2	2	1	Within 30 days of review comments adjudication	MR 501.2.3
Draft Handback Transition Plan	2	1	1	As mutually agreed, 6-18 months prior to end of Maintenance Term	MR 501.2.3
Final Handback Transition Plan	2	1	1	Within 30 days of review comments adjudication	MR 501.2.3
Remaining Useful Life Engineering Report	2	1	1	With Handback Transition Plan	MR 501.3.
All Maintenance Services Work Documentation not previously submitted	3/5	0/1 as needed	1	Within 90 days of end of Maintenance Term	MR 501.4.3 and Agreement Section 24.13.

*Levels of Review
1. Sole discretion or absolute discretion approval (Section 3.1.3.1 of the Agreement)
2. Good faith discretion approval (Section 3.1.3.2 of the Agreement)
3. Reasonableness approval (Section 3.1.4.2 of the Agreement)
4. Review and comment (Section 3.1.5 of the Agreement)
5. Submit/receive and file or comment/no hold point (Section 3.1.6 of the Agreement)

End of Section