

Technical Provisions (TPs)

for

010 MA 161 F0721 01C
010-C-NFA

Phoenix – Casa Grande Highway (I-10) SR 202L (Santan/South Mountain) to Gila River Bridge Design-Build Capacity Improvements

between



and

**Coffman Specialties, Inc./Fisher Sand
& Gravel Co. Joint Venture (CFJV)**

Dated as of: December 5, 2025

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DIVISION I

GENERAL PROVISIONS

100 General**100.12 General Project Information****(A) Project Description**

In general, the Project is located within the Gila River Indian Community (Community) in Maricopa and Pinal Counties, Arizona as shown in Figure 100-1. The northern 0.7 miles is located within the Cities of Phoenix and Chandler in Maricopa County.

Figure 100-1: Vicinity Map

The Project generally includes the following components:

- (1) Interstate 10 (I-10):
 - (a) Widen I-10 to the median to provide one high occupancy vehicle (HOV) lane and three general purpose lanes (GPLs) in each direction from State Route (SR) 202L to Station 1208+00 south of Riggs Road (Rd);
 - (b) Widen I-10 to the median (with the exception of item (c) below) to provide three GPLs in each direction from Riggs Rd to approximately milepost (MP) 172.75;
 - (c) Reconstruction of I-10, closing the median, to provide the required vertical clearance for I-10 under the Goodyear Rd bridge, and to provide three GPLs in each direction;

- (d) Auxiliary or acceleration/deceleration lanes for all existing Traffic Interchange (TI) ramps; and
- (e) Intelligent Traffic System (ITS) infrastructure.
- (2) TIs and grade crossing improvements:
- (a) Modify the diamond-style TI at Wild Horse Pass Boulevard (Blvd)/Sundust Rd, including widening the existing bridge, to add right turn lanes, left turn lanes, bike lanes and sidewalks as described in the Technical Provisions;
- (b) Construct a new DDI-type TI and crossroad at Koli Rd, including two taper-type ramps and two parallel-type ramps, bridge(s) and an undercrossing for local use under Koli Rd to the west of the TI;
- (c) Modify the diamond-style TI at SR 347/Queen Creek Rd to add right turn lanes, bike lanes and sidewalks as described in the Technical Provisions; add a direct-connect flyover ramp for the SR 347 EB to I-10 WB movement and reconstruct the existing I-10 WB entrance ramp to connect to the flyover ramp; add an auxiliary lane to I-10 in each direction between Koli Rd TI and SR 347/Queen Creek Rd TI;
- (d) Modify the diamond-style TI at Riggs Rd, including widening Riggs Rd to add general a purpose lane, an additional left turn lane for EB Riggs To WB I-10, bike lanes and sidewalks, constructing a new four-lane Riggs Rd bridge (one lane of which is for a future WB through lane) and demolishing the existing Riggs Rd bridge as described in the Technical Provisions;
- (e) Reconstruct all existing ramps, change tapered-type ramps to parallel-type where specified in the TPs, add lanes at exit ramp throats as shown on the Schematic Design (or the Design-Builder's Proposal Design for SR 347/Queen Creek Rd TI), and provide two lanes to the back of gore on entrance ramps; and
- (f) Construct a new Goodyear Rd grade separation bridge, remove the existing bridge, and reconstruct the approach roadways.

The description of the Project in this Section 100.12(A) is intended to be a general description and not an all-inclusive description of the Work to be performed to complete the Project.

(B) Project Type

Design-Builder shall design the Project as an urban-type Project from the start of the Project limits to approximately Station 1208+00 south of Riggs Rd and a rural-type Project from approximately Station 1208+00 south of Riggs Rd to the end of the Project limits at MP 172.75.

100.13 Basic Configuration

The Schematic Design and the Design-Builder's Proposal Design convey the general intent and layout of the Project. The Basic Configuration means the following:

- (A) Those portions of the Schematic Design and the Design-Builder's Proposal Design that depict the following:
- (1) The number and types of lanes, including:
- (a) One HOV lane and three GPLs in each direction from SR 202L to Station 1208+00 south of Riggs Rd;

- (b) An additional auxiliary lane on I-10 in both directions between the SR 347/Queen Creek Rd TI and the Koli Rd TI and;
- (c) Three GPLs in each direction from Station 1208+00 south of Riggs Rd to approximately MP 172.75.
- (2) Within the urban area of the Project, excluding the reach between SR 202L and the point where I-10 EB and WB merge to form a single median barrier, 15 foot inside shoulders and 12 foot outside shoulders on the I-10 mainline; within the urban area of the Project between SR 202L and the point where I-10 EB and WB merge to form a single median barrier and within the rural area of the Project, 12 foot inside and outside shoulders on the I-10 mainline;
- (3) The location of service interchanges, including the turn lanes shown in the Schematic Design (Design-Builder's Proposal Design at the SR 347/Queen Creek Rd TI), at:
- (a) Wild Horse Pass Blvd/Sundust Rd;
- (b) Koli Rd;
- (c) SR 347/Queen Creek Rd; and
- (d) Riggs Rd;
- (4) The location of, and improvements to, grade separation at Goodyear Rd;
- (5) The minimum number of through lanes at each crossroad:
- (a) Two through lanes on Wild Horse Pass Blvd/Sundust Rd, Koli Rd and SR 347/Queen Creek Rd;
- (b) One westbound through lane and two eastbound through lanes on Riggs Rd (bridge to include two westbound lanes, one of which will be striped out); and
- (c) One through lane in each direction at Goodyear Rd;
- (6) One parallel-type entrance ramp and one parallel-type exit ramp in each direction of I-10, at each existing service interchange, including the number of lanes, with the following exception:
- (a) The SR 347/Queen Creek Rd TI I-10 WB entrance ramp will be a taper-type ramp connecting to a direct-connect ramp for EB SR 347 to I-10 WB;
- (7) One taper-type and one parallel-type entrance ramp for I-10 WB and I-10 EB respectively, and one parallel-type and one taper-type exit ramp for I-10 WB and I-10 EB respectively, at the Koli Rd service interchange, including the number of lanes; and
- (8) Within the lines delineating the outside boundaries of the Project set forth in the Schematic Right of Way (ROW).

The Basic Configuration is subject to DBA Section 7.02 (Design).

100.14 Compatibility

The Project must meet the intent of the recommended improvements as described in the Final Design Concept Report (DCR) and Environmental Assessment (EA) for I-10: Loop 202 to SR 387 and these Technical Provisions. The Project must be compatible with the improvements of current and future projects specified in this Section 100.14. With each design Submittal, Design-Builder shall demonstrate that the Project design does not add construction cost and does not require additional infrastructure to implement such current and future projects.

- (A) I-10, Bridges Over the Gila River, 010 PN 172 F0270 01C;

- (B) SR 347, I-10 to the City of Maricopa; Road Improvements, F0581;
- (C) Sundust Rd and Nelson Drive Intersection (AZMUN2410); and
- (D) Koli Rd: Local western extension (GRIC-Gila River Development).

100.15 General Responsibilities

Design-Builder shall:

- (A) Manage, plan, design, construct, execute, and control all aspects of the Work;
- (B) Coordinate its activities with Utility Companies and Governmental Entities, and other Persons that are directly or indirectly impacted by the Work;
- (C) Coordinate its activities with the Community and BIA through ADOT;
- (D) Document and report all Work in accordance with standard of care, applicable Community, BIA, Utility Company, and Governmental Entity requirements, and the Contract Documents; and
- (E) Be responsible for all temporary facilities, including obtaining approval from ADOT, the Community (through ADOT), BIA (through ADOT), Utility Companies, and Governmental Entities as applicable.

100.16 References

(A) Applicable Standards

Design-Builder shall manage, design, and construct the Project in accordance with the Contract Documents, good industry practice, Occupational Safety & Health Administration (OSHA) requirements, and in compliance with all Laws. Design-Builder shall design and construct in accordance with ADOT standards, manuals, and guidelines, unless otherwise specified in the Contract Documents. For elements outside ADOT maintenance limits, Design-Builder shall design and construct in accordance with the applicable Community, Utility Company and Governmental Entity standards, manuals, and guidelines of the maintaining entity, unless otherwise specified in the Contract Documents. Applications for Deviations shall be in accordance with DBA Section 8.03(A) (Deviations).

The standards, manuals, and guidelines listed throughout the Contract Documents are not a comprehensive list and other publications may be applicable to complete the Project in accordance with good industry practice. The "Standards, Manuals, and Guidelines" tables that are included in the Technical Provisions sections are not shown in order of precedence. Requirements for any portion of the Work are not limited to any individual section of these Technical Provisions and may be addressed within more than one section. Design-Builder shall review and comply with all requirements related to the Work as described in all sections of the Technical Provisions.

Design-Builder shall use the most current version of each standard, manual, and guideline adopted by ADOT in effect 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 duration of the Design-Build Agreement (DBA), Design-Builder shall contact ADOT to determine whether to continue to use the current, revised, or replaced standard, manual, or guideline identified by ADOT.

If Design-Builder becomes aware of any ambiguities or conflicts relating in any way to the standards, manuals, or guidelines, Design-Builder shall immediately notify ADOT. Refer to DBA Section 1.03 (Contract Documents and Order of Precedence) for Contract Documents and order of precedence. If there is any unresolved ambiguity in the applicable standards, Design-Builder shall obtain clarification from ADOT before proceeding with design, or construction.

All references to "as-built" and "as-built drawings" in the ADOT standards, manuals, and guidelines shall be defined as Record Drawings. If ADOT issues a safety change, in accordance with DBA Section 8.02(A) (Directive Letters), to

the applicable standards, Design-Builder shall immediately contact ADOT for direction and shall obtain ADOT's approval of Design-Builder's proposed course of action prior to implementing such change.

If sections from the ADOT *Standard Specifications for Road and Bridge Construction* (ADOT *Standard Specifications*) are not used in Sections 100 through 120, those sections of the ADOT *Standard Specifications* are not applicable to the Project.

(B) Reference Information Documents (RIDs)

ADOT has undertaken certain planning and preliminary concept work concerning the Project development, which are included in the RIDs. See DBA Section 1.06 (*Reference Information Documents (RIDs)*) regarding RIDs.

100.17 Basis of Design Report

Design-Builder shall prepare a Basis of Design Report for the Project that includes the following:

- (A) Cover sheet;
- (B) Table of contents;
- (C) A summary of the specific methodologies, manuals, and references that Design-Builder proposes to use for the analysis and design of the Project for each technical discipline outlined in the Technical Provisions;
- (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, guidelines, procedures, or references that Design-Builder proposes to use to construct the Project, including any change to recommended practices set forth in such publications; and
- (F) All other items required by the Contract Documents.

Design-Builder shall submit the Basis of Design Report to ADOT in accordance with Table 100-1. Design-Builder shall amend and prepare an updated Basis of Design Report, to identify new methodologies, manuals, guidelines, procedures, and references that are added or revised for the Project. Design-Builder shall submit an updated Basis of Design Report to ADOT in accordance with Table 100-1. Design-Builder shall not submit any Submittal that is not consistent with the Basis of Design Report or updated Basis of Design Report. ADOT may elect to reject a design Submittal when the Basis of Design Report or updated Basis of Design Report has not been approved.

100.18 Project Bulletin Board Requirements

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

- (A) The posters as shown on the ADOT Engineering and Construction Posters website (<https://azdot.gov/business/engineering-and-construction/construction/posters>);
- (B) The equal employment opportunity (EEO) policy of Design-Builder and Subcontractors with contracts greater than \$10,000;
- (C) List of safety officers for Design-Builder and major Subcontractors; and
- (D) The Notices of Intent (NOI) for stormwater discharges.

100.19 Documentation of the Site**(A) General Requirements**

Design-Builder shall perform all Work in compliance with the requirements of this Section 100.19. Design-Builder shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks.

Design-Builder shall not move land monuments and property marks until directed by ADOT.

Design-Builder shall repair any damage to public or private property, including existing fences, pole lines, signs, buildings and structures that are to remain in place after Substantial Completion, caused by any Design-Builder-Related Entity at no additional cost to ADOT.

(B) Existing Conditions Site Documentation

Design-Builder shall prepare an Existing Conditions Site Documentation that identifies and documents the existing conditions within and adjacent to the Project limits. Design-Builder shall investigate, videotape, and photograph existing elements in the Project ROW that are planned to remain in place to determine its condition, size, material, location, and other pertinent information. The Existing Conditions Site Documentation must include adjacent roadways, detour routes, drainage facilities (including pump stations, channels, and flowing waterways), fences, walls, houses, buildings, wells, sensitive habitats, landscaping and irrigation systems, roadside memorials, and areas where activities, whether permanent or temporary, will be performed by Design-Builder or its Subcontractors. The Existing Conditions Site Documentation must also include all facilities and Utilities that may be impacted by the Work including downstream drainage facilities, adjacent roadway conditions, and sensitive habitats.

Design-Builder shall record the northing and easting for each photograph with global positioning system (GPS) accuracy (or better) and Design-Builder shall assign a unique number to each photograph. The videotape must show details of the condition of all properties and structures, pavement conditions of crossroads, and proposed and potential haul routes. Design-Builder shall videotape the interior of all drainage facilities to remain within the Project ROW.

Design-Builder shall schedule field meetings with ADOT to observe and participate in the Existing Conditions Site Documentation. If Design-Builder is unable to obtain site documentation of a specific element, including environmentally and culturally sensitive areas, or obstructed storm drains, such element shall be observed by ADOT and ADOT concurrence of omission obtained prior to submission of the Existing Conditions Site Documentation. Such determinations shall be documented and accompany the Existing Conditions Site Documentation submittal. These requirements and this submittal do not supersede the requirements in other sections of the Contract Documents that require specific inspections, assessments, and site documentation.

Prior to beginning the Existing Conditions Site Documentation, all Design-Builder personnel, including all Subcontractors, that will be on Site must take the Cultural Sensitivity Orientation, in accordance with Section 117.02(G).

Design-Builder shall submit the Existing Conditions Site Documentation to ADOT in accordance with Table 100-1. The file structure and description of files shall be provided with this Submittal. The Existing Conditions Site Documentation may be stored on an external hard drive and delivered to ADOT at the same time as the transmittal of the submittal depending on the size of the files.

In the event that New ROW areas are not available in time for it to be incorporated into the Existing Conditions Site Documentation for the Project, Design-Builder shall prepare an Existing Conditions Site Documentation Addendum that identifies and documents the existing conditions within and adjacent to the New ROW limits that were not included in the original document. This Existing Conditions Site Documentation Addendum shall meet the requirements of the Technical Provisions for the Project. Design-Builder shall submit the Existing Conditions Site Documentation Addendum to ADOT in accordance with Table 100-1.

(C) Site Documentation

Beginning within 10 Business Days after issuance of Notice to Proceed (NTP) 2, and every subsequent month through Substantial Completion, Design-Builder shall photograph, perform aerial photography, and video the Project limits covering the following:

(1) All structures and properties; and

(2) The Construction Work reflecting the activities underway during the month.

Design-Builder shall prepare the Site Documentation so that it includes such photographs and videos. Design-Builder shall organize such photographs and video footage according to activity and date. Aerial photography and video must be at consistent interval and spatial orientation from month to month. Digital images must be in Joint Photographic Experts Group (JPEG) format or uncompressed Tag Image File Format (TIFF), produced by a digital camera with a minimum sensor size of eight megapixels, and at an image resolution of not less than 1024 by 768 pixels. Design-Builder shall record the northing and easting for each photograph with GPS accuracy or better and shall assign a unique number to each photograph.

Design-Builder shall obtain all necessary permission from property owners to enter their property prior to performing any activities associated with the Site Documentation and shall provide proof of the permission to ADOT.

Design-Builder shall submit the Site Documentation to ADOT in accordance with Table 100-1.

(D) Accident, Unusual Condition and Complaint Documentation

Beginning with 10 Business Days after issuance of NTP 2, and every subsequent month after through Substantial Completion, Design-Builder shall prepare an Accident, Unusual Condition, and Complaint Documentation that documents all accidents, unusual conditions and complaints that occur on the Project. Design-Builder shall submit the Accident, Unusual Condition, and Complaint Documentation to ADOT in accordance with Table 100-1.

100.20 Salvageable Materials

All salvageable materials belong to Design-Builder, except as required in this Section 100.20.

ADOT Salvageable Materials include the following:

(A) Certain Dynamic Message Sign (DMS) equipment (See Section 738.03(E)).

Community-owned salvageable materials include the following:

(A) Asphaltic Concrete (AC) millings from Wild Horse Pass Blvd and Sundust Rd outside ADOT ROW.

Design-Builder shall salvage Community-owned salvageable materials. Design-Builder shall stockpile the Community-owned salvageable materials, if necessary, until ready for Design-Builder's transportation to the Community's Riggs Rd pit, located approximately 3600 feet southwest of the I-10/Riggs Rd intersection. Design-Builder shall contact GRICDOT Maintenance Supervisor, Duane Adams at phone number (520) 610-0051 at least two weeks prior to delivery to make the arrangements.

100.21 Submittals

Table 100-1 reflects a list of Submittals identified in this Section 100 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

1

Table 100-1: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Basis of Design Report</u>	2	Not later than 20 Business Days after issuance of NTP 1.	100.17
2.	Updated <u>Basis of Design Report</u>	2	Not later than 10 Business Days after the occurrence of the change or direction triggering the need for the revision.	100.17
3.	<u>Existing Conditions Site Documentation</u>	3	Not later than 90 Business Days after issuance of NTP 1.	100.19(B)
4.	<u>Existing Conditions Site Documentation Addendum(s)</u>	3	Prior to Construction on subject parcel(s)	100.19(B)
5.	<u>Site Documentation</u>	3	Monthly	100.19(C)
6.	<u>Accident, Unusual Condition, and Complaint Documentation</u>	3	Monthly	100.19(D)
Notes: A. Levels of Review 1. Sole discretion or absolute discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

2

End Section

104 Scope of Work**104.05 Rights in and Use of Materials Found on the Work**

Design-Builder shall replace all of that portion of the excavation material so removed and used which was needed for use in the embankments, backfills, approaches, etc., with material acceptable to ADOT at no additional cost to ADOT. No charge for the materials so used will be made against Design-Builder. Design-Builder shall not excavate or remove any material from within the right-of-way which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from ADOT.

Unless otherwise provided, the material from any existing structure may be used temporarily by Design-Builder in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of ADOT.

104.06 Restoration of Surfaces Opened by Permit

The right to construct or reconstruct any Utility service in the highway or street or to grant permits for same, at any time, is hereby expressly reserved by ADOT for the Community's and Governmental Entity's jurisdictional limits in which the work is done.

Any individual, firm or corporation wishing to make an opening in the highway shall secure a permit from ADOT and the Community. Design-Builder shall allow parties bearing such permits, in accordance with Section 118.04, and only those parties, to make openings in the highway. When utility work is new or relocation of service that is needed due to the Project improvements, Design-Builder shall ensure restoration as part of their utility coordination efforts. For utility work not associated with the Project improvements and when ordered by ADOT, Design-Builder shall make, in an acceptable manner, all necessary repairs due to such openings and such necessary work will constitute an ADOT-Directed Change.

104.08 Prevention of Air and Noise Pollution

Design-Builder shall be responsible for the requirements in the ADOT *Standard Specifications* and ADOT *Stored Specification (104MTBRN, 06/04/96)*.

104.09 Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs**(A) General**

Design-Builder shall give attention to the effect of Design-Builder's operations upon the landscape and shall take care to maintain natural surroundings undamaged.

Design-Builder shall:

- (1) Comply with the current Arizona Pollutant Discharge Elimination System (AZPDES), ADOT Municipal Separate Storm Sewer System (MS4) permit;
- (2) Design and install post-construction controls in accordance with the recommendations provided in the ADOT *Post-Construction Best Management Practices Manual for Water Quality* included in the RIDs; and
- (3) Coordinate with regulated MS4s within the Project regarding existing connections and comply with the requirements of the regulated MS4s.

Design-Builder shall be responsible to implement the requirements of the AZPDES for erosion and sediment control as specified in the "*General Permit for Stormwater Discharges Associated with Construction Activity to Protected Surface Waters*", issued by the Arizona Department of Environmental Quality (ADEQ). Design-Builder shall be responsible to implement the requirements of the National Pollutant Discharge Elimination System (NPDES) for discharge limitations and conditions as specified in the "*Construction General Permit for Stormwater Discharges from*

1 *Construction Activities*". Those documents are hereinafter referred to as the AZPDES *General Permit* and NPDES
2 *General Permit*, respectively.

3 Useful information related to stormwater controls and erosion and sediment control measures is presented in the
4 *Fact Sheet for the Construction General Permit for Stormwater Discharges Associated with Construction Activity*,
5 available from ADEQ, and ADOT's *Erosion and Pollution Control Manual*, available on the ADOT's website at
6 <https://apps.azdot.gov/files/roadway-engineering/erosion-pollution-control/2020-epcm-complete.pdf>.
7 Information on the NPDES requirements can be found in the 2022 *Construction General Permit (CGP) – Fact Sheet*
8 available from the EPA.

9 The Work shall include providing, installing, maintaining, removing and disposing of erosion and sediment control
10 measures such as gravel filter berms, dikes, catch basin inlet protection, end-of-pipe filtering devices, silt fences,
11 dams, sediment basins, earth berms, netting, geotextile fabrics, slope drains, seeding, stream stabilization, and other
12 erosion and sediment control devices or methods. Erosion control, as hereinafter referenced, shall be deemed to
13 include control of erosion and the mitigation of any resulting sediment. Erosion control measures may be temporary
14 or permanent. Design-Builder shall also be responsible for the preparation and processing of all documents required
15 in the AZPDES and NPDES *General Permits*.

16 The Plans must include preliminary erosion control measures and additional information to be included in the
17 *Stormwater Pollution Prevention Plan (SWPPP)*, as specified in Section 104.09(B). Design-Builder, with input from
18 ADOT, shall finalize the *SWPPP*, file a *NOI*, implement the *SWPPP*, and file a *Notice of Termination (NOT)*, all as
19 described herein.

20 Except for the *NOI*, all signatures required of Design-Builder by the AZPDES and NPDES *General Permits*, including
21 those required for the *NOT*, *SWPPP*, and inspection reports, shall be provided by Design-Builder's Authorized
22 Representative, as defined in Part VIII.J.2 of said permit. Signature of the *NOI* shall be by a responsible corporate
23 officer, as defined in Part VIII.J.1 of the AZPDES *General Permit*.

24 No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the
25 *SWPPP*, shall be started until the *SWPPP* has been approved, the *NOI* completed and filed in accordance with
26 Section 104.09(C), and the *SWPPP* implemented.

27 Submission of Design-Builder's *NOI* shall certify that Design-Builder and its Subcontractors have read and will comply
28 with all provisions of the AZPDES and NPDES *General Permits*.

29 Design-Builder may elect to prepare and process all documents for a separate *Geotechnical Exploration SWPPP*
30 specific to geotechnical explorations for design that is in accordance with Section 104.09(B). The *Geotechnical*
31 *Exploration SWPPP* must supersede and incorporate all remaining geotechnical explorations for design. Design-
32 Builder shall submit the *Geotechnical Exploration SWPPP* to ADOT in accordance with Table 104-1.

33 **(B) Stormwater Pollution Prevention Plan (SWPPP)**

34 The *SWPPP* will include descriptions of temporary and permanent erosion control measures; a project description;
35 percent impervious area, including paved areas, rooftops, and other similar surfaces, for both preconstruction and
36 post-construction conditions; inspection schedule; and site-specific diagrams indicating proposed locations where
37 erosion and sediment control devices or pollution control measures may be required during successive construction
38 stages. The *SWPPP* must also include an initial schedule detailing the proposed sequence of construction and related
39 erosion control measures.

40 Design-Builder shall review the preliminary information, including the erosion control features and phasing, evaluate
41 all *SWPPP* requirements for adequacy in addressing pollution prevention during construction, and prepare a *Draft*
42 *SWPPP* for review by ADOT.

43 Design-Builder shall designate an Erosion Control Coordinator, in accordance with Section 110.03(C)(6), to be
44 responsible for finalization and implementation of the *SWPPP*, as well as all other applicable requirements of the
45 AZPDES and NPDES *General Permits*. The Erosion Control Coordinator shall be approved as specified in

1 Section 110.03(C) before the Draft SWPPP can be finalized and submitted to ADOT. After approval, Design-Builder
2 shall designate the Erosion Control Coordinator as a Design-Builder Authorized Representative of in accordance with
3 Part VIII.J.2 of the AZPDES and NPDES *General Permits*.

4 The Draft SWPPP shall include all information required in the AZPDES and NPDES *General Permits*, including a site
5 map; identification of receiving waters impacted by the Project; a list of potential pollutant sources; inspection
6 schedule; any on-site or off-site material storage sites; additional or modified stormwater, erosion, and sediment
7 controls; procedures for maintaining temporary and permanent erosion control measures; a list of Design-Builder's
8 pollution prevention practices; and other permit requirements stipulated in the AZPDES and NPDES program as well
9 as other applicable state or local programs. Design-Builder shall coordinate with ADOT on all such additional
10 information.

11 The Draft SWPPP shall also identify any potential for discharge into a MS4, including the name of the owner/operator
12 of the system.

13 The Draft SWPPP shall also include the sequence of construction for each sub-area, and installation of the required
14 temporary or permanent erosion control measures.

15 Design-Builder shall give installation of permanent erosion control measures priority over reliance on temporary
16 measures. Permanent erosion control measures and drainage structures shall be installed as soon as possible in the
17 construction sequencing of the Project, preferably concurrent with construction of the related sub-area or drainage
18 device. In the event it is infeasible to install one or more control measures prior to the start of construction activities,
19 Design-Builder shall ensure that those controls are installed as soon as possible. However, except as specified in Part
20 IV, Section B.2 of the AZPDES *General Permit* and approved by ADOT, erosion control measures shall be installed no
21 later than 14 Days after construction activity has temporarily or permanently ceased for the affected sub-area.

22 Temporary or permanent sedimentation basins may be required for reducing or eliminating sediment from
23 stormwater runoff. When required, such basins shall be completed before any clearing and grubbing of the site is
24 initiated. Design-Builder shall evaluate the need and attainability of installing sediment basins as described in the
25 AZPDES and NPDES permits and, if approved by ADOT, include the basins into the SWPPP as appropriate. SWPPP
26 shall also include sediment basins as part of the preliminary information.

27 The Draft SWPPP shall also identify and address erosion control at on-site fueling operations, waste piles, material
28 storage sites, and off-site dedicated asphalt and concrete plants, Design-Builder-use areas, storage areas, and
29 support activity locations which are used solely for the Project and are covered by the AZPDES or NPDES *General*
30 *Permits*. The Draft SWPPP shall also accommodate all requirements for Design-Builder's pollution prevention
31 practices specified in Section 104.09(D). In addition, the Draft SWPPP shall specifically identify the erosion control
32 measures proposed by Design-Builder during any vegetation removal and salvaging phases of the Project.

33 The Draft SWPPP shall specify the mechanism whereby revisions may be proposed by Design-Builder or ADOT
34 throughout the Project and incorporated into the plan, including review and approval procedure. ADOT and Design-
35 Builder shall jointly approve and sign each revision to the SWPPP before implementation. Any subsequent submittals
36 required by Design-Builder to revise or update the SWPPP will require 10 Business Days for review.

37 Design-Builder and Subcontractors responsible for implementing all or portions of the SWPPP shall be listed in the
38 Draft SWPPP, along with the measures for which they are responsible.

39 Design-Builder shall submit the Draft SWPPP to ADOT in accordance with Table 104-1.

40 NOI and NOT blank forms are available on the internet at <https://azdeq.gov/mydeq>.

41 The EPA NPDES eReporting Tool can be accessed at <https://cdx.epa.gov/cdx>.

42 Within 10 Business Days from the Draft SWPPP submittal, ADOT and Design-Builder will jointly review the Draft
43 SWPPP, and include any additional revisions directed by ADOT. The finalized SWPPP shall meet the terms and

conditions of the AZDPES and NPDES *General Permits* and be compatible with construction sequencing and maintenance of traffic (MOT) plans.

When agreement has been reached, ADOT and Design-Builder's Authorized Representative will sign the finalized SWPPP. ADOT's signature will constitute approval of the SWPPP. Design-Builder shall submit the final SWPPP to ADOT in accordance with Table 104-1. Upon approval of the SWPPP, Design-Builder shall file a NOI as specified in Section 104.09(C).

After the time period specified in Section 104.09(C), Design-Builder shall implement the requirements of the SWPPP. Design-Builder shall maintain all related erosion control elements in proper working order throughout the Project. Work under this section also includes inspections, record-keeping, and implementation of pollution prevention practices as described in Section 104.09(D).

Design-Builder 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. The SWPPP shall also be amended if inspections indicate that the SWPPP is ineffective in eliminating or significantly reducing pollutants in the discharges from the construction site. All necessary modifications to the SWPPP shall be made within five Business Days following the inspection that revealed the deficiency.

ADEQ may notify Design-Builder at any time that the SWPPP does not comply with the permit requirements. The notification will 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 the notification from ADEQ Design-Builder shall make the required changes to the SWPPP and submit a written certification to ADEQ that the requested changes have been made.

The Erosion Control Coordinator shall maintain the SWPPP along with completed inspection forms and other AZPDES or NPDES records in a three-ring binder. The Erosion Control Coordinator shall maintain a current copy of the SWPPP, including all associated records and forms, at the job site from the time construction begins until completion of the Project. The SWPPP shall be available for inspection by ADEQ, Federal Highway Administration (FHWA), and other entities identified in the AZPDES or NPDES *General Permits*, and for use by the ADOT. The Erosion Control Coordinator shall provide copies of any and all of such documents to ADOT upon request. Design-Builder shall prepare SWPPP Revisions that includes updates in accordance with this Contract Documents. Design-Builder shall submit the SWPPP Revisions to ADOT in accordance with Table 104-1.

Design-Builder shall submit the Project Completion SWPPP (including inspection forms and all data used to complete the NOI and NOT) to ADOT in accordance with Table 104-1 prior to Final Acceptance (D&C). Design-Builder shall retain its own records for a period of at least three years from the filing of Design-Builder NOT.

No condition of the AZPDES or NPDES *General Permits* or the SWPPP shall release Design-Builder from any responsibilities or requirements under other environmental statutes or regulations.

(C) Notice of Intent (NOI)

After the SWPPP has been approved, Design-Builder will complete a NOI form for the Project. The NOI includes a certification statement which must be signed and dated by a Design-Builder "Corporate Officer", as defined in Part VIII.J.1 of the AZPDES *General Permit* and include the name and title of that officer.

Design-Builder shall submit the NOI to the ADEQ at the following address:

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

The NOI may also be submitted electronically, through ADEQ's myDEQ website at <https://azdeq.gov/mydeq>. Regardless of the method of submittal, Design-Builder shall submit a copy of the NOI to ADOT in accordance with Table 104-1. (Note: For the NPDES permit the Design-Builder shall use the EPA's eReporting Tool to electronically prepare and submit the NOI at <http://cdx.epa.gov/cdx>)

The submittals shall be made to allow for the five Business Day review period required by ADEQ before the anticipated start of construction. Design-Builder shall also allow sufficient time, depending on the manner of submittal, for the NOIs to be received by ADEQ before commencement of the five Business Day review period. An Authorization Certificate will be issued by ADEQ and, unless otherwise notified, the construction activities that are covered by the terms and conditions of the AZPDES permit may begin after the submittal period plus the five Business Day review period, or upon receipt of the Authorization Certificate, whichever occurs first. Design-Builder shall submit a copy of the Authorization Certificate to ADOT in accordance with Table 104-1 and keep a copy with the NOI.

At any time after authorization, ADEQ may determine that Design-Builder's stormwater discharges may cause or contribute to non-attainment of any applicable water quality standards. If ADEQ makes that determination, Design-Builder will be notified in writing. Design-Builder 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 shall be in accordance with the AZPDES *General Permit*.

If there is a potential to discharge into an MS4, Design-Builder shall submit a copy of the Authorization Certificate to the owner/operator of the system. Also, if Design-Builder is operating under an approved local sediment and erosion plan, grading plan, or stormwater management plan, Design-Builder shall submit a copy of the Authorization Certificate to the local authority upon their request.

Design-Builder shall post its NOI and the information required in the AZPDES and NPDES *General Permits* on the construction-site bulletin board throughout the duration of the Project. Design-Builder shall keep a copy of the AZPDES and NPDES *General Permits* at the construction site at all times.

(D) Pollution Prevention Practices and Requirements

The SWPPP shall also specify Design-Builder's pollution prevention practices and requirements, including vehicle wash-down areas, on-site and off-site 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. Design-Builder shall show each planned location of service and refueling areas on the SWPPP's site map. Changes to Design-Builder's pollution prevention practices that are related to construction phasing shall also be shown on the SWPPP.

Design-Builder shall take aggressive actions, considering all conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oil, bitumens, calcium chloride, fresh Portland cement, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels leading to streams, lakes or reservoirs. The SWPPP shall include the implementation of spill prevention and material management controls and practices to prevent the release of pollutants into stormwater. The SWPPP shall also provide storage procedures for chemicals and construction materials; disposal procedures; cleanup procedures; Design-Builder's plans for handling such pollutants; and other pollution prevention measures as required.

Machinery service and refueling areas shall be located away from streambeds or washes, and in a manner which prevents discharges into streams or washes.

Waste materials from blasting, including explosives containers, shall be disposed of off-site in accordance with applicable federal regulations. Other waste materials, such as used cans, oils, machine and equipment parts, paint, hazardous materials, plastic and rubber parts, discarded metals, and building materials, shall be removed from the Site and disposed of according to applicable state and federal regulations.

Where Design-BUILDER's working area encroaches on a running or intermittent stream, Design-BUILDER shall construct and maintain barriers between the working areas and the stream bed to prevent the discharge of any contaminants. The SWPPP shall 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, fording of running streams with construction equipment will not be permitted; therefore, temporary bridges or other structures shall be used whenever an appreciable number of crossings are necessary.

Design-BUILDER shall design all temporary bridges or other structures to accommodate the 10-year storm event if to remain in place for up to a one year period. If a structure is planned to remain in place for longer than one year, the hydraulic conveyance may be subject to more stringent requirements. Design-BUILDER shall be responsible for all permits, authorizations, and environmental clearances that may be necessary to approve the use of such structures. Design-BUILDER shall submit the Temporary Bridges and Other Structures Design (Including all required documentation) to ADOT in accordance with Table 104-1. Design-BUILDER is advised that the review and approval process for such structures could be lengthy. Design-BUILDER shall be responsible for all costs associated with the design and construction of such structures. Also, no increase in the Contract Price, adjustment of a Contractual Deadline, or other Claim will be allowed for any review and approval periods, or for the time required to construct temporary bridges and other structures proposed by Design-BUILDER.

Mechanical equipment shall not be operated in running streams.

Material which is to be stockpiled or disposed of off-site shall be in accordance with Section 107.11.

Streams, lakes, rivers, and reservoirs shall be cleared of all falsework, piling, debris or other obstructions resulting from Design-BUILDER's activities, inadvertently placed thereby or resulting from construction operations, within 24 hours from the time the obstruction was observed.

Spill prevention, containment and countermeasures shall be included in the SWPPP if the volume of fuel in a single container on the Site exceeds 660 gallons, or if the total fuel storage volume at one facility exceeds 1,320 gallons.

In the event of a spill of a hazardous material, Design-BUILDER shall follow the provisions of DBA Section 11.05 (Hazardous Materials). In addition, the Erosion Control Coordinator shall modify the SWPPP as necessary within 10 Business Days of the discharge. The SWPPP shall be modified to include a description of the release, the circumstances leading to the release, and the date of the release.

Design-BUILDER shall assist in any efforts to clean up hazardous material spills, as directed by ADOT or other authorities. Soil contaminated from spills shall be disposed of in accordance with applicable state and federal regulations.

(E) Inspections

(1) General

ADOT and the Erosion Control Coordinator shall inspect the Project at least every 14 Days, and within 24 hours after any storm event of 0.50 inches or more. The inspections shall 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. Design-BUILDER shall monitor rainfall on the Site with a commercially manufactured rain gauge accurate to within 0.10 inches of rain. The Project site shall have a rain gauge located on the north and south limits of the Project. Rainfall records shall be submitted to ADOT on a weekly basis.

For each inspection, Design-BUILDER's Erosion Control Coordinator shall complete and sign a Compliance Evaluation Report as described in the permit. Design-BUILDER shall retain copies of the completed Compliance Evaluation Report on-site in the SWPPP file throughout the construction period. Design-BUILDER shall submit a copy of the Compliance Evaluation Report to ADOT in accordance with Table 104-1.

All inspections shall be made jointly with ADOT and the Erosion Control Coordinator.

(2) Adjustments

When deficiencies are noted during scheduled inspections, Design-Builder shall take immediate steps to make the required corrections as soon as practical. Deficiencies shall be fully corrected, to the satisfaction of ADOT, no later than four Days or by the next rain event with a 30% chance or greater of occurring, as forecasted by the National Weather Service, whichever is sooner. Design-Builder shall correct deficiencies noted between designated inspections no later than four Days after observation.

Direct inflows of sediment into a watercourse shall be corrected by the end of the same Day or work shift in which the inflow was observed.

In accordance with Section 104.09(F), Design-Builder's failure to implement adjustments within the specified time periods may be cause for ADOT to reject Design-Builder's Erosion Control Coordinator and issue a stop work order for the affected portions of the Project.

(F) Non-Compliance

ADOT may remove Design-Builder's Erosion Control Coordinator if ADOT determines in its good faith discretion that the conditions of the AZPDES *General Permit* or the approved SWPPP are not being fulfilled. Removal of Design-Builder's Erosion Control Coordinator shall be for failure to complete any of the following:

- (1) Should ADOT determine that the SWPPP is not being properly implemented; Design-Builder will be notified in writing of such deficiencies. Design-Builder's Erosion Control Coordinator shall fully implement, to the satisfaction of ADOT, the requirements of the approved SWPPP within three Business Days.
- (2) Should any corrective measures required in Section 104.09(E) not be completed within the time periods specified therein, ADOT will notify Design-Builder in writing. Design-Builder's Erosion Control Coordinator shall complete all required corrective measures within two Days of such notification, by the end of the same Day or work shift in which the inflow was observed.
- (3) Should ADOT determine that routine maintenance of the Project's erosion control measures is not being adequately performed, Design-Builder shall correct deficiencies within the cure period set forth in item 4.3 of DBA Exhibit 11 (Noncompliance Event Table).

In the event the Erosion Control Coordinator fails to comply with any of the above requirements, ADOT may direct Design-Builder to stop all affected Work and propose a new Erosion Control Coordinator as soon as possible. However, all erosion and pollution control items specified in the SWPPP shall be maintained at all times. ADOT may direct that no additional Work on construction items affected by the SWPPP will be allowed until a new Erosion Control Coordinator has been approved by ADOT. Design-Builder will not be entitled to an increase in Contract Price, adjustment of Contractual Deadline, or any other Claim for any delays to the Work because of the failure of Design-Builder's Erosion Control Coordinator to properly fulfill the requirements of the approved SWPPP.

(G) Record of Major Construction and Erosion Control Measures

In addition to the Compliance Evaluation Report, Design-Builder shall keep records of the major construction activities, including the erosion control measures associated with these activities. In particular, Design-Builder shall prepare a Record of Major Construction and Erosion Control Measures that includes a record of the following activities:

- (1) The dates when major grading activities (including clearing and grubbing, excavation and embankment construction) occur in a particular area or portion of the site.
- (2) The dates when construction activities cease in an area, temporarily or permanently.

(3) The dates when an area is stabilized, temporarily or permanently.

Such information shall be noted within two Business Days of the occurrence of any of the listed activities, and a copy of the Record of Major Construction and Erosion Control Measures shall be included in the SWPPP. Design-Builder shall submit the Record of Major Construction and Erosion Control Measures (including any subsequent up-dated information) to ADOT in accordance with Table 104-1.

(H) Notice of Termination (NOT)

Upon Final Acceptance (D&C) as determined by ADOT, Design-Builder shall complete and mail a NOT for the Project to the address shown below. The NOT must include a certification statement signed and dated by Design-Builder's Authorized Representative as defined in Part VIII.J.2 of the AZPDES *General Permit*, and include the name and title of that Authorized Representative.

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 may also be submitted electronically, through ADEQ's myDEQ website at <https://azdeq.gov/mydeq>. The NOT for the NPDES permit shall be submitted through the EPA's eReporting Tool at <http://cdx.epa.gov/cdx>. Regardless of the method of submittal, Design-Builder shall submit a copy of the NOT to ADOT in accordance with Table 104-1.

Prior to submitting the NOT to AZDEQ or the EPA, Design-Builder shall maintain seeded areas for 45 Calendar Days and shall be approved by ADOT. Seeding will not be considered as part of any Landscaping Establishment Period.

104.10 Design-Builder's Responsibility for Work

Design-Builder shall implement the requirements of the AZPDES for erosion control due to stormwater runoff during construction, as specified above in Section 104.09.

Until Final Acceptance (D&C) and obtaining final stabilization in accordance with the AZPDES *General Permit*, Design-Builder 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 non-execution of the Work. Design-Builder 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 (D&C).

In case of suspension of Work for any cause whatsoever, unless otherwise directed by ADOT, Design-Builder shall be responsible for the Project and shall take such precautions as may be necessary to prevent damage to the Project and provide for normal drainage and shall erect any necessary temporary structures, signs or other facilities without the right to an increase in the Contract Price, adjustment of a Contractual Deadline, or any other Claim. During such period of suspension of Work, Design-Builder shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings and soddings, furnished under its contract and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

104.12 Environmental Analysis

Design-Builder shall prepare an Environmental Analysis under any of the following conditions:

- (A) If Design-Builder elects to provide material, in accordance with Section 1001 of the ADOT *Standard Specifications*, from a source that involves excavation.
- (B) If Design-Builder elects to use any site to set up a plant for the crushing or processing of base, surfacing, or concrete materials. Design-Builder may request an exemption from this requirement to provide an Environmental Analysis if all of the following conditions apply:

- (1) The site is exclusively used for the processing of materials,
 - (2) The site will not be used for excavation of borrow material,
 - (3) The site was developed as a processing area on or before January 1, 1999,
 - (4) The site is currently operating as a processing area, and
 - (5) The plant is located within that portion of the site that was disturbed prior to January 1, 1999.
- (C) If Design-Builder requests that ADOT approve access to controlled access highway at points other than legally established access points.

Design-Builder may incorporate an existing environmental analysis approved after January 1, 1999, provided that the analysis is updated as necessary to be in compliance with current regulations and with Design-Builder's planned activities.

Regulatory changes, specification changes, or other reasons may preclude the approval of a materials source. Design-Builder acknowledges that ADOT may refuse to approve a material source even if ADOT had approved the source for other projects.

The Environmental Analysis must include all areas of proposed excavation, crushing, processing, and haul roads. For the purposes of this Section 104.12, a haul road is defined as any road on material excavation, processing, or crushing sites, and any road between the respective site and a public highway that may be used by Design-Builder.

Design-Builder shall promptly advise ADOT that it is preparing the Environmental Analysis. Design-Builder shall submit the Environmental Analysis to ADOT in accordance with Table 104-1. Design-Builder should anticipate needing a minimum of 30 Days to prepare the Environmental Analysis.

If the approval of the Environmental Analysis causes a delay to a controlling activity of the Project, Design-Builder shall not be entitled to an increase in Contract Price or any other Claim associated with such delay, but Design-Builder may seek a Contractual Deadline Adjustment in accordance with the DBA Section 8 (Changes to the Contract Documents). The Contractual Deadline Adjustment must not exceed 45 Days. The Contractual Deadline Adjustment will not be considered unless Design-Builder can show evidence of due diligence in pursuing the Environmental Analysis.

The Environmental Analysis shall address all environmental effects, including, but not limited to, the following:

- (1) The location of the proposed source and haul road, and the distance from the source to either an existing highway or an established alignment of a proposed Federal, State or County highway along with vicinity maps, sketches or aerial photographs.
- (2) The ownership of the land.
- (3) The identity and location of nearby lakes, streams, parks, wildlife refuges or other similar protected areas.
- (4) The former use, if known, of the source, and haul road and their existing condition.
- (5) The identification of present and planned future land use, zoning, etc., and an analysis of the compatibility of the removal of materials with such use.
- (6) The anticipated volume of material to be removed; the width, length and depth of the excavation; the length and width of the haul road, and other pertinent features and the final condition in which the excavated area and haul road will be left, such as sloped sides, topsoil replaced, the area seeded, etc.

- (7) The archaeological survey of the proposed source prepared by a person who meets the *Secretary of the Interior's Professional Qualification Standards (48 FR 44716)* and possesses a current permit for archaeological survey issued by the Arizona State Museum. The survey shall be prepared in a State Historic Preservation Office standardized format. The survey shall identify all historic properties within the area of potential effect, as defined by the National Historic Preservation Act (36 CFR 800.4). This includes the materials source, processing area, and the haul road. Additionally, the survey report shall identify the effects of the proposed source on any historic properties within the area of potential effect, and recommend measures to avoid, minimize, or mitigate those effects.
- (8) If the proposed source, or haul road will utilize prime and unique farm land or farm land of statewide importance, a description of such remaining land in the vicinity and an evaluation whether such use will precipitate a land use change.
- (9) A description of the visual surroundings and the impact of the removal of materials on the visual setting.
- (10) The effect on access, public facilities and adjacent properties, and mitigation of such effects.
- (11) The relocation of business or residences.
- (12) Procedures to minimize dust in pits and on haul roads and to mitigate the effects of such dust.
- (13) A description of noise receptors and procedures to minimize impacts on these receptors.
- (14) A description of the impact on the quality and quantity of water resulting from the materials operation shall be provided. The potential to introduce pollutants or turbidity to live streams and/or nearby water bodies shall be addressed. Measures to mitigate potential water quality impacts shall be coordinated through the EPA for sites located on tribal land, and the ADEQ for sites located on non-tribal land.
- (15) A description of the impact on endangered or threatened wildlife and plants and their habitat. The analysis of potential impact to plants and wildlife shall be coordinated through the Arizona Game and Fish Department and U.S. Fish and Wildlife Service. Compliance with the Arizona Native Plant Law shall be coordinated through the Arizona Commission of Agriculture and Horticulture.
- (16) A discussion of the effects of hauling activities upon local traffic and mitigating measures planned where problems are expected.
- (17) A description of the permits required, such as zoning, health, mining, land use, flood plains, Clean Water Act, etc.
- (18) The effect of removing material and/or stockpiling material on stream flow conditions and the potential for adverse impacts on existing or proposed improvements within the flood plain which could result from these activities. Measures to mitigate potential water quality impacts shall be coordinated through the EPA for sites located on tribal land, and the ADEQ for sites located on non-tribal land.

Guidance in preparing the *Environmental Analysis* is available on ADOT's website through the ADOT Environmental Planning Group, or by calling ADOT Environmental Planning Group at (602) 712-7767 or Ed Green at (602) 920-3882.

104.14 Final Clean Up

Before Final Acceptance (D&C), Design-BUILDER shall clean the highway, borrow and local material sources, and all areas occupied by Design-BUILDER in connection with the Work of all rubbish, excess materials, temporary structures and equipment, and all parts of the Work shall be left in a condition acceptable to ADOT. Design-BUILDER shall clean

all existing and new drainage facilities within the limits of the Project before the Project is given Final Acceptance (D&C).

104.15 Providing Magnetic Detection for Underground Facilities

(A) General

All new underground Utility facilities, including service connections and new and extended drainage facilities, placed within the Project ROW by Design-Builder must be magnetically detectable with standard locating instruments. Design-Builder shall place continuous detectable tracer wire with all those underground facilities that lack a continuous and integral metallic component capable of detection by standard locating instruments.

Tracer wire will not be required for power cables and wires, telephonic or electronic communications (other than fiber optic lines), or for landscape irrigation lines smaller than two inches in diameter.

Tracer wire will be required for non-metallic pipe such as corrugated high density polyethylene plastic pipe, steel reinforced high density thermoplastic ribbed pipe, corrugated polypropylene plastic pipe, vitrified clay pipe, and for polyvinyl chloride pipe two inches in diameter and larger. Tracer wire will be required where the metallic component is encased within the pipe, such as reinforced concrete pipe, rubber gasket reinforced concrete pipe, and steel cylinder concrete pipe.

Tracer wire will also be required for non-metallic cable, service connections, and other Utility lines; fiber optic lines; empty duct banks and duct banks containing a Utility that is not magnetically detectable, either before or after backfilling; and other facilities as determined by ADOT.

All new installations of cast iron and ductile iron pipes shall also be made detectable with tracer wire.

For all other underground facilities, should the magnetic characteristics be unknown, Design-Builder shall perform sufficient tests with standard locating instruments to determine whether tracer wire will be necessary, and provide the results to ADOT. Such tests shall be performed prior to construction.

Design-Builder shall also provide access points, as specified below, for all facilities that will receive tracer wire.

(B) Materials

Tracer wire shall be solid copper wire, American Wire Gauge No. 12 or larger. Tracer wire shall be coated with a minimum 30 mil polyethylene jacket designed specifically for buried use. Tracer wire shall conform to the specifications of the National Electrical Code, Underwriters Laboratory, and other applicable industry standards. Splices as required to promote continuity shall utilize sealed watertight connections.

New access boxes shall be in accordance with Subsection 732-2.03 of the ADOT *Standard Specifications* (Number 5 Pull Box, Traffic Standard T.S. 1-1), except that the cover shall be marked with the name of the Utility or type of facility.

(C) Construction Requirements

Design-Builder shall install tracer wire along the top of the entire length of the underground facilities. The tracer wire shall be attached to the facility at minimum intervals of not more than 20 feet and shall be secured in such a manner that the wire remains firmly attached throughout the construction period.

Tracer wire shall be made accessible along the facility through appropriate pull boxes or other means as approved by ADOT. New or existing junction boxes or pull boxes included in the construction of conduit or other transmission facilities shall be utilized as access structures wherever possible. For sanitary and storm sewer pipe, tracer wire shall run along the exterior of the structure and terminated in pull boxes located as described herein. The access boxes shall be immediately adjacent to the manhole or catch basin. For water lines requiring tracer wire, Design-Builder shall provide access to the wire within the valve boxes. Design-Builder shall provide and install new access boxes for all tracer wire which cannot be terminated in a new or existing junction or pull box, or new manhole or valve box.

- 1 Pull boxes shall be installed flush with the finished grade.
- 2 Tracer wire shall be securely attached to the facility at each access point and extended vertically to the access box.
- 3 The tracer wire shall be terminated with a minimum of 12 inches of slack above the bottom of the pull box.
- 4 Tracer wire installed for each segment of underground facility shall be terminated at each access point within the
- 5 pull box, junction box, manhole, or valve box. Design-Builder shall make no connections or splices of tracer wire
- 6 across access points.
- 7 New pull boxes installed exclusively for tracer wire shall be placed directly above the Utility line in easily reachable
- 8 areas.
- 9 For facilities that cross the Schematic ROW, tracer wire shall be made accessible at the ROW line at approved access
- 10 points.
- 11 For facilities placed longitudinally in Schematic ROW, access points shall be located between the ROW line and the
- 12 outside edge of the shoulder or grader ditch, or back of sidewalk or curb and gutter as applicable. Access boxes
- 13 installed exclusively for tracer wire shall be provided at intervals no greater than 2,000 feet or, as a minimum, at the
- 14 point each line crosses Schematic ROW. If the Utility line is placed outside the preferred location of the access box
- 15 as described above, the box shall be located in the preferred location and tracer wire shall be installed in a suitable
- 16 conduit and brought up to the pull box.
- 17 For jacking and boring, tracer wire shall be placed inside the jacked sleeve and attached to the underground facility.
- 18 Empty conduits and duct banks shall have a tracer wire attached to the outside of the facility.
- 19 When sanitary sewer force mains are installed in Project ROW, tracer wire access shall be accomplished by attaching
- 20 the wire to the outside of wet wells and terminating the wire in pull boxes (Number 5, Traffic Standard T.S. 1-1)
- 21 placed adjacent to the wet well.

22 (D) Testing

- 23 Design-Builder shall test all installed tracer wire, and all those facilities determined to be magnetically detectable
- 24 without tracer wire, with standard locating instruments to verify conductivity, both before and after backfilling, and
- 25 provide the results to ADOT. Design-Builder shall install new tracer wire or detectable tape for those newly installed
- 26 utilities that fail to be detectable, at no additional cost to ADOT. Tracer wires that fail to test properly shall also be
- 27 replaced at no additional cost to ADOT.
- 28 Design-Builder shall prepare a Tracer Wire Report for each element requiring magnetic detection that includes all
- 29 conductivity test results of tracer wires installed. Design-Builder shall submit the Tracer Wire Report to ADOT in
- 30 accordance with Table 104-1.

31 (E) Documentation of Underground Facilities

- 32 All new underground facilities, including service connections, placed within Project ROW by Design-Builder must be
- 33 field surveyed with the X, Y, and Z coordinates documented prior to final cover. Design-Builder shall survey and
- 34 document the beginning and end points, turns, dips, valves, manholes, and other features of each underground
- 35 facility.

36 104.17 Submittals

- 37 Table 104-1 reflects a list of Submittals identified in this Section 104 and is not intended to be an all-inclusive listing
- 38 of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a
- 39 minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to
- 40 ADOT in the formats described in Section 113.02:

1

Table 104-1: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Geotechnical Exploration SWPPP</u>	2	Not less than 30 Days prior to any Geotechnical Explorations	104.09(A)
2.	<u>Draft SWPPP</u>	2	Not later than 30 Days after ADOT's approval of the Erosion Control Coordinator	104.09(B)
3.	<u>SWPPP</u>	2	Prior to clearing, grubbing, earthwork, Geotech exploration or other work elements affected by the erosion control requirements in the <u>SWPPP</u>	104.09(B)
4.	<u>SWPPP Revisions</u>	2	Not later than 3 Business Days from ADOT's request	104.09(B)
5.	<u>Project Completion SWPPP</u>	2	Not later than 2 Business Days after submittal of the <u>NOT</u> to ADEQ	104.09(B)
6.	Copy of the <u>NOI</u>	2	Not later than 2 Business Days after submittal of the <u>NOI</u> to ADEQ	104.09(C)
7.	Copy of the <u>Authorization Certificate</u>	2	Not later than 2 Business Days after receipt of the <u>Authorization Certificate</u> from ADEQ	104.09(C)
8.	<u>Temporary Bridges and Other Structures Design</u>	2	As determined by Design-Builder	104.09(D)
9.	<u>Compliance Evaluation Report</u>	2	Every 14 Days and within 24 hours after any storm event of 0.50 inches or more and after each inspection	104.09(E)(1)
10.	<u>Record of Major Construction and Erosion Control Measures</u>	2	Not later than 3 Business Days after completion or amendment of the report	104.09(G)
11.	Copy of the <u>NOT</u>	2	Prior to Final Acceptance (D&C)	104.09(H)
12.	<u>Environmental Analysis</u>	2	Prior to performing the Work described as a condition to prepare an <u>Environmental Analysis</u>	104.12
13.	<u>Tracer Wire Report</u>	4	Not later than 10 Business Days after testing	104.15(D)
Notes: A. Levels of Review 1. Sole discretion or absolute discretion approval (DBA Section 3.01(B)(1)) 2. Good faith discretion approval (DBA Section 3.01(B)(2)) 3. Review and comment (DBA Section 3.01(B)(3)) 4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))				

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End Section

105 Control of Work**105.05 Restricted Performance Specifications**

When the Work is performed under a restricted performance specification, the target values specified shall be considered to be the values strived for and from which no deviation is allowed.

It is the intent of the Technical Provisions and ADOT *Standard Specifications* that the materials and workmanship shall be uniform in character and shall conform as nearly as realistically possible to the prescribed target value or to the middle portion of the tolerance range. The purpose of the tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons. When either a maximum and minimum value or both are specified, the production and processing of the material and the performance of the Work shall be so controlled that material or Work will not be predominantly of borderline quality or dimension. ADOT will determine acceptability of materials or construction as outlined in the applicable sections of the Technical Provisions and ADOT *Standard Specifications*.

105.09 Cooperation Between Contractors**(A) General**

ADOT may contract with contractors to perform other work adjacent to or within the Project.

(B) Future Projects

It is anticipated that work by other contractors on the projects listed in Table 105-1 may be in progress adjacent to or within the Site during progress of the Work. The anticipated future projects listed in Table 105-1 are anticipated projects known by ADOT and may not be all-inclusive and may be incomplete. During the design and construction of the Project, Design-Builder shall actively and aggressively pursue and implement measures to facilitate the overall construction and MOT of the Project in coordination with all adjacent work.

Table 105-1: Current and Future Projects

No.	Project Owner	Project Name	Project Status
1.	ADOT	I-10, Bridges Over the Gila River (TRACS No. F0270) ^A	Construction Ongoing
2.	ADOT	SR 202L (South Mountain Freeway) I-10 (Maricopa Freeway) – I-10 (Papago Freeway) (M8827)	Maintenance/ Construction Ongoing
3.	ADOT	I-10, Gila River Bridge to Gas Line Rd (TRACS No. F0734) ^A	Construction Planned Fall 2026
4.	ADOT	I-10, Gas Line Rd to SR 387 (TRACS No. F0336 / F0337) ^A	Construction Planned early 2026
5.	ADOT	SR 202L (Santan)Val Vista Rd to SR 101L (TRACS No. F0124)	Construction Ongoing
6.	ADOT	SR 347, I-10 to City of Maricopa; Road Improvements (TRACS F0581)	Construction Planned Summer 2026
7.	GRIC (Lone Butte Development Corporation)	Sundust Rd and Nelson Drive Intersection (AZMUN2410)	Construction Planned Quarter 1 2026
8.	GRIC (Gila River Development)	Koli Rd, Maricopa Road to I-10	TBD

No.	Project Owner	Project Name	Project Status
9.	Maricopa County Department of Transportation (MCDOT)	Riggs Rd Pavement Preservation, I-10 to Dobson Rd (TT0733)	Construction Planned Fiscal Year 2027
<u>Note:</u> A. Projects comprising the I-10 Wild Horse Pass Corridor (the Corridor).			

Design-Builder shall prepare a Future Projects List that includes the projects in Table 105-1, any other projects that may impact the Project, and the project status. The Future Projects List must be described, updated, and maintained as part of the Corridor Transportation System Management Meeting requirements as identified in Section 108.13(G). Design-Builder shall update and submit the Future Projects List to ADOT in accordance with Table 105-2.

Design-Builder shall immediately notify ADOT of future projects that impact the Work. Design-Builder shall identify design, MOT, construction, material, and schedule impacts of any potential changes given the timing of future projects. Changes caused by future projects may result in an ADOT-Directed Change.

105.14 Load Restrictions

Design-Builder shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the Project. Information is available on the ADOT's Motor Vehicle website related to loading limitations and procurement of oversize and overweight permits on state routes. Permits for use on other than state routes shall be procured from the Community, Utility Company, and Governmental Entity as applicable. A special permit will not relieve Design-Builder of liability for damage which may result from hauling of material or moving of equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or the roadway or to any other type of construction will not be permitted. No loads will be permitted on a Portland cement concrete pavement, base or structure before the expiration of the curing period. Design-Builder shall be responsible for all damage done by Design-Builder's hauling equipment. In no case shall legal load limits be exceeded unless permitted in writing by ADOT.

105.15 Maintenance During Construction

Design-Builder shall perform all maintenance work in accordance with this Section 105.15, and TPA 105-1 (Maintenance During Construction).

Design-Builder is responsible for the complete maintenance of all new and existing facilities within the Project ROW and as listed herein beginning at issuance of NTP 2 through the completion of Final Inspection. This includes all conduit and conductor; however ADOT will maintain the ADOT signal cabinets and all equipment contained within. Design-Builder shall maintain all new signals installed as part of the Project.

Design-Builder has 90 Days from issuance of NTP 1 to satisfy itself of the preconstruction condition of the existing lighting system, landscape and irrigation systems, signal system, and freeway management system (FMS) system. Design-Builder shall schedule field meetings with ADOT to review and document the preconstruction condition of the lighting system, signal system (excluding the signal cabinets and all equipment within) landscape and irrigation systems, and FMS system in a manner acceptable to ADOT. Design-Builder shall prepare a Preconstruction Condition Assessment Memo that documents any deficiencies or state that no deficiencies were found. Prior to performing any condition assessments, all Design-Builder personnel, including its Subcontractors, performing such work must take the Cultural Sensitivity Orientation in accordance with Section 117.02(G). Design-Builder shall submit the Preconstruction Condition Assessment Memo to ADOT in accordance with Table 105-2.

Design-Builder has 90 Days from issuance of NTP 1 to satisfy itself of the preconstruction condition of the existing drainage system. Design-Builder shall schedule field meetings with ADOT to review and document the

preconstruction condition of the drainage system in a manner acceptable to ADOT. Design-Builder shall prepare a Preconstruction Drainage System Memo documenting any deficiencies or state that no deficiencies were found. Design-Builder shall submit the Preconstruction Drainage System Memo to ADOT in accordance with Table 105-2.

Work needed to repair the preconstruction existing facilities shall be paid for as Extra Work Costs through an ADOT-Directed Change; provided, however, that any facility that will be replaced as part of Design-Builder's design for the Work shall not be considered an ADOT-Directed Change.

Maintenance of existing facilities also includes the repair or replacement of any existing facility damaged by Design-Builder activities at no cost to ADOT, regardless of location. Utility services shall be in accordance with DBA Section 12 (Utility Adjustments).

(A) General Requirements

Design-Builder shall designate a Maintenance Coordinator who is available both during and after normal work hours and able to authorize maintenance work on behalf of Design-Builder. The Maintenance Coordinator shall hold a monthly Maintenance Coordination Meeting in accordance with Section 108.13(M).

Any existing facility or feature maintained by Design-Builder shall be replaced when repairs to the facility, in ADOT's good faith discretion, would not restore the facility to at least the same condition (in terms of operational and safety characteristics, and aesthetics) as before it was damaged.

(B) Equipment

Design-Builder shall provide and maintain, during the performance of the Work, equipment sufficient in number, operational condition, and capacity to efficiently perform the Work and render the services required by the Contract Documents.

All vehicles must be maintained in good repair, appearance, and sanitary condition at all times. Truck beds shall be tight and have enclosed sideboards and covered tops capable of containing the refuse collected. Equipment, machinery, component, or system failures, which affect the safe operation of any equipment, shall be corrected prior to using the equipment.

105.16 Failure to Maintain Roadway or Structure

Design-Builder shall perform Maintenance During Construction in accordance with Section 105.15 and within the repair response times and frequencies set forth in TPA 105-1 (Maintenance During Construction). If at any time Design-Builder fails to comply with the provisions of Section 105.15, ADOT will immediately notify Design-Builder of the occurrence of a Noncompliance Event and points will be assessed in accordance with DBA Exhibit 11 (Noncompliance Event Table).

105.23 Submittals

Table 105-2 reflects a list of Submittals identified in this Section 105 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 105-2: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Future Projects List</u>	4	Quarterly through Final Acceptance (D&C)	105.09(B)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
2.	<u>Preconstruction Condition Assessment Memo</u>	4	Not later than 90 Days after issuance of NTP 1	105.15
3.	<u>Preconstruction Drainage System Memo</u>	4	Not later than 130 Days after issuance of NTP 1	105.15
<u>Notes:</u> A. Levels of Review 1. Sole discretion or absolute discretion approval (DBA Section 3.01(B)(1)) 2. Good faith discretion approval (DBA Section 3.01(B)(2)) 3. Review and comment (DBA Section 3.01(B)(3)) 4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))				

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End Section

106 Control of Materials**106.12 Intentionally Left Blank****106.14 Approved Products List**

The *Approved Products List* is a list of products which have been shown to meet the requirements of the ADOT *Standard Specifications*. The *Approved Products List* is maintained by ADOT and updated monthly. Copies of the most current version are available on the internet from the ADOT Research Center, through its *Product Evaluation Program*.

106.15 Domestic Material and Products

Steel and iron materials and products used on the Project shall comply with the current “Buy America” requirements of 23 CFR § 635.410.

All manufacturing processes to produce steel and iron products used on the Project shall occur in the United States. Raw materials used in manufacturing the steel and iron products may be foreign or domestic. Design-Builder shall track quantities of steel or iron not meeting these requirements used in products on the Project provided that the cost to Design-Builder for such steel products incorporated into the Work does not exceed either one-tenth of 1% of the Contract Price or \$2,500, whichever is greater.

Any process which involves the application of a coating to iron or steel shall occur in the United States. These processes include epoxy coating, galvanizing, painting, or any other coating which protects or enhances the value of covered material.

The requirements specified herein shall only apply to steel and iron products permanently incorporated into the Project. “Buy America” provisions do not apply to temporary steel items, such as sheet piling, temporary bridges, steel scaffolding and falsework, or to materials which remain in place at Design-Builder’s convenience.

Design-Builder shall prepare *Certificates of Compliance*, conforming to the requirements in Section 106.05 of the ADOT *Standard Specifications*, which state that steel or iron products for the Project meet the requirements. The *Certificates of Compliance* shall also certify that all manufacturing processes to produce steel products, and any application of a coating to iron or steel, occurred in the United States.

106.16 Reclaimed Asphaltic Concrete Materials

The Project may include uses for reclaimed asphaltic concrete (RAP). Uses may include AC millings for constructing temporary median crossovers when allowed in the Contract Documents, or for other Project-specific items.

If the Project includes RAP, Design-Builder shall ensure that sufficient Project-generated RAP is available to complete the mandatory item(s), or provide RAP from other sources, acceptable to ADOT, to complete such mandatory Work, at no additional cost to ADOT.

106.17 Construction Materials

Design-Builder shall comply with the construction material requirements of Buy America and Build America, Buy America as specified in TPA 113-5 (*Summary Index of ADOT Stored Specifications*).

End Section

107 Legal Relations and Responsibility to Public**107.11 Protection and Restoration of Property and Landscape**

Design-Builder shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks until ADOT has witnessed or otherwise referenced their location.

Private mailboxes within the limits of operations shall be temporarily or permanently relocated, as required, by Design-Builder in such a manner as to permit uninterrupted mail service.

Existing fences, pole lines, signs, buildings, and structures that are to remain in place shall be protected from injury or damage.

Design-Builder shall be responsible for all damage or injury to property of any character, during the prosecution of the Work, resulting from any act, omission, neglect, or misconduct in Design-Builder's manner or method of executing Work or at any time due to defective Work or materials and Design-Builder will not be released from said responsibility until the Project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the Work or in consequence of the nonexecution thereof by Design-Builder, Design-Builder shall restore, at no additional cost to ADOT, such property to a condition similar to or equal to that existing before such damage or injury was done, by repairing, rebuilding or otherwise restoring as may be directed or it shall make good such damage or injury in an acceptable manner.

Design-Builder shall not deface, injure, or destroy trees, shrubs, or cacti except as required to complete the Work. Materials removed during construction operations such as trees, stumps, building materials, irrigation, and drainage structures, broken concrete and other similar materials shall not be dumped on either private or public property unless Design-Builder has obtained written permission from the owner or public agency with jurisdiction over the land. Written permission will not be required, however, when materials are disposed of at an operating, public dumping ground.

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

Haul routes outside of slope staked areas shall be as short as practical and shall minimize defacement of or injury to landscape features and vegetation. Such haul routes shall be obliterated and the ground restored to a condition similar to or equal to that existing before such hauling was started.

107.15 Design-Builder's Responsibility for Utility Property Services

After issuance of NTP 2, Design-Builder shall perform ADOT's underground Utility field location duties for the Site that is requested by a third party through ADOT. Design-Builder shall perform ADOT's underground Utility field location duties for ADOT facilities and for any Utility Adjustments performed by Design-Builder. Design-Builder shall perform the Utility field location duties in accordance with the requirements in Arizona Revised Statutes (ARS) § 40-360.21 through 40-360.29, for all underground facilities until ADOT has issued Final Acceptance (D&C).

End Section

108 Prosecution and Progress**108.12 Schedules****(A) General**

Design-Builder shall prepare, furnish, and use the Project Schedule to plan, monitor, and report the progress of the Work. The Project Schedule shall demonstrate a detailed plan to complete the Work in accordance with the Contract Time and be used in communication to coordinate activities among all affected parties.

ADOT's review and comment on the Project Schedule with this specification does not do the following:

- (1) Imply or constitute approval of particular construction methods or relieve Design-Builder of its responsibility to provide sufficient materials, equipment, and labor to complete the Project in accordance with the Contract Documents;
- (2) Attest to the validity of assumptions, activities, relationships, sequences, resource allocations, or other aspects of the Project Schedule;
- (3) Imply Design-Builder is entitled to a Supplemental Agreement extending the Contract Time or adjusting the Contract Price; and
- (4) Relieve Design-Builder from compliance with the requirements of the Contract Documents or result in the approval of a Deviation, exception to or other variation from the Contract Documents. Failure to include an element of Work required by the Contract Documents in the Project Schedule does not release or relieve Design-Builder from responsibility to perform such Work.

In preparing, developing and updating the Project Schedule Design-Builder shall not utilize:

- (1) Float Suppression/Sequestering techniques in the Project Schedule, including interim dates imposed by Design-Builder other than Contractual Deadlines;
- (2) The inclusion of activities or constraints in a path or chain leading to a Contractual Deadline which are unrelated to the Work as specified in the Contract Documents; and
- (3) Activity durations or sequences determined by ADOT to be unreasonable in whole or in part.

Design-Builder shall not use preferential sequencing, whereby activities that could be performed concurrently are established in the Project Schedule as sequential simply to consume Float. Design-Builder shall not indicate artificial activity durations by inflating activities in the Project Schedule to consume Float and influence the Critical Path. Sequestering of Float is cause for rejection of Design-Builder's schedule submittal. If Float Sequestering is identified, Design-Builder shall revise the Project Schedule appropriately.

Total Float is a commodity available to both ADOT and Design-Builder for sequential use until depleted and not for the exclusive use or financial benefit of either party. A Project Schedule that shows an early completion date shall show the time between the scheduled completion date(s) and the required Contractual Deadline(s) as Total Float.

ADOT will not be liable to Design-Builder for delays by any party when Design-Builder completes the Work prior to expiration of Contract Time.

If a delay in performing the Work is caused by ADOT, Design-Builder shall immediately notify ADOT in writing that a revision to the Contract Documents is necessary in accordance with DBA Section 8 (Changes to the Contract Documents). Design-Builder shall include a description of the cause of delay, the projected amount of Total Float to be used, and the revised Monthly Progress Schedule showing the use of the Total Float in the Monthly Progress Submittal. Design-Builder 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.

Design-Builder shall coordinate with ADOT, the Community through ADOT, Utility Companies and Governmental Entities, and any third-party entities when developing and maintaining the Project Schedule. Design-Builder shall coordinate its planning and scheduling efforts as required to address conflicts and comments received from adjacent projects and other entities.

(B) Preliminary Schedule

Design-Builder developed and submitted a Preliminary Schedule as part of its Proposal.

(C) Baseline Schedule

Design-Builder shall use the Preliminary Schedule as the foundation to prepare the Baseline Schedule.

The Baseline Schedule shall be in the following format:

(1) Project identification (ID): The schedule project ID shall be in accordance with Section 108.12(J). The Project name shall be the route number followed by the Project description.

(2) Activity ID: Each activity shall be assigned a unique identification number. Activity ID numbers shall not be changed or reassigned for the duration of the DBA. Within each group of the work breakdown structure (WBS), activity ID's shall be numbered sequentially in increments of 10 in the order of their start date or by finish date of a finish milestone. Milestone activities shall begin with "M". Use 10 characters or less.

(3) Activity Name: Each activity shall be defined with a unique name that contains the description of Work. Each name shall at a minimum consist of a verb or work function (e.g., remove, excavate, form, install), an object (e.g., curb, pipe, footing) and a location (e.g., street, station, bridge number). For example, "Install Barrier Dtl C – S1 120+25 Lt". The activity quantity may be included after location.

Design-Builder shall create an activity name using the following:

- (a) Use 50 characters or less;
- (b) Use "S1, S2, ..." for stage naming if applicable;
- (c) Do not use all capital letters;
- (d) Keep names readable, but use abbreviations as needed. Do not use periods when abbreviating. All abbreviations shall be consistent; and
- (e) Location is not required if object name is specific, such as "CMP #201".

Design-Builder shall provide a list of abbreviations and acronyms. The Work related to each activity shall be limited to one stage, one area, one traffic control phase, and one responsible party of the DBA.

(4) Activity Code: Activities shall be assigned with project activity codes that will be used to classify, categorize and organize activities for reporting. Only use project level activity codes and not global or enterprise codes. At a minimum, all activities shall have an activity code for responsible party, stages, and phases. Additional activity codes shall be added if requested by ADOT.

- (5) Milestones: Design-Builder shall separately identify each Milestone, including Contractual Deadlines, conforming to the scheduling requirements set forth in the Contract Documents.
- (6) Constraints: Design-Builder shall not use date constraints to logically begin or complete a Project activity unless specific calendar dates are shown in the Contract Documents. Specific DBA dates may only be applied as a constraint to a Milestone activity and input as either a "Start on or After" or "Finish on or Before" date. No other constraint types shall be allowed.
- (7) Duration: Activity duration shall not exceed 20 Business Days unless approved by ADOT. Activity durations shall be at least one Day. Durations shall represent the anticipated productivity rates that factor in all limitations to the productivity. Long lead activities such as procurement and Level of Effort activities may exceed 20 Days.
- (8) Relationships: All activities shall have at least one Predecessor and one Successor except for the Project start and Project end milestones. Negative lags or negative Floats shall not be allowed. Predecessors and Successors shall not be linked to the same activity with different relationship types. The start of an activity shall have a Start-to-Start or Finish-to-Start relationship with preceding activities. The completion of an activity shall have a Finish-to-Start or Finish-to-Finish relationship with succeeding activities. Do not use Start-to-Finish relationships. Do not use finish-to-start relationships with a lag or overlap.
- (9) If applicable, the Project Schedule shall include but not be limited to all activities below:
- (a) Mobilization/demobilization;
 - (b) Project ROW activities;
 - (c) Environmental commitments and mitigation activities;
 - (d) Training;
 - (e) NTP 1 Work;
 - (f) Design;
 - (g) Submittal development;
 - (h) Submittal review;
 - (i) Submittal and approval of material samples and mix designs;
 - (j) Submittal and approval of Shop Drawings and Working Drawings;
 - (k) Long lead items, including material and equipment procurement and delivery;
 - (l) Equipment and plant setup;
 - (m) Major traffic stage changes;
 - (n) Fabrication/delivery of special items;
 - (o) Erection and removal of falsework and shoring;
 - (p) Utility and railroad relocations, including removals and abandon in-place close out documentation;
 - (q) Cure times for concrete;
 - (r) Cure times for pavement before striping;

- 1 (s) Construction, including temporary items;
- 2 (t) Interfaces with other contractors, Utilities, etc.;
- 3 (u) Fabrication drawings reviews;
- 4 (v) Formliner manufacturer's facility visits;
- 5 (w) Mock ups;
- 6 (x) Test periods;
- 7 (y) Quality assurance/quality control (QA/QC);
- 8 (z) Substantial Completion;
- 9 (aa) Final Inspection;
- 10 (bb) Punchlist completion;
- 11 (cc) Landscaping Establishment Period; and
- 12 (dd) Final Acceptance (D&C).
- 13 (10) The Project Schedule shall be in sufficient detail to allow day to day monitoring and review of
- 14 Design-Builders operations. It shall show the order and interdependence of activities and the
- 15 sequence of Work.
- 16 (11) Design-Builders shall detail the Critical Path activities and logic ties in the Project Schedule to
- 17 show the Work sequencing. Design-Builders shall use the critical path method (CPM) software
- 18 to determine the controlling activities in the Critical Path. The critical activities shall be
- 19 prominently distinguished on all reports by the use of color or pattern.
- 20 (12) Design-Builders shall provide the number of activities to assure adequate Project planning and
- 21 allow for monitoring and evaluation of Work progress.
- 22 (13) Design-Builders shall provide activities as necessary to depict third-party work related to the
- 23 Contract Documents. Third-party work activities may include but are not limited to real estate
- 24 and the Community, Utility Companies, and Governmental Entities.
- 25 (14) The Project Schedule shall identify all design Submittals up to and including release for
- 26 construction (RFC) Submittal and all construction Submittals, and accounting for review
- 27 periods and number of Submittal metering requirements in accordance with
- 28 TP Section 113.03(C).
- 29 (15) The Project Schedule shall identify individual Submittals for each bridge and wall structure.
- 30 (16) The Project Schedule shall identify preceding Submittals such as reports, calculations,
- 31 specifications, Shop Drawings and Working Drawings, etc.
- 32 (17) Seasonal, traffic, special event, environmental, or other restrictions in the Contract
- 33 Documents shall be considered and included in the Project Schedule for all Work. These
- 34 restrictions shall be addressed with project calendars and shown as non-work days for each
- 35 major work type. Global calendars shall not be used. Examples of major work types are
- 36 earthwork, concrete paving, structures, asphalt, drainage, landscaping, etc.
- 37 (18) Design-Builders shall include project calendar for curing time if applicable.

- (19) The Duration for each activity shall include the anticipated production rate and the time for anticipated weather stoppages. Design-Builder shall not reserve random non-work days in a project calendar to account for weather stoppages.
- (20) The Project Schedule shall have a Data Date of the start date shown in the issuance of NTP 1 letter.
- (21) When processing the Project Schedule in the software, Design-Builder shall use the following options:
- (a) When scheduling progressed activities use retained logic;
 - (b) Calculate start-to-start lag from early start;
 - (c) Define critical activities as Longest Path;
 - (d) Compute Total Float as Finish Float = late finish – early finish; and
 - (e) Calendar for scheduling relationship lag as predecessor activity calendar.
- (22) The bar chart schedule plot shall be accompanied by a schedule report of the network with a tabulation of the following data for each activity:
- (a) Activity ID;
 - (b) Activity name;
 - (c) Original duration;
 - (d) Early start date;
 - (e) Early finish date;
 - (f) Late start date;
 - (g) Late finish date;
 - (h) Predecessors;
 - (i) Successors;
 - (j) Free Float;
 - (k) Total Float;
 - (l) Primary constraint date;
 - (m) Calendar; and
 - (n) Responsibility for activity – e.g., Design-Builder, Subcontractor, supplier, etc.
- (23) Price Allocation: Price shall be allocated throughout the Project activities in the Project Schedule. Some activities may not have a corresponding bid item; however, prices shall be included to accurately reflect Design-Builder's price allocation for each corresponding activity. The bid item number and description shall be included in the resource name. Design-Builder shall not artificially inflate, imbalance, or front-load items in the Project Schedule. Design-Builder shall include a tabular schedule report of all prices associated with material resources.
- (24) Resources: Design-Builder shall resource load the Project Schedule by assigning every construction activity the appropriate labor, nonlabor, and material resources. Design-Builder

shall base a labor resource on the total number of workers, not total number of crews. A nonlabor resource shall be assigned for all major construction equipment to be used by Design-Builder and Subcontractors in prosecuting the Work. Design-Builder shall include a tabular schedule report of all resources assigned to each activity.

Design-Builder shall submit the Baseline Schedule to ADOT in accordance with Table 108-3.

(D) Monthly Progress Schedule

After the approval of the Baseline Schedule, Design-Builder shall submit a Monthly Progress Schedule until Final Payment. Design-Builder shall prepare and submit the Monthly Progress Schedule and Narrative concurrent with the Draw Request. The Monthly Progress Schedule shall reflect progress up to the Data Date, forecast finish for in-progress activities and re-forecast early dates for activities planned in the next update period. The Monthly Progress Schedule shall meet all format requirements specified in this Section 108.12(D) and shall include the following:

- (1) Actual start and finish dates for completed activities;
- (2) Actual start dates, percentage complete, and remaining duration for activities in progress;
- (3) All proposed activities, logic, and date revisions required to:
 - (a) Implement changes in the Work;
 - (b) Detail all impacts on preexisting activities, sequences, and dates;
 - (c) Reflect Design-Builder's current approach for Work remaining;
 - (d) Incorporate delays that have been agreed upon between ADOT and Design-Builder; and
 - (e) Incorporate accepted substitution proposals.
- (4) Planned start and finish dates for activities that have not started; and
- (5) All design Submittal schedule updates.

Design-Builder shall show actual progress based on actual percentage completion of the activity addressed as "Percent Complete" with adjustments to remaining duration and non-calculated progress in the Monthly Progress Schedule. Design-Builder shall incorporate logic changes and Work changes into the Monthly Progress Schedule. Percent complete types shall be set to "physical". Each Monthly Progress Schedule Submittal shall clearly and individually define the progression of the Work within the applicable timeframe by updating the current and planned Project activities.

If Work is performed out of sequence, Design-Builder shall implement logic changes to allow the out of sequence Work to proceed. Design-Builder shall exclude all revisions for Design-Builder's convenience when reconciling an extension to a Milestone. Design-Builder shall document changes, which shall be highlighted or identified, in the Monthly Progress Schedule.

Design-Builder shall impose no other date restrictions in the Monthly Progress Schedule, unless Design-Builder provides an explanation of the basis for such date restrictions and such explanation is acceptable to ADOT.

Design-Builder shall provide additional, separate, filtered reports of the Project activities including the following:

- (1) Bar chart schedule plot showing all Critical Path activities, long-term Lane Closures, and the status of these activities as of the date of the update.
- (2) Bar chart schedule plot that compares Design-Builder's progress to planned progress for each activity.

- (3) 30-Day look-ahead report listing all Design Document Submittals.
- (4) Total Float report displaying float from least to greatest for all activities with 14 Days or less of Total Float.
- (5) 60-Day look-ahead report identifying all required ADOT, Community, BIA, Utility Companies, and Governmental Entities approvals.
- (6) 60-Day look-ahead bar chart schedule plot sorted by WBS and activity early start dates including the responsible party.
- (7) Monthly expenditure table and cash flow expenditure curve for the Project.

Design-Builder shall submit Monthly Progress Schedules to ADOT in accordance with Table 108-3. If ADOT requests a revision or justification, Design-Builder shall submit a revision or justification to the satisfaction of ADOT within five Business Days. Failure to comply with the Project Schedule requirements specified herein, or provide revisions or justifications within five Business Days for ADOT's approval will result in withholding 10% of corresponding Draw Request. The withheld 10% of the Draw Request will be paid on the Draw Request following the approval of the Monthly Progress Schedule with acceptable revisions or justifications.

Once the Monthly Progress Schedule is approved by ADOT, Design-Builder shall use the approved Monthly Progress Schedule as the basis for the next Monthly Progress Schedule.

(E) Narrative

With each Project Schedule Submittal, Design-Builder shall prepare and submit a stand-alone schedule Narrative with details that explain the basis of the submitted Project Schedule. The schedule Narratives shall not be considered notification of delay, Supplemental Agreements, or other issues.

- (1) For the Baseline Schedule, the schedule Narratives shall include at a minimum:
 - (a) Design-Builder's site management plan and schedule of activities (e.g., lay down, staging, traffic, and parking);
 - (b) The use of construction equipment and resources for major items;
 - (c) The basis and assumptions for critical activity durations and logic;
 - (d) Compliance with temperature, weather and seasonal requirements. Show how and where this is applied and accounted for in the schedule;
 - (e) List all calendars used and describe their usage;
 - (f) Anticipated hours per shift, shifts per work day, and work days per week;
 - (g) Justification for all constraints used;
 - (h) Justification for an activity with a duration exceeding 20 Business Days;
 - (i) Design-Builder'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 shall be placed before concrete is placed"] or relationships are used to show limited resources [such as "bridge two follows bridge one" because Design-Builder has only one bridge crew]);
 - (j) A written construction phasing plan supporting the approach to the Work outlined. The written construction phasing plan shall include at a minimum each phase for MOT, changes in traffic control, and the construction activities and disciplines to be

performed under each construction phase. The construction phasing plan shall show dates of MOT phase changes that are coordinated with the schedule;

(k) The reasons for the sequencing of Work, including a description of all limited resources, potential conflicts, and other items that may affect the schedule and how they may be resolved;

(l) Anticipated production rates for major activities including but not limited to earthwork, hauling, drainage, asphalt paving, prestressed concrete cylinder pipe, curb and gutter paving, barrier walls paving, etc. Each activity shall be shown with its activity ID, activity name, production rate, equipment used to achieve the production rate (include quantity of pieces of equipment with all attachments), and duration of activity;

(2) For Monthly Progress Schedules, Recovery Schedules, and Supplemental Agreement and Time Impact Analysis Schedules, as part of the Narrative, in addition to the information above, if changes were made, Design-Builder shall submit a report that includes at a minimum:

(a) Recap and explain progress and days gained or lost versus the previous Monthly Progress Schedule Submittal.

(b) Discuss all actions and corrections to be taken to achieve Baseline Schedule Milestones.

(c) Explain in detail all Critical Path activities behind schedule and challenges that may arise with planned Critical Path activities. Explain all activities that have changed from a non-Critical Path to the Critical Path. Identify near-Critical Path activities that could become Critical Path activities.

(d) Describe changes in resources and productivity rates to be used on remaining Work.

(e) A Monthly Delay Log identifying all delays and explaining root causes, their extent, responsible party, classification, and supporting documentation.

(f) List all activities that have been added or removed from the Project Schedule and an explanation of those changes.

(g) List and explain all changes in activities, sequence, durations, and logic ties. Explain changes caused by each Supplemental Agreement, schedule recovery plans and grouping of related Design-Builder initiated revisions.

(h) Describe all coordination with Utility Companies and accomplishing Utility Work.

(i) All negative Float shall be explained in detail.

Design-Builder shall submit Narratives to ADOT in accordance with Table 108-3.

(F) Recovery Schedule

If the Project Schedule indicates a late completion of the Work by 28 or more Days, Design-Builder shall prepare a Recovery Schedule which demonstrates how Design-Builder intends to reschedule the activities to regain compliance with the Contract Documents.

Design-Builder shall submit the Recovery Schedule to ADOT in accordance with Table 108-3. Design-Builder shall not be required to prepare a Recovery Schedule if Design-Builder requests and demonstrates, in writing, entitlement to extension of a Contractual Deadline due to an ADOT-Caused Delay, and ADOT concurs that a Recovery Schedule is not required at that time. If ADOT disputes Design-Builder's entitlement to a Contractual Deadline adjustment,

Design-Builder shall, within five Business Days, submit a Recovery Schedule that does not include a Contractual Deadline adjustment.

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

All acceleration costs required to bring the Work back into compliance with Contractual Deadlines and the Contract Time due to a Design-Builder caused delay shall be borne solely by Design-Builder. Whenever a Recovery Schedule is required, Design-Builder shall provide the following information:

- (1) Transmittal letter;
- (2) Bar chart schedule plot;
- (3) Electronic copy of the file used for the proposed Recovery Schedule; and
- (4) Narrative describing all proposed changes to the Project Schedule in detail, with justification for the changes, including the following:
 - (a) Changes to activity original durations;
 - (b) Changes to activity relationships and schedule logic;
 - (c) Cause of schedule slippage and actions taken to recover schedule within the shortest reasonable time (e.g., hiring of additional labor, use of additional construction equipment, and expediting of deliveries);
 - (d) Float consumption;
 - (e) Identification of activities that have been added, deleted, or modified; and
 - (f) Changes to the Project Schedule's Critical Path.

(G) Time Impact Analysis

If Design-Builder receives a Request for Change Proposal from ADOT or submits Relief Event Notice, in accordance with DBA Section 8.03(D)(1) (Relief Event Notice), asserting that an event, situation, or change affects a Critical Path of the Project Schedule, Design-Builder shall prepare a Time Impact Analysis showing the cumulative effect of the change on a Contractual Deadline or fixed Milestone date along with a written report describing the time impact in a form satisfactory to ADOT complying with DBA Section 8.03(D) (Process). Design-Builder shall submit Time Impact Analyses to ADOT in accordance with Table 108-3.

Each Time Impact Analysis shall include a fragmentary network demonstrating the following information:

- (1) How Design-Builder proposes to incorporate a time extension provided for in a Supplemental Agreement;
- (2) The impact to the Project Schedule;
- (3) 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;
- (4) The proposed method for incorporating the delay and its impact to the Project Schedule; and
- (5) The computation of two finish dates. The first finish date shall be computed without consideration of impacts by the proposed revision. The second finish date shall be computed with consideration of impacts by the proposed revision.

If a proposed change in planned work results in altering the Critical Path or extending a Contractual Deadline, Design-Builder shall submit a revised Project Schedule and a Time Impact Analysis within 15 Business Days of the proposed change.

(H) Record Schedule

Design-Builder shall prepare a Record Schedule that includes actual start and actual finish dates for all activities. The Record Schedule, once approved, serves as the final update of the Project Schedule. Design-Builder shall include a written certification with the Record Schedule submittal signed by the Project Manager of Design-Builder 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.”

Design-Builder shall submit the Record Schedule to ADOT in accordance with Table 108-3. Final Acceptance (D&C) will not be issued until the Record Schedule has been approved.

(I) Three Week Look-Ahead Schedule

The Look-Ahead Schedule is a computer generated bar chart schedule plot that shows the previous week’s Work and the Work planned for the current and next three weeks. Design-Builder 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 shall clearly note and explain all departures from the Project Schedule. Design-Builder shall reference the Project Schedule activity ID numbers, WBS, and define subsequent specific daily operations for all Work activities scheduled to be performed during the four-week period. Design-Builder shall submit Look-Ahead Schedules to ADOT in native Primavera P6 or MS Excel format and in accordance with Table 108-3.

(J) Format for Schedule Submittals

Design-Builder shall submit to ADOT for Project use an electronic copy of the schedule. The electronic copy shall be Primavera P6 .xml file format prepared in Primavera software.

The filename of schedules shall be submitted in the following format:

Table 108-1: Schedule File Name Format

No.	Schedule Element	File Name Format
1.	Preliminary Schedule	TTTTT-YYMM-PSVV
2.	<u>Baseline Schedule</u>	TTTTT-YYMM-BSVV
3.	<u>Monthly Progress Schedule #1</u>	TTTTT-YYMM-MPS01VV
4.	<u>Monthly Progress Schedule #2</u>	TTTTT-YYMM-MPS02VV
5.	Schedule <u>Narrative</u>	TTTTT-YYMM-NARVV
6.	<u>Recovery Schedule</u>	TTTTT-YYMM-RCYSVV
7.	<u>Time Impact Analysis</u>	TTTTT-YYMM-TIASVV
8.	<u>Record Schedule</u>	TTTTT-YYMM-RCDSVV

No.	Schedule Element	File Name Format
9.	<u>Look-Ahead Schedule</u>	TTTTT-YYMM-LASVV
<u>Note:</u> (1) TTTTT: First 5 digits of project TRACS number. (2) YYMM: Current 2 digit year and month. (3) VV: 2 digit version number (01, 02, etc.).		

All bar chart schedule plots shall be in color and have a size and scale acceptable to ADOT. Include a title block and a legend on each page. The plot layout shall include a schedule activity table with corresponding bar chart. The activity table shall be grouped by the WBS and include the activity ID, activity name, duration, start date, finish date, and Total Float. All activities in the bar chart shall be plotted on their start and finish dates. Show relationship lines and Data Date line. The bar chart shall be time-scaled in two-line format with a date interval set to year/month and type set to calendar.

For each Project Schedule Submittal, Design-Builder shall submit an 8.5 x 11 inch electronic pdf copy of the Narrative and monthly report.

For each Project Schedule Submittal, Design-Builder shall develop a Schedule Log file generated by the software in a .txt file format. The Schedule Log File shall have the same filename as the schedule file. Design-Builder shall review the Schedule Log File prior to submittal to verify that the electronic schedule is in compliance with Section 108.12(J). Design-Builder shall submit Schedule Log Files to ADOT in accordance with Table 108-3.

(K) Software

The automated system software shall be Primavera P6.

108.13 Meetings

(A) General Requirements

Design-Builder shall schedule, arrange, conduct and participate in Project meetings with ADOT and other parties in accordance with the Contract Documents and as reflected in Table 108-2. The meetings identified in Table 108-2 is not intended to be an all-inclusive listing of meetings identified in the Contract Documents. Design-Builder shall comply with the general meeting procedures specified in Section 108.13(B).

ADOT will have the right to add attendees to any ADOT meetings with Design-Builder or Subcontractors at ADOT's sole discretion. Such representatives shall have the right to participate in such meetings and to raise questions, concerns, and opinions without restriction; provided, however, that such representatives shall not have the right to direct or control such meetings, and Design-Builder shall take direction (if any) only from ADOT regarding performance of the Work.

Table 108-2: Meetings

No.	Description	Period ^A	Frequency (or as approved by ADOT)	Section Reference
1.	Partnering Meetings	D&C	In accordance with <u>DBA Section 14.01(B)</u> (<i>Partnering Meeting Schedule and Participants</i>)	DBA Section 14.01(B)
2.	Progress Meetings	D&C	Monthly	108.13(C)
3.	Pre-Design Coordination Meetings	D	Once per discipline	108.13(D)

No.	Description	Period ^A	Frequency (or as approved by ADOT)	Section Reference
4.	TWG Meetings	D&C	As determined by Design-Builder, unless mandated in the Technical Provisions.	108.13(E)
5.	Project Baseline Schedule Development Meeting	D	Once	108.13(F)(1)
6.	Baseline Schedule Presentation Meeting	D	Once	108.13(F)(2)
7.	Project Schedule Update Meetings	D&C	Monthly	108.13(F)(3)
8.	Corridor Transportation System Management Meeting	D&C	Monthly	108.13(G)
9.	Central District Transportation Systems Management Meetings	D&C	Monthly	108.13(H)
10.	Utility Coordination Meeting	D&C	Weekly	108.13(I)
11.	Third Party Meetings	D&C	As determined by Design-Builder and the third party	108.13(J)
12.	Construction Weekly Meetings	C	Weekly	108.13(K)
13.	Pre-Activity Meetings	C	Weekly	108.13(L)
14.	Maintenance Coordination Meetings	D&C	Monthly	108.13(M)
15.	Other requested meetings	D&C	When requested by either Party and mutually agreed to	N/A
<u>Notes:</u> A. D = Design; C = Construction				

(B) General Procedures

Design-Builder shall schedule all meetings (on dates and at times reasonably convenient to invitees), develop all meeting agendas (including meeting topics, estimated topic duration, and a list of each action item and its status), attend and participate in all meetings, and provide all meeting facilities and materials for all meetings required by the Contract Documents or as otherwise requested by ADOT. Project meetings must conform to the following:

- (1) Design-Builder shall invite ADOT and other attendees, as determined by ADOT, to all Project related meetings. Design-Builder attendees must have all required authority to commit Design-Builder to decisions agreed upon at the Project meeting;
- (2) Design-Builder shall provide a common electronic scheduling calendar wherein all meetings, notifications and invitations are managed electronically on a real-time basis;
- (3) Project meetings must be held at the Project Office. Locations other than the Project Office or virtual meetings (e.g., phone, video conference, etc.) may be used for Project meetings if mutually agreed to by the attendees;
- (4) Except in the case of urgency, as determined by ADOT, Design-Builder shall submit electronic written Meeting Notices to ADOT and any other invitees in accordance with Table 108-3;

(5) Except in the case of urgency, as determined by ADOT, Design-Builder shall submit written Meeting Agendas and Meeting Materials to ADOT and any other invitees in accordance with Table 108-3; and

(6) For all meetings relating to the Project at which Design-Builder is required to attend or is an invitee (not just those meetings called by Design-Builder or ADOT), Design-Builder shall prepare Draft Meeting Notes. The Draft Meeting Notes must include:

- (a) The name of the meeting, the date of the meeting, and the location of the meeting;
- (b) A complete list of all attendees (including their affiliations, telephone numbers, and email addresses);
- (c) Documentation of the issues discussed and any associated responses or decisions for the issues;
- (d) Documentation of any questions that pertain to the scope of Work and level of effort for the Work; and
- (e) Description of remaining open issues and action items (including the person(s) responsible for follow up and target date for resolution).

Design-Builder shall submit Draft Meeting Notes to ADOT in accordance with Table 108-3. ADOT will return attendee compiled comments within two Business Days after receipt of the Draft Meeting Notes. Design-Builder shall incorporate ADOT's comments and prepare Final Meeting Notes. Design-Builder shall submit Final Meeting Notes to ADOT in accordance with Table 108-3. For any ADOT comments not incorporated in to the Final Meeting Notes, Design-Builder shall add those comments as agenda topics for the following meeting.

(C) Progress Meetings

Design-Builder shall be responsible for *Progress Meetings*, or other meetings held at the request of ADOT, to review and discuss the status of the Project. In the meetings, the Parties will identify issues, cause for issues, responsible party, impacts, and potential solutions with the intent of finding the most effective solutions to problems through the following:

- (1) Design-Builder shall make available the Project Manager and appropriate personnel to participate in the *Progress Meetings*; and
- (2) Design-Builder shall develop and record an action item list that specifies who is responsible for resolving existing or pending issues and the date by which the issue shall be resolved.

Design-Builder shall present the Monthly Progress Schedule described in Section 108.12(D) and the schedule Narrative described in Section 108.12(E) at the *Progress Meetings*.

(D) Pre-Design Coordination Meetings

Design-Builder shall schedule a *Pre-Design Coordination Meeting*, per discipline, with ADOT to familiarize the designers and ADOT's review personnel with the design concepts, issues, status, and review procedures. Design-Builder shall conduct the first *Pre-Design Coordination Meeting* at least 10 Business Days prior to any Design Work.

(E) Technical Work Group Meetings

Design-Builder shall arrange and conduct *Technical Work Group (TWG) Meetings* with ADOT to identify and resolve issues and concerns raised by ADOT or Design-Builder. 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, or their designee as approved by ADOT, shall attend. Design-Builder shall invite ADOT, other relevant Governmental Entities' staff, and third-party staff.

The *TWG Meetings* do not replace the review process described in Section 113.03.

Design-Builder shall schedule and lead Environmental *TWG Meetings* every other week at a minimum unless otherwise directed by ADOT. At a minimum, the Environmental Compliance Manager and the Construction Manager, must attend every Environmental *TWG Meetings*.

Design-Builder shall schedule and lead aesthetic and landscaping *TWG Meetings* every other week at a minimum unless otherwise directed by ADOT.

Except in the case of urgency, as determined by ADOT, Design-Builder shall submit written *TWG Meeting Agendas and Meeting Materials* to ADOT and any other invitees in accordance with Table 108-3. Design-Builder shall submit *Draft TWG Meeting Notes* to ADOT in accordance with Table 108-3. ADOT will return attendee compiled comments within two Business Days after receipt of the *Draft TWG Meeting Notes*. Design-Builder shall incorporate ADOT's comments and prepare *Final TWG Meeting Notes*. Design-Builder shall submit *Final TWG Meeting Notes* to ADOT in accordance with Table 108-3. For any ADOT comments not incorporated into the *Final TWG Meeting Notes*, Design-Builder shall add those comments as agenda topics for the following meeting.

Design-Builder shall not schedule meetings including *TWG Meetings* or comment resolution meetings in the ADOT conference rooms without prior approval from ADOT.

(F) Schedule Meetings

(1) Baseline Schedule Development Meeting

Design-Builder shall schedule the *Baseline Schedule Development Meeting* with ADOT to discuss any deficiencies in the Preliminary Schedule prior to submitting the *Baseline Schedule*.

(2) Baseline Schedule Presentation Meeting

At a time agreeable to ADOT, Design-Builder shall conduct a *Baseline Schedule Presentation Meeting* within five Business Days after submitting the *Baseline Schedule*. The purpose of this meeting is for Design-Builder to present and explain Design-Builder's schedule and construction phasing plan. At a minimum, the following is to be covered at the joint review of the schedule:

- (a) WBS;
- (b) Sequence of work step through the Schedule activity by activity;
- (c) Construction phasing including traffic control phasing and changes;
- (d) Resources to include number of construction personnel and production rates used; and
- (e) Critical Path review.

(3) Project Schedule Update Meeting

Design-Builder shall schedule a joint *Project Schedule Update Meeting* to review the *Monthly Progress Schedule* update on the 15th day of each month or within three Business Days thereafter as coordinated with ADOT. Design-Builder shall host the meeting and provide an agenda. At a minimum, the following items shall be discussed:

- (a) The actual progress made until the Data Date of the schedule update;
- (b) The review of progress including:

- (i) Dates for activities actually started and completed; and
- (ii) The duration percentage of work remaining on each activity started, calculated by using the quantity and production rate information.
- (c) All changes from previously approved schedules;
- (d) Actual and potential schedule conflicts; and
- (e) Supplemental Agreement work and work identified that may lead to Supplemental Agreement work.

(G) Corridor Transportation System Management Meetings

Design-BUILDER shall attend and participate in *Corridor Transportation System Management Meetings*, that includes representatives of Design-BUILDER, ADOT, team members from the projects comprising the Corridor (as noted in Table 105-1), cities, counties, the Community, law enforcement agencies, emergency response providers, Governmental Entities, businesses, and other agencies whose operations affect or are affected by the Project.

Design-BUILDER shall prepare a Project Invitees List for the *Corridor Transportation System Management Meeting* that includes all parties relevant to the Project to be invited to take part in the *Corridor Transportation System Management Meetings*. Design-BUILDER shall submit the Project Invitees List to ADOT in accordance with Table 108-3.

Design-BUILDER shall begin attending the *Corridor Transportation System Management Meeting* at least 30 Days prior to activities affecting traffic.

Design-BUILDER shall attend the *Corridor Transportation System Management Meetings* once a month from their initial meeting to Substantial Completion. The meeting schedule and frequency may be adjusted upon the agreement of the invitees of the *Corridor Transportation System Management Meeting*.

The purpose of the *Corridor Transportation System Management Meeting* is to:

- (1) Review and refine the Transportation Management Plan (TMP) and its implementation;
- (2) Review and refine Design-BUILDER's MOT Plans and Traffic Control Plans (TCPs), specifications, and details and determine how those items interface with those of adjacent projects;
- (3) Resolve any conflicts or incompatibilities between the MOT setups of adjacent projects;
- (4) Keep the motoring public, adjacent homeowners/businesses, transportation officials, emergency responders and other interested parties informed of the status of construction and changes in traffic-handling in conjunction with the requirements in Section 116;
- (5) Disseminate MOT and traffic control information to meeting invitees; and
- (6) Determine additional membership invitees affected by the MOT and traffic control, as needed.

(H) Central District Transportation Systems Management Meetings

Design-BUILDER shall attend and participate in monthly ADOT *Central District Transportation Systems Management (TSM) Meetings* prior to any construction activity throughout the completion of construction. The ADOT *Central District TSM Meetings* include emergency services, trucking industry, school transportation, United States Postal Service (USPS), other delivery services, Governmental Entities, and others. The intent of the ADOT *Central District TSM* is to discuss and coordinate planned Closures and restrictions on the state highway system in the ADOT Central District (Maricopa County region). ADOT's goal is to minimize impacts on first responders and other key stakeholders, special events, and the traveling public.

The ADOT *Central District TSM* is currently held monthly, the second Wednesday of each month from 10am to 11am at 2140 W. Hilton, Phoenix, AZ 85009.

Design-Builder shall brief the Project team on any concerns and feedback from the ADOT *Central District TSM* at the following *Corridor Transportation System Management Meeting*.

(I) Utility Coordination Meetings

Design-Builder 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, Design-Builder's staff, and others to review designs and ensure that conflicts are being resolved throughout the duration of the design and construction of the Project. At the meeting Design-Builder's Utility Adjustment Coordinator shall present the status of the *Utility Conflict Matrix*.

The meeting schedule and frequency may be adjusted upon the agreement of the invitees of the *Utility Coordination Meetings*.

(J) Third Party Meetings

Design-Builder shall conduct *Third Parties Meetings* with third parties, including Utility Companies and Governmental Entities, to coordinate the Work. Meetings shall be held to review designs, resolve conflicts, obtain approvals, or generally update progress of the Project. Design-Builder shall provide at least five Business Days' advance notice to ADOT prior to meeting with any third-party, and ADOT shall have the right to participate in such meetings. Design-Builder must coordinate all meetings in the Contract Documents with the Community and/or BIA through ADOT and an ADOT representative must be present at all meetings between Design-Builder and the Community and/or BIA.

Third Party Meetings may be held outside of the Project Office at the request and approval of the third party. Any requests of Design-Builder for equipment or space needed to hold such meeting shall be coordinated with the third party prior to notification of the meeting to attendees. Design-Builder shall be responsible for material and equipment needed to conduct all *Third Party Meetings*. ADOT shall be in attendance of all design review and approval meetings.

(K) Construction Weekly Meetings

Design-Builder shall schedule and lead weekly *Construction Weekly Meetings* with ADOT, and other necessary entities throughout Construction Work.

Design-Builder shall provide a construction status report and a traffic report detailing upcoming anticipated impacts to traffic, as well as supporting graphics for both. Design-Builder, in coordination with ADOT, shall ensure the subjects of community relations and community impact from construction operations are included on the agenda of the *Construction Weekly Meetings*. In addition, Design-Builder shall provide a traffic report detailing the impact of the Closures that occurred the week prior to meeting, including any issues that arose and mitigation measures that will be used in the future to prevent the issue from reoccurring.

In addition, Design-Builder shall discuss items including, Maintenance During Construction activities, construction schedule, early construction elements, the *Safety Management Plan*, and *Environmental Management Plan (EMP)* at the *Construction Weekly Meetings*.

Additional separate weekly meetings will be required to discuss workmanship quality and materials sampling and testing.

(L) Pre-Activity Meeting

Prior to the start of all major Construction Work activities Design-Builder shall hold *Pre-Activity Meetings* to ensure that all Project personnel have a thorough understanding of what will be accomplished by the activity, by whom it will be performed, and where, when and how the Work will be done. *Pre-Activity Meetings* help ensure that everyone has the same understanding of the design intent, has the appropriate Plans, *Project Special Provisions* and any special details, and is aware of all safety requirements and procedures that need to be followed. *Pre-Activity*

Meetings shall be held for concrete and asphalt paving, bridges, retaining walls, Utility relocations, plant inventory and salvage, landscape/irrigation, structure aesthetic Mockups, and other Work items, as defined by ADOT. Design-Builder shall schedule *Pre-Activity Meetings* several days in advance of the actual Work beginning on an activity to allow for additional preparation for the Work if necessary. Design-Builder shall provide ADOT five Business Days' notice of any *Pre-Activity Meeting* date, to allow out-of-town personnel to attend. The *Pre-Activity Meetings* shall be planned and conducted by Design-Builder's QC representative that is directly responsible for the testing and QC of the feature. Design-Builder shall take meeting notes to document any clarifications and understandings related to the construction of the item that are not documented elsewhere. A typical agenda for a *Pre-Activity Meeting* is as follows:

- (1) Introduction of attendees;
- (2) Scope (Design criteria and intent, constraints);
- (3) Applicable documents (Plans, Project Special Provisions, Supplemental Agreements, special details, manuals, etc.);
- (4) Activity Work outline and schedule (What, Where, Who, When and How);
- (5) Staking Plan;
- (6) Plant inventory and salvage;
- (7) EMP;
- (8) Safety requirements and procedures;
- (9) ITS Elements;
- (10) TCPs, including Detour Plans;
- (11) Quality Control procedures;
- (12) Status of Submittals;
- (13) Acceptance criteria;
- (14) Examination of Work area;
- (15) Examination of stored materials; and
- (16) Open discussion.

(M) Maintenance Coordination Meeting

Design-Builder shall schedule and lead monthly *Maintenance Coordination Meetings* with ADOT, Gila River Development, Lone Butte Development Corporation, and the applicable Local Jurisdiction as Work occurs within or adjacent to other maintenance areas. The first *Maintenance Coordination Meeting* must occur at least 10 Business Days prior to issuance of NTP 2. The *Maintenance Coordination Meeting* must be led by the Maintenance Coordinator and include such topics of discussion as recurring maintenance issues, outstanding maintenance requests, delayed responses to maintenance activities, corrective actions to maintenance concerns, coordination, and clarification of maintenance requirements throughout the Project, and other topics relating to maintenance during construction. Design-Builder shall prepare, update, and maintain a Maintenance Contact List that includes the contact information for all individuals that are to be contacted if maintenance items are required after normal business hours. Design-Builder shall submit the Maintenance Contact List to ADOT in accordance with Table 108-3.

108.14 Submittals

Table 108-3 reflects a list of Submittals identified in this Section 108 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02 and Section 108.12(J):

Table 108-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Baseline Schedule</u>	2	Prior to issuance of NTP 2	108.12(C)
2.	<u>Monthly Progress Schedule</u>	2	Concurrent with Draw Request	108.12(D)
3.	<u>Narratives</u>	2	With each Project Schedule Submittal	108.12(E)
4.	<u>Recovery Schedule</u>	2	Project Schedule indicates a late completion of the Work by 28 or more Days or within 10 Business Days of receipt of ADOT's written direction	108.12(F)
5.	<u>Time Impact Analysis</u>	2	With each Relief Request, Change Request, response to Request for Change Proposal, or as otherwise required	108.12(G)
6.	<u>Record Schedule</u>	2	Not less than 20 Business Days prior to Final Acceptance (D&C)	108.12(H)
7.	<u>Look-Ahead Schedule</u> ^B	4	Not less than 1 Business Day prior to each <i>Construction Activity Meeting</i>	108.12(I)
8.	<u>Schedule Log Files</u>	4	With each Project Schedule Submittal	108.12(J)
9.	<u>Meeting Notices</u> ^B	4	Except in the case of urgency, not less than 3 Business Days prior to the associated meeting	108.13(B)
10.	<u>Meeting Agendas and Meeting Materials</u> ^B	4	Not less than 2 Business Days prior to the associated meeting	108.13(B)
11.	<u>Draft Meeting Notes</u>	3	Not later than 2 Business Days after the associated meeting	108.13(B)
12.	<u>Final Meeting Notes</u> ^B	3	Not later than 5 Business Days after the receipt of ADOT's comments	108.13(B)
13.	<u>TWG Meeting Agendas and Meeting Materials</u> ^C	4	By the end of the Business Day on Friday the week prior to the associated <i>TWG Meeting</i>	108.13(E)
14.	<u>Draft TWG Meeting Notes</u>	3	Not later than 2 Business Days after the associated meeting	108.13(E)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
15.	<u>Final TWG Meeting Notes</u> ^C	3	Not later than 2 Business Days after the following <i>TWG Meeting</i> for the same discipline	108.13(E)
16.	<u>Project Invitees List</u> ^B	3	Not less than 15 Business Days prior to the first <i>Corridor Transportation System Management Meeting</i>	108.13(G)
17.	<u>Maintenance Contact List</u>	3	At the first <i>Maintenance Coordination Meeting</i> and not later than 1 Day after the contact information changes	108.13(M)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none"> 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required, ADOT will coordinate review.</p> <p>C. Community review required on drainage, MOT, landscaping, and aesthetics on bridges, ADOT will coordinate review.</p>				

1

End Section

110 Project Management**110.01 General Requirements**

Design-Builder shall manage the Project in compliance with the requirements of this Section 110. Design-Builder shall provide all project management Work to support design and construction of the Project.

110.02 Project Management Plan

Design-Builder shall establish and maintain an organization that effectively manages all elements of the Work. Design-Builder shall define and guide the Project management effort through the Project Management Plan (PMP), which is a collection of several management plan volumes. The PMP is an umbrella document that describes Design-Builder's managerial approach, strategy, and quality procedures to design and construct the Project and achieve all requirements of the Contract Documents. PMP volumes are specified throughout the Technical Provisions. An acceptable structure of the PMP is outlined in Table 110-1.

Table 110-1: PMP Volumes

No.	PMP Volume	Title	TP Section Reference
1.	1	<u>Project Administration Plan</u>	110.02(A)
2.	3	<u>Document Management Plan</u>	111.03
3.	4	<u>Quality Management Plan</u>	112.02
4.	4A	<u>Quality Management Plan - General Requirements</u>	112.02(A)
5.	4B	<u>Professional Services Quality Management Plan</u>	112.02(B)
6.	4C	<u>Construction Quality Management Plan</u>	112.02(C)
7.	5	<u>Safety Management Plan</u>	114.02

Design-Builder shall prepare the PMP volumes in accordance with the Technical Provisions. Design-Builder shall submit the PMP to ADOT in accordance with Table 110-2. Design-Builder may submit PMP volumes individually or the PMP as a whole. The applicable schedule for submitting each PMP volume is set forth in the corresponding section of the Technical Provisions describing the requirements for each such PMP volume. Design-Builder shall ensure that all volumes of the PMP remain valid and updated throughout the duration of the DBA. Design-Builder shall propose updates to the PMP when the following occur:

- (A) Changes to the Key Personnel, Other Personnel identified in Section 110.03(C), Quality Management Plan, Safety Management Plan, or Project administration policies and procedures;
- (B) Revisions to the PMP that are required by other sections of the Technical Provisions; or
- (C) As reasonably requested by ADOT for compliance with the Contract Documents.

Design-Builder shall submit the updated PMP to ADOT in accordance with Table 110-2.

If any PMP volume refers to, relies on or incorporates any manual, plan, procedure or like document, then Design-Builder shall submit all such referenced or incorporated materials to ADOT for approval at the time that the relevant PMP volume or PMP volume change is submitted to ADOT.

Design-Builder shall carry out internal audits of Design-Builder's compliance with the PMP. The PMP shall specify the extent of such audits and the frequency with which such audits will occur, which shall be subject to ADOT's approval. ADOT may also audit and monitor the activities described in the PMP to assess Design-Builder performance. All commitments and requirements contained in the PMP must be verifiable.

Design-Builder shall not commence or permit the commencement of any aspect of the Project's Construction Work before the relevant PMP volumes applicable to such Work have been submitted to and approved by ADOT in accordance with the procedures described herein and in accordance with the Contract Documents. Design-Builder shall cause each of its directors, members, officers, and supervisory and management personnel, and include contract provisions requiring those of all other Design-Builder-Related Entities at every level, to comply with the applicable requirements of the approved PMP.

(A) Project Administration Plan

Design-Builder shall prepare a Project Administration Plan as part of the PMP that discusses the following:

- (1) **Organization:** An organization diagram indicating Design-Builder's team members and their relationship to each other.
- (2) **Personnel:** Names, contact details, titles, and job roles of Key Personnel and Other Personnel. Include resumes for all Key Personnel and Other Personnel identified in Section 110.03. Names of the personnel responsible in charge for each item, Element, or phase of the Work. The personnel responsible in charge shall possess the necessary registrations in the State of Arizona and shall be personally responsible for directly supervising the Work and will stamp, sign, and date the Design Work product for a given item, Element, or phase of the Work as applicable.
- (3) **Subcontractors:** Discuss Design-Builder's Subcontractor approval process.
- (4) **Schedule:** Discuss schedule management procedures. Discuss process for using the schedule as a basis for the monthly Draw Request.
- (5) **Punch List:** Establish procedures and schedules for preparing a Punch List and completing Punch List work. Such procedures and schedules shall conform to DBA Section 4.06(A) (*Punch List*). The schedule for preparation of the Punch List must be consistent and coordinated with the inspections to verify that Design-Builder has achieved Substantial Completion.
- (6) **PMP Updates:** Procedures for preparation of amendments and submission of amendments to any part of the PMP.
- (7) **Audit:** Procedures to facilitate a review and audit by ADOT that may occur at least every six months, an audit and management review of Design-Builder's own activities under the PMP, and an audit and management review of Subcontractors' activities and management procedures.
- (8) **Ethical Standards:** Include written policies establishing ethical standards of conduct applicable to all Design-Builder-Related Entities, including Design-Builder's supervisory and management personnel, in dealing with:
 - (a) ADOT and the General Engineering Consultant (GEC); and
 - (b) Employment relations. Such policy shall be subject to review and comment by ADOT prior to adoption. Such policy shall include standards of ethical conduct concerning the following:

- (i) Restrictions on gifts and contributions to, and lobbying of, ADOT, the Arizona State Transportation Board, the GEC, and any of the respective commissioners, directors, officers, and employees of any of the foregoing;
- (ii) Protection of employees from unethical practices in selection, use, hiring, compensation or other terms and conditions of employment, or in promotion and termination of employees;
- (iii) Protection of employees from retaliatory actions (including discharge, demotion, suspension, threat, harassment, pay reduction or other discrimination in the terms and conditions of employment) in response to reporting of illegal (including the making of a false claim), unethical or unsafe actions or failures to act by any Design-Builder-Related Entity;
- (iv) Restrictions on directors, members, officers or supervisory or management personnel of any Design-Builder-Related Entity engaging in any transaction or activity, including receiving or offering a financial incentive, benefit, loan or other financial interest, that is, or to a reasonable person appears to be, in conflict with or incompatible with the proper discharge of duties or independence of judgment or action in the performance of duties, or adverse to the interests of the Project or employees;
- (v) Restrictions on use of office or job position for a purpose that is, or would to a reasonable person appear to be, primarily for the private benefit of a director, member, officer or supervisory or management person, rather than primarily for the benefit of Design-Builder or the Project, or primarily to achieve a private gain or an exemption from duty or responsibility for a director, member, officer or supervisory or management person; and
- (vi) Restrictions on directors, members, officers or employees of any Design-Builder-Related Entity performing any of the Work if the performance of such services would be prohibited under ADOT's published conflict of interest rules and policies applicable to the Project, or would be prohibited under applicable Laws.

Design-Builder shall submit the Project Administration Plan to ADOT in accordance with Table 110-2.

110.03 Personnel Requirements

(A) General Requirements

Design-Builder shall ensure that all such personnel satisfy the applicable requirements set forth in this Section 110.03. Design-Builder acknowledges and agrees that:

- (1) All personnel performing Work on the Project shall have the training, experience, skill, and knowledge commensurate with the scope, complexity, and nature of their Work to safely and efficiently perform the Work assigned to them;
- (2) All personnel performing Work on the Project shall also have appropriate required professional licenses and certifications; and
- (3) Such licenses and certifications shall be acquired prior to the individual starting Work on the Project and must be kept active throughout the duration of the DBA, except as otherwise noted below for Key Personnel.

The following provides brief job description and requirements of Key Personnel and Other Personnel assigned to the Project. 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 the position.

(B) Key Personnel

Design-Builder shall designate the Key Personnel for the Project as follows:

- (1) Project Manager;
- (2) Construction Manager;
- (3) Design Manager;
- (4) MOT Manager;
- (5) Construction Quality Manager (CQM);
- (6) Professional Services Quality Manager (PSQM);
- (7) Safety Manager;
- (8) Workforce Development Coordinator; and
- (9) Environmental Compliance Manager (ECM).

Replacement and/or staffing of all Key Personnel positions listed below shall be approved by ADOT.

(1) Project Manager

The following provides a brief job description and requirements of the Project Manager.

- (a) The Project Manager is responsible for the day-to-day operations, overall design, construction, quality, and contract administration for the Project;
- (b) The Project Manager must:
 - (i) Be collocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (ii) Be assigned to the Project full time through the duration of the DBA;
 - (iii) Have full responsibility for the prosecution of the Work;
 - (iv) Act as agent and be a single point of contact for all matters on behalf of Design-Builder; and
 - (v) Be available by phone to perform their responsibilities throughout the duration of the DBA.
- (c) The preferred experience for the Project Manager is:
 - (i) 15 years on complex highway infrastructure projects;
 - (ii) 10 years managing the design and construction of freeway systems; and
 - (iii) 5 years of design-build project management of freeway systems.

(2) Construction Manager

The following provides a brief job description and requirements of the Construction Manager.

- (a) The Construction Manager is responsible for the constructability of the Project and ensuring the Project is constructed in accordance with the Project requirements;
- (b) The Construction Manager must:
- (i) Report directly to the Project Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the DBA; and
 - (iv) Be available by phone to perform their responsibilities throughout the duration of the DBA.
- (c) The preferred experience for the Construction Manager is:
- (i) 15 years on complex highway infrastructure projects;
 - (ii) 10 years managing the construction of freeway systems and
 - (iii) 5 years of design-build construction management of freeway systems.

(3) Design Manager

The following provides a brief job description and requirements of the Design Manager.

- (a) 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 Project requirements are met;
- (b) The Design Manager must:
- (i) Report directly to the Project Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until ADOT's approval of all RFC Submittals for Design Work;
 - (iii) Be assigned to the Project full time while Design Work is ongoing or until Construction Work is at least 70% complete, whichever is later;
 - (iv) Be available by phone to perform their responsibilities throughout the duration of the DBA;
 - (v) Be employed by the Lead Design Firm; and
 - (vi) Be a registered Professional Engineer in the State by the Effective Date.
- (c) The preferred experience for the Design Manager is:
- (i) 15 years on complex highway infrastructure projects;
 - (ii) 10 years managing the design of freeway systems; and
 - (iii) 5 years of design-build design management of freeway systems.

(4) Maintenance of Traffic Manager

The following provides a brief job description and requirements of the MOT Manager:

- (a) The MOT Manager is responsible for:

- (i) Evaluating Design-Builder's sequencing designs, traffic plans, staffing, safety, and other functions that relate to MOT during construction;
 - (ii) The implementation of the TMP per CFR § 630.1012;
 - (iii) Overseeing MOT functions during construction.
- (b) The MOT Manager must:
 - (i) Report directly to the Project Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until ADOT's approval of all RFC Submittals for Design Work;
 - (iii) Be assigned to the Project full time throughout the duration of the DBA;
 - (iv) Be at the Site or on-call during major construction Work that requires the closing of one or more travel lanes;
 - (v) Be available by phone to perform their responsibilities throughout the duration of the DBA; and
 - (vi) Be a registered Professional Engineer in the State by the Effective Date.
- (c) The preferred experience of the MOT Manager is:
 - (i) 15 years on complex highway infrastructure projects;
 - (ii) 10 years managing the design of MOT solutions; and
 - (iii) 5 years of major design-build project experience.

(5) Construction Quality Manager

The following provides a brief job description and requirements of the CQM:

- (a) The CQM is responsible for establishing, implementing, monitoring, and adjusting the process to make certain that acceptable quality is achieved for the construction of the Project.
- (b) The CQM must:
 - (i) Report directly to an executive officer above the level of, and under a line of authority independent of, the Project Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the DBA;
 - (iv) Be available by phone to perform their responsibilities throughout the duration of the DBA;
 - (v) Not be assigned any other duties or responsibilities on this Project or any other projects;
 - (vi) Be independent of the design and construction production teams;
 - (vii) Have at least the equivalent level of authority as that of the Project Manager;

(viii) Have authority from Design-Builder to:

A. Establish and maintain the Construction Quality management Plan (CQMP); and

B. Report to ADOT on the performance of the CQMP.

(ix) Have the authority to stop Construction Work that does not comply with the standards, specifications, or criteria established for the Project at any time and in the CQM's sole discretion;

(x) The CQM and PSQM must be different people; and

(c) The preferred experience for the CQM is:

(i) 15 years on complex highway infrastructure projects;

(ii) 10 years coordinating and managing construction quality programs on freeway systems; and

(iii) 5 years of major design-build construction quality management of freeway systems.

(6) Professional Services Quality Manager

The following provides a brief job description and requirements of the PSQM:

(a) The PSQM is responsible for establishing and supervising Design-Builder's QA/QC program for the Professional Services of the Project.

(b) The PSQM must:

(i) Report directly to an executive officer above the level of, and under a line of authority independent of, the Project Manager;

(ii) Be colocated within the Project Office from issuance of NTP 2 until ADOT's approval of all RFC Submittals for Design Work;

(iii) Be assigned to the Project full time throughout the duration of the DBA;

(iv) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(v) Be a registered Professional Engineer in the State by the Effective Date;

(vi) Not be assigned any other duties or responsibilities on this Project or any other projects;

(vii) Be independent of the design and construction production teams;

(viii) Have at least the equivalent level of authority as that of the Project Manager;

(ix) Have authority from Design-Builder to:

A. Establish and maintain the PSQMP; and

B. Report to ADOT on the performance of the PSQMP.

- (x) Have the authority to stop Professional Services Work that does not comply with the standards, specifications, or criteria established for the Project at any time and in the PSQM's sole discretion;
- (xi) The PSQM and CQM must be different people; and
- (c) The preferred experience for the PSQM is:
 - (i) 15 years on complex highway infrastructure projects;
 - (ii) 10 years coordinating and managing Professional Services quality programs on freeway systems; and
 - (iii) 5 years of major design-build Professional Services quality management of freeway systems.

(7) Safety Manager

The following provides a brief job description and requirements of the Safety Manager:

- (a) The Safety Manager is responsible for establishing and supervising Design-Builder's Safety Management Plan and all safety related activities, including training and enforcement of safety operations;
- (b) The Safety Manager must:
 - (i) Report directly to the Project Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the DBA;
 - (iv) Be available by phone to perform their responsibilities throughout the duration of the DBA;
 - (v) Have the authority to stop Work; and
 - (vi) Be familiar with FHWA work zone safety regulations and OSHA.
- (c) The preferred experience for the of the Safety Manager is:
 - (i) 15 years on complex highway infrastructure projects;
 - (ii) 5 years coordinating safety programs on freeway systems;
 - (iii) 5 years of major design-build construction management of freeway systems; and
 - (iv) 10 years of experience with roadway work zone safety and OSHA regulations.

(8) Workforce Development Coordinator

The following provides a brief job description and requirements of the Workforce Development Coordinator:

- (a) The Workforce Development Coordinator is responsible for:
 - (i) EEO, Tribal Employment Rights Office requirements, and Workforce Development, management, monitoring, oversight, and reporting; and

(ii) Coordinating with ADOT's Workforce Development Oversight Committee to help ensure Project Workforce Development requirements are met.

(b) The Workforce Development Coordinator must:

(i) Report directly to Project Manager; and

(ii) Be available to be on-Site at all times that Work is performed;

(iii) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(iv) Secure decision makers for participation in community outreach events for employment and business opportunities;

(v) Have strong knowledge and understanding of economic opportunities available during highway design and construction and how to connect residents and businesses to those opportunities; and

(vi) Have sufficient record keeping and reporting experience to detail progress towards Workforce Development efforts;

(c) The preferred experience for the Workforce Development Coordinator is:

(i) 5 years of experience working with highway employment, training, and small business utilization programs; and

(ii) 5 years of experience working with diverse communities and in culturally sensitive environments.

(9) Environmental Compliance Manager

The following provides a brief job description and requirements of the ECM:

(a) The ECM is responsible for coordinating the environmental permitting and compliance requirements for Design-Builder and ensuring that issues are resolved before and during Construction Work;

(b) The ECM must:

(i) Report directly to the Construction Manager;

(ii) Be colocated within the Project Office from issuance of NTP 2 until ADOT's approval of all RFC Submittals for Design Work;

(iii) Be assigned to the Project full time throughout the duration of the DBA;

(iv) Be available by phone to perform their responsibilities throughout the duration of the DBA; and

(v) Have a thorough understanding of National Environmental Policy Act (NEPA) documentation and compliance, including Historic Preservation Act, Section 404 of the Clean Water Act, other State and local Laws;

(c) The preferred experience for the ECM is:

(i) 10 years of experience complex highway infrastructure projects;

(ii) 5 years of experience managing environmental compliance activities and permitting for major freeway projects; and

- (iii) 5 years of major design-build environmental compliance management of freeway systems.

(C) Other Personnel

Except for the Professional Services quality staff, qualifications of certain staff termed Other Personnel are required to be reviewed and approved by ADOT prior to start of their corresponding item of the Work. Resumes must be not more than two pages for each Other Personnel. Design-Builder shall submit Other Personnel Qualifications Package (the person's resume and/or evidence of the required certifications) to ADOT in accordance with Table 110-2. Other Personnel assigned to the Project will be subject to ADOT's approval. Design-Builder shall designate, at a minimum, Other Personnel for the Project as follows.

(1) Construction Independent Quality Manager

The following provides a brief description and requirements of the Construction Independent Quality Manager (CIQM):

- (a) The CIQM shall 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.
- (b) The CIQM must:
- (i) Review, approve, authorize, examine, interpret, and confirm all methods or procedures performed by Design-Builder;
 - (ii) Work directly for the Independent Quality Firm (IQF);
 - (iii) Report jointly to ADOT and an executive officer above the level of, and under the line of authority independent of, the Project Manager;
 - (iv) Be colocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (v) Be assigned to the Project full time throughout the duration of the Construction Work;
 - (vi) Be available by phone to perform their responsibilities throughout the duration of the Construction Work;
 - (vii) Be a registered Professional Engineer in the State by the Effective Date;
 - (viii) Not be assigned any other duties or responsibilities on this Project or any other projects;
 - (ix) Be independent of the design and construction production teams;
 - (x) Have at least the equivalent level of authority as that of the Project Manager;
 - (xi) Have authority from Design-Builder to:
 - A. Establish and maintain the Quality Acceptance aspects of the CQMP; and
 - B. Report to ADOT on the performance of the Quality Acceptance aspects of the CQMP.

(xii) Have the authority to stop Construction Work that does not comply with the standards, specifications, or criteria established for the Project at any time and in the CIQM's sole discretion;

(xiii) The PSQM, CQM, and CIQM must be different people; and

(c) The preferred experience for the CIQM is:

(i) 15 years on complex highway infrastructure projects;

(ii) 10 years coordinating and managing Construction quality programs on freeway systems; and

(iii) 5 years of major design-build IQF quality management of freeway systems.

(2) Professional Services Quality Staff

Design-Builder shall provide the number Professional Services quality staff that reflects the volume of quality control activities necessary for the Work in progress and to achieve the Contractual Deadlines. The Professional Services quality staff:

(a) Performing the quality checks of Professional Services Work products must not be directly involved with the original development of the item, Element, Plan, or phase being checked;

(b) Must Work under the direction of the PSQM;

(c) Be available to be on-Site at all times that Work is performed;

(d) Be available by phone to perform their responsibilities throughout the duration of the Professional Services Work;

(e) That are performing quality control checks:

(i) Must be a registered Professional Engineer in the State prior to performing Work; and

(ii) Their preferred experience is 5 years of experience in the Work being checked.

(3) Traffic Control Manager

The following provides a brief description and requirements of the Traffic Control Manager:

(a) The Traffic Control Manager is responsible for:

(i) The development and implementation of TCPs;

(ii) Overseeing the implementation and removal of the approved TCPs;

(iii) Coordinating all traffic control operations, including those of subcontractors and suppliers;

(iv) Oversee flagger operations;

(v) Periodically inspect traffic control devices on every calendar day that traffic control devices are in use, including nights;

(vi) Ensuring that traffic control is functioning as required;

- (vii) Attending all Project scheduling meetings;
- (viii) Supervising traffic control corrective actions; and
- (ix) Monitoring the mobility of traffic through the work zone;
- (b) The Traffic Control Manager must:
 - (i) Report directly to the Construction Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the Construction Work;
 - (iv) Be at the Site or on-call during Work that requires the closing of one or more lanes of travel;
 - (v) Provide (or an approved designee provides) 24 hour a day traffic control management; and
 - (vi) Be available by phone to perform their responsibilities throughout the duration of the DBA;
- (c) The preferred experience of the Traffic Control Manager is:
 - (i) 10 years in managing traffic control for freeway projects; and
 - (ii) 10 years on complex highway infrastructure projects.

(4) Survey Manager

The following provides a brief job description and requirements of the Survey Manager:

- (a) The Survey Manager is responsible for all survey Work, including directing and reviewing Subcontractor survey Work;
- (b) The Survey Manager must:
 - (i) Report directly to the Design Manager;
 - (ii) Be available to be on-Site at all times that Work is performed;
 - (iii) Be available by phone to perform their responsibilities throughout the duration of the DBA;
 - (iv) Be familiar with ADOT procedures and standards pertaining to ROW, design, and construction surveying; and
 - (v) Be a registered Land Surveyor in the State prior to commencing any survey Work;
- (c) The preferred experience for the Survey Manager is:
 - (i) 10 years of experience with ROW, design, and construction surveys; and
 - (ii) A minimum of 10 years of registration as a Land Surveyor.

(5) Geotechnical Manager

The following provides a brief job description and requirements of the Geotechnical Manager:

- (a) The Geotechnical Manager is responsible for all geotechnical Work, including directing and reviewing Subcontractor geotechnical Work;
- (b) The Geotechnical Manager must:
 - (i) Report directly to the Design Manager;
 - (ii) Be available to be on-Site at all times that Work is performed;
 - (iii) Be available by phone to perform their responsibilities throughout the duration of the DBA;
 - (iv) Be familiar with ADOT guidelines, procedures, and standards pertaining to geotechnical investigation, analysis, and design; and
 - (v) Be a registered Professional Engineer in the State before commencing any Work;
- (c) The preferred experience for the Geotechnical Manager is 15 years of experience in matters relating to geotechnical subsurface exploration, geotechnical site characterization, analysis, design, and construction of bridge foundations, retaining walls and noise barriers, drainage structures, roadway embankments and roadway pavements, and excavation and fill slopes in soil and rock.

(6) Erosion Control Coordinator

The following provides a brief job description and requirements of the Erosion Control Coordinator:

- (a) The Erosion Control Coordinator is responsible for:
 - (i) Finalizing the Draft SWPPP from the preliminary information included with the Plans; and
 - (ii) Implementing, monitoring, and revising the approved SWPPP throughout the Work, for making the required inspections, and for implementing any other permit requirements stipulated in the AZPDES *General Permit*.
- (b) The Erosion Control Coordinator must:
 - (i) Report directly to the Project Manager;
 - (ii) Be colocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the DBA;
 - (iv) Be available by phone 24 hours a day, 7 days a week, including holidays, and within 24 hours of such call being placed, to perform their responsibilities throughout the duration of the DBA;
 - (v) Be available by phone to perform their responsibilities throughout the duration of the DBA;
 - (vi) Be capable of identifying existing and predictable effects of Design-Builder's operations and shall have complete authority to direct Design-Builder'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;

(vii) Be familiar with procedures and practices identified in the SWPPP and shall ensure that emergency procedures are up to date and available at the Site;

(viii) Be aware, at all times, of Design-Builder's work activities, schedule, and effect of the Work on the environment, and shall, at any time, be accessible to direct Design-Builder's personnel to replace or repair erosion control measures as necessary whether from construction, vandalism, or other causes;

(ix) Be aware of and comply with all requirements of the AZPDES *General Permit* to address discharges at the Site associated with Design-Builder's activities other than construction, including staging areas, and other potential pollutant and material storage and borrow areas;

(x) Have successfully completed the mandatory two-day (16 hour) "Erosion Control Coordinator" training class provided by the Associated General Contractors (Arizona Chapter) and maintain the certification throughout the duration of the DBA; and

(xi) Comply with the certification requirements specified in ADOT *Stored Specification (104SWEPA, 02/10/20)*, as of the Setting Date and throughout the duration of the DBA;

(c) The preferred experience for the Erosion Control Coordinator is:

(i) 1 year of experience in the fields of erosion control and sediment transport; and

(ii) 1 year of experience in either of the following:

A. The development and implementation of SWPPPs, as specified in the AZPDES *General Permit* or the NPDES for highway construction projects and full-time responsibility for directly supervising construction personnel in the installation, monitoring, and maintenance of control measures; or

B. In stabilization of disturbed areas in environments similar to those on the Project, re-vegetation or restoration of disturbed areas, and full-time responsibility for directly supervising personnel in stabilization of disturbed areas.

(7) Hydrology Engineer

The following provides a brief job description and requirements of the Hydrology Engineer:

(a) The Hydrology Engineer is responsible for all matters regarding hydraulics for the Project;

(b) The Hydrology Engineer must:

(i) Report directly to the Design Manager;

(ii) Be available to be on-Site at all times that Work is performed;

(iii) Be available by phone to perform their responsibilities throughout the duration of the DBA; and

(iv) Be a registered Professional Engineer in the State before commencing any Work;

(c) The preferred experience for the Hydrology Engineer is 5 years of experience with hydrology design for the projects on the ADOT highway system.

(8) Landscape Architect

The following provides a brief job description and requirements of the Landscape Architect:

(a) The Landscape Architect is responsible for the landscaping and aesthetics for the Project and shall be familiar with ADOT construction plan preparation;

(b) The Landscape Architect must:

(i) Report directly to the Design Manager;

(ii) Be available to be on-Site at all times that Work is performed;

(iii) Be available by phone to perform their responsibilities throughout the duration of the DBA; and

(iv) Be a registered Landscape Architect in the State before commencing any Work;

(c) The preferred experience for the Landscape Architect is 5 years of experience developing landscape and aesthetic plans.

(9) ITS Design Manager

The following provides a brief job description and requirements of the ITS Design Manager:

(a) The ITS Design Manager is responsible for all matters regarding ITS elements for the Project;

(b) The ITS Design Manager must:

(i) Report directly to the Design Manager;

(ii) Be collocated within the Project Office from issuance of NTP 2 until ADOT's approval of all RFC Submittals for Design Work;

(iii) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(iv) 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;

(v) Be a registered Professional Engineer in the State before commencing any Work;

(c) The preferred experience for the ITS Design Manager is 10 years of experience leading ITS design.

(10) ITS Construction Manager

The following provides a brief job description and requirements of the ITS Construction Manager:

- (d) The ITS Construction Manager is responsible for the construction, installation, and systems acceptance testing for the entire ITS system;
- (e) The ITS Construction Manager must:
 - (i) Report directly to the Construction Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the Construction Work; and
 - (iv) Be available by phone to perform their responsibilities throughout the duration of the DBA;
- (f) The preferred experience for the ITS Construction Manager is:
 - (i) 10 years of experience leading ITS construction, installation, and systems acceptance testing; and
 - (ii) 50 miles of previous fiber optic cable installation experience.

(11) Maintenance Coordinator

The following provides a brief job description and requirements of the Maintenance Coordinator:

- (a) The Maintenance Coordinator is responsible for:
 - (i) Adhering to and administrating the requirements of the Contract Documents as it relates to Design-Builder maintenance during the Project;
 - (ii) Ensuring all maintenance requirements are addressed in the allowable timeframe; and
 - (iii) Authorizing and responding to unscheduled maintenance requirements as they occur;
- (b) The Maintenance Coordinator must:
 - (i) Report directly to the Construction Manager;
 - (ii) Be collocated within the Project Office from issuance of NTP 2 until 90 Days following issuance of the Certificate of Substantial Completion;
 - (iii) Be assigned to the Project full time throughout the duration of the DBA;
 - (iv) Be present at the Site or designate other individuals to respond to maintenance requirements at all times that Work is performed;
 - (v) Be available by phone 24 hours a day, 7 days a week as deemed necessary by the occurrence;
 - (vi) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(c) The preferred experience for the Maintenance Coordinator is:

(i) 10 years of experience coordinating maintenance of freeway systems.

(12) Scheduler

The following provides a brief description and requirements of the Scheduler:

(a) The Scheduler is responsible for creating and maintaining the Project Schedule including, updates, Narratives, reports, and Time Impact Analysis related to the Project.

(b) The Scheduler must:

(i) Be available to be on-Site at all times that Work is performed;

(ii) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(iii) Be proficient in CPM schedule development using Primavera P6, analysis of resources applicable to the required detail of the Project Schedule and shall be able to perform the required tasks using the specified software;

(iv) Be present at all schedule meetings, in person; and

(v) Actively communicate with project management personnel, subcontractors, and suppliers to develop and maintain accurate updates of progress and schedule revisions throughout the duration of the DBA.

(c) The preferred experience of the Scheduler is:

(i) 10 years of experience in schedule development for freeway projects.

(13) Utility Adjustment Coordinator

The following provides a brief job description and requirements of the Utility Adjustment Coordinator:

(a) The Utility Adjustment Coordinator is responsible for coordinating the Utility Adjustment and relocation requirements for Design-Builder and leading the efforts to resolve any Utility conflicts that may arise during design and construction;

(b) The Utility Adjustment Coordinator must:

(i) Report directly to the Construction Manager;

(ii) Be collocated within the Project Office from issuance of NTP 2 until ADOT's approval of all RFC Submittals for Design Work;

(iii) Be assigned to the Project full time while Design Work is ongoing or until Construction Work is at least 70% complete, whichever is later;

(iv) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(v) Coordinate all encroachment permits needed to complete the Project Utility Adjustments;

(vi) Review Plans and/or Construction Documents that may affect the Project, prepared by ADOT or third parties, for improvements in the Project area to be constructed by others; and

(vii) Coordinate with the Utility Companies, the Community through ADOT and ADOT to secure, prior to commencing any construction within the Project ROW, an ADOT encroachment permit and right of entry permits from the Community;

(c) The preferred experience for the Utility Adjustment Coordinator is:

(i) 10 years of experience complex highway infrastructure projects; and

(ii) 5 years of experience coordinating design and construction of Utility Adjustments and relocations for major freeway projects.

(14) Qualified Biologist

The following provides a brief job description and requirements of the Qualified Biologist:

(a) The Qualified Biologist is responsible for oversight of all work involving biological resources;

(b) The Qualified Biologist must:

(i) Report directly to the Environmental Compliance Manager;

(ii) Be available to be on-Site at all times that Work is performed;

(iii) Be available by phone to perform their responsibilities throughout the duration of the DBA;

(iv) Have a bachelor's degree with an emphasis in biology, ecology, natural resource management, or related science;

(v) Previous experience with applying the terms and conditions of a biological opinion;

(vi) The appropriate permit and/or training for conducting focused or protocol surveys for listed species of concern to the Project including burrowing owls;

(vii) Previous experience in writing biological review, survey, and monitoring documents;

(viii) Previous experience in general federal threatened and endangered species habitat evaluations;

(ix) Previous experience in federal, State and tribal sensitive species habitat evaluations and surveys;

(x) Previous experience in surveying for native plants and noxious weeds of central Arizona; and

(xi) Previous experience in handling reptiles.

(c) The preferred experience for the Qualified Biologist is 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.

110.04 Submittals

Table 110-2 reflects a list of Submittals identified in this Section 110 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 110-2: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>PMP</u>	2	Per each volume per the Technical Provisions or as a whole at the schedule for the earliest submittal for any <u>PMP</u> volume	110.02
2.	Updated <u>PMP</u>	2	Not later than 10 Business Days after the occurrence of the change or direction triggering the need for the revisions to the <u>PMP</u>	110.02
3.	<u>Project Administration Plan</u>	2	Prior to issuance of NTP 2	110.02(A)
4.	<u>Other Personnel Qualifications Package</u>	2	Not less than 20 Day prior to the associated Other Personnel starting Work	110.03(C)
<u>Notes:</u> A. Levels of Review 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

End Section

111 Document Management

111.01 General Requirements

Design-Builder shall manage documents for the Project in compliance with the requirements of this Section 111. Design-Builder shall provide all document management Work to support design and construction of the Project.

111.02 Document Management Requirements

Design-Builder 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, Design-Builder shall provide ADOT and ADOT's designated representatives access to the EDMS records throughout the duration of the DBA. All electronic information must be text searchable and legible. The EDMS is subject to review and comment by ADOT as part of the review and comment on the PMP.

111.03 Document Management Plan

Design-Builder shall prepare a Document Management Plan that:

- (A) Describes Design-Builder's EDMS to transfer, store, catalog, and retrieve all Project-related documents, including correspondence, design inputs, Plans, standard details, progress reports, technical reports, specifications, Contract Documents, Submittals, calculations, test results, inspection reports, Non-Conformance Reports (NCR), administrative documents, Deviations, 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 Work;
- (C) Describes the methods by which all documents Design-Builder issues or receives are to be logged, tracked, retrieved, and approved;
- (D) Identifies how all documents are to be tracked using a unique document control number;
- (E) Describes how Design-Builder intends to submit all Submittals and other documentation required by the Contract Documents to ADOT's project management information system;
- (F) Describe the process and procedures to change Plan sheet numbers from the RFC Submittals to Record Drawings to ensure the numbers are consistent with TPA 113-1 (File Naming Convention); and
- (G) Describes how Design-Builder intends to transfer all Project data to ADOT at Final Acceptance (D&C).

Design-Builder shall provide ADOT with EDMS procedures, software for accessing all documents generated under the Contract Documents, software training and access to Design-Builder's document control database in accordance with the requirements of the Contract Documents and as deemed necessary by ADOT. Design-Builder shall submit the Document Management Plan to ADOT in accordance with Table 111-1.

111.04 Submittals

Table 111-1 reflects a list of Submittals identified in this Section 111 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

1

Table 111-1: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Document Management Plan</u>	2	Prior to issuance of NTP 2	111.03
Notes: A. Levels of Review 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

2

End Section

112 Quality Management

112.01 General Requirements

Design-Builder shall perform all Work in compliance with the requirements of this Section 112 and TPA 112-1 (Quality Assurance Program). TPA 112-1.2 (Project Specific Quality Assurance Program Appendix F) and TPA 112-1.3 (Project Specific Quality Assurance Program Appendix H) replaces Appendix F (Owner Verification Levels of Testing Verification) and Appendix H (Independent Quality Firm Data Transfer Requirements) in TPA 112-1.1 (ADOT Quality Assurance Program) for this Project.

Design-Builder shall provide all quality management Work to support design and construction of the Project.

112.02 Quality Management Plan

Design-Builder shall prepare a comprehensive Quality Management Plan (QMP) for the Project that consists of the following:

- (A) Volume 1: Quality Management Plan General Requirements;
- (B) Volume 2: Professional Services Quality Management Plan (PSQMP); and
- (C) Volume 3: Construction Quality Management Plan (CQMP).

Design-Builder shall prepare, implement, and maintain the QMP throughout the duration of the DBA. The QMP must contain a complete detailed description of all quality policies, procedures, processes, and systems that Design-Builder will employ to ensure and document that the Work complies with the Contract Documents and results in the Quality Records that provide documented evidence. The quality policies, procedures, processes, systems, and objectives must demonstrate Design-Builder's senior management commitment to the implementation and continuous improvement of the QMP and overarching quality practices and principals. The QMP must promote operational consistency, encourage process ownership, and promote thorough documentation, and allow for efficient review, comment, approval, and audit by ADOT, as applicable.

The QMP must address all Work to be performed by Design-Builder and Subcontractors of all tiers, and must contain detailed procedures for Design-Builder's QA and QC activities for Professional Services, and Design-Builder's QC activities for all other Work. Design-Builder's quality process must address planned and systematic testing, inspection, verifications, and audits undertaken by the IQF for Construction Work and by Design-Builder's quality staff for Professional Services. Design-Builder and the IQF shall conduct all quality activities, performance confirmation, and coordination among disciplines, in accordance with the QMP and the requirements of the Contract Documents.

The QMP must comply with *International Organization for Standardization (ISO) 9001:2015* or most current version in effect as of the Setting Date, as updated by the ISO. Unless otherwise specified in elsewhere in the Contract Documents, quality terminology has the meaning in *ISO 9001*. Terms used in *ISO 9001* must include the following meanings:

- (A) Organization: Design-Builder's organization, including any Design-Builder-Related Entities and Subcontractors;
- (B) Customers: The users of the roadways, ADOT, and stakeholders; and
- (C) Product: The Work.

Design-Builder shall revise the QMP whenever either ADOT or Design-Builder's own quality management organization detects quality policies, procedures, processes, systems, or objectives that produce Work that is not in conformance with the Contract Documents, or Design-Builder produces Work that does not meet the quality levels identified in the QMP.

(A) Volume 1 – QMP General Requirements

As part of the QMP, Design-Builder shall prepare the QMP General Requirements that describes Design-Builder's quality policies, procedures, processes, systems, and staffing to manage quality for administration of the Project in accordance with the requirements of this Section 112.02 and the Contract Documents. Design-Builder shall submit the QMP General Requirements to ADOT in accordance with Table 112-1.

(1) Content Requirements

The QMP General Requirements must describe and include the following requirements:

- (a) Quality management organization information (See Section 112.02(A)(2));
- (b) Quality responsibilities (See Section 112.02(A)(3));
- (c) Quality policy (See Section 112.02(A)(4));
- (d) Quality reporting and audit procedures (See Section 112.02(A)(5)); and
- (e) Procedures for interdisciplinary quality reviews and coordination (See Section 112.02(A)(6)).

(2) Quality Management Organization

Design-Builder shall document and regularly maintain the QMP General Requirements so that it contains current versions of the following information:

- (a) An organizational chart that identifies all quality management personnel, their roles, authorities, and line reporting relationships;
- (b) Description of the roles and responsibilities of all quality management personnel and those who have the authority to stop Work for quality-related issues;
- (c) Resumes for all quality management personnel, including information on certifications held;
- (d) Procedures to update staffing requirements as necessary throughout the duration of the DBA to reflect changes in the actual Project Schedule and specific Project Elements;
- (e) Procedures for ensuring independence of quality staff and procedures for assuring their authority to effect changes in the event of Design-Builder's failure to comply with the Contract Documents; and
- (f) Identification of QC inspection, sampling and testing organizations, including information on each organization's capability to provide the specific services required for the Work, certifications held, equipment, and location of laboratories for products produced both on and off the Project site.

(3) Quality Responsibilities**(a) ADOT**

ADOT will be responsible for Owner Verification (OV).

(b) Design-Builder

Design-Builder and the IQF shall be responsible for all other quality related activities during the duration of the DBA.

(4) Quality Policy

The QMP General Requirements must contain a complete description of the quality policies and objectives that Design-Builder will implement throughout its organization. The policy must demonstrate Design-Builder's commitment to implement and continually improve the quality management system for the Work. Design-Builder's Quality Manager, PSQM, and CQCM must have the authority to stop Work for quality-related issues.

(5) Quality Reporting and Audits

The QMP General Requirements must contain the procedures to prepare records that demonstrate compliance with the requirements of this Section 112 and the approved QMP. Design-Builder shall prepare Quality Records that includes all documentation and other supporting material documenting quality program activities, submittals, and compliance, in any medium or format. Design-Builder shall promptly load all Quality Records to the EDMS and such Quality Records will then be accessible at all times for inspection, review, and verification by ADOT. Design-Builder shall submit the Quality Records to ADOT in accordance with Table 112-1.

The QMP must contain the procedures for quality audits for the Project. Design-Builder shall prepare Results of Internal Audits that includes the quality program audit findings and documentation specified in the respective volumes of the QMP. Design-Builder shall submit the Results of Internal Audits to ADOT in accordance with Table 112-1.

IQF shall notify ADOT and Design-Builder and initiate an NCR within 48 hours after becoming aware of Nonconforming Work for each incident of Nonconforming Work. The IQF must log and track NCRs using the IQF's EDMS. The NCR must document the issue, resolution, and the must include an action plan to prevent similar future incidences in accordance with TPA 112-1 (Quality Assurance Program). Design-Builder shall submit NCR to ADOT in accordance with Table 112-1.

The QMP General Requirements must contain the procedures for annual quality audits for the Project. Each year, beginning at the end of the first calendar year after issuance of NTP 1 and until Substantial Completion, Design-Builder must prepare an Annual Audit Report that audits:

- (a) Design-Builder's design and construction control process, with particular regard to compliance with the QA/QC requirements of the PMP, and
- (b) Professional Services and construction safety control processes in place, Professional Services and construction safety control plans in place, and recordkeeping for compliance with the Contract Documents.

Design-Builder shall submit the Annual Audit Report to ADOT in accordance with Table 112-1.

(6) Interdisciplinary Quality Reviews

The QMP General Requirements must contain the processes and procedures that define the interdisciplinary quality reviews, coordination, relationships, and interactions between the PSQMP, the CQMP, and QMP General Requirements.

(B) Volume 2 – PSQMP

(1) PSQMP General Requirements

As part of the QMP, Design-Builder shall prepare a PSQMP that describes Design-Builder's policies, procedures, and staffing to manage quality for Professional Services Work in accordance with the requirements of this Section 112.02(B) and the Contract Documents. Design-Builder shall submit the PSQMP to ADOT in accordance with Table 112-1.

(2) PSQMP Content Requirements

The PSQMP must describe and include the following requirements:

- (a) The scope, Design-Builder management support, and internal process for implementing and managing change to the PSQMP.
- (b) The structure, responsibilities, and hierarchy of the design quality organization.
- (c) Discuss methodology for assuring design consistency between multiple designers and design firms, and for assuring compatibility between technical disciplines:
 - (i) Define the design quality control and quality assurance procedures that will apply to Professional Services Work products;
 - (ii) Define procedures to assure that Work products will be organized by discipline and sub-discipline, as appropriate (such as engineering – roadway, structural, and Utilities). These procedures shall specify measures to ensure that appropriate quality requirements are specified and included in the Professional Services Work product; and
 - (iii) Define measures that will control deviations from such requirements;
- (d) Discuss design production responsibilities, reviews, data control, data validation and PSQMP training.
- (e) Define specific quality control and quality review procedures, including all required forms and checklists, must be specified for preparing and verifying all Professional Services Work products to ensure that they are independently checked and backchecked with a high standard of care in accordance with the Contract Documents.
- (f) Define the details of the design check process and discuss how, in addition to Final Design Documents, the process also applies to calculations, reports, Project Special Provisions, and other material intended to support the final design, including independent structural design. Design-Builder shall clearly identify the designer and checker on the face of all Design Documents. The PSQMP must also include specific procedures for verifying the Professional Services Work product and identify any computer programs and methods being used for such purposes. Include procedures for meeting documentation requirements of the Contract Documents.
- (g) Discuss how design standardization and coordination will be achieved throughout the entire Project across multiple Project segments and within each design discipline. Define the method and procedures for coordinating Professional Services Work performed by different individuals or firms working in the same area, in adjacent areas, or on related disciplines or tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the Project Special Provisions or other applicable Submittals. This must also include the coordination of the review, approval, release, distribution and revision of documents involving such parties.
- (h) The procedures to:
 - (i) Ensure that Design-Builder personnel are familiar with all the provisions of the Contract Documents concerning their respective responsibilities;

- (ii) 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
- (iii) Ensure that the Work is performed according to the PSQMP, with a high standard of care, and the Contract Documents.
- (i) Procedures to establish compliance with documentation requirements; the filing of design criteria, reports and notes, calculations, plans, specifications, schematics, and supporting materials needed during the design; and the specific responsibilities of personnel to satisfy these requirements. All Design Documents must be maintained, organized and indexed by Design-Builder and copies made available to ADOT upon request.
- (j) Discuss the frequency, timing, content, and format of the over-the-shoulder (OTS) reviews.
- (k) Discuss the design checking, back checking, internal auditing, and independent review requirements for Professional Services. Provide procedures and schedules for the performance of audits of Design-Builder's QC procedures under the PSQMP. Provide a summary of the documentation that is to comprise the Professional Services Quality Records, and the procedures to make such Quality Records immediately available to ADOT for review. Provide a summary of anticipated Professional Services audit documentation to be submitted to ADOT, and the procedures to make sure that Design-Builder shall submit the Results of Internal Audits for Professional Services to ADOT for review and comment. Describe the process that Design-Builder will take for follow-up action, including re-audit of deficient areas following corrective action.
- (l) Procedures and schedules for the Professional Services Quality Manager to perform audits of the quality control procedures under the PSQMP.
- (m) Discuss how Design-Builder's Professional Services quality organization will assure that constructability and maintenance considerations are incorporated into design reviews.
- (n) Discuss the requirements of the RFC Submittal process, including how document history will be reflected, and how documents will be distributed and tracked.
- (i) Define internal procedures to assure that all documents ultimately released for construction have been subject to the appropriate checks and balances, regardless of their source or medium.
- (ii) Define the potential RFC Submittal sources and media and define how the process may change as portions of the Project transition from design to construction, including partial plans released for construction, Notice of Design Changes (NDC), and Field Design Changes (FDC).
- (iii) Define how RFC Submittal status will be tracked and how documents will be made available for use by all Project parties.
- (iv) Define the procedures and documentation required for interdisciplinary reviews and constructability reviews for all submittals including documentation of the issues and results of the reviews.

- (v) Define the procedure and documentation required by Design-Builder to assure that all Submittals are compliant with the Technical Provisions.
- (o) Discuss how the design process will assure that any RFC Submittals clearly and completely define the acceptance criteria that will be utilized by ADOT during construction.
- (p) Define how the design process will assure that the construction requirements defined in Section 113.06 are incorporated.
- (q) Discuss Design-Builder's post-design services process, staff, authority, scope, documentation, and product review process, including Shop Drawings and Working Drawings and Design Changes. Define the role of the design team during construction; to include the RFI process and the NCR process.
- (r) Define the interface between design and construction personnel and related processes.
- (s) Discuss the change process, including both NDC and FDC, how those performing Professional Services are to address Directive Letters, the related document control interface, and the construction documentation interface. This discussion must include defining how documents produced after the preliminary design phase will be subject to appropriate internal design checks, quality reviews, ADOT and third party approvals before being released for construction. This discussion must also include measures to ensure any design changes are not made to constructed elements or identify partial removals if warranted.
- (t) Discuss the process for ADOT to access past versions or RFC Submittals following an NDC or FDC.
- (u) Discuss the process for review and approval of construction submittals, Shop Drawings and Working Drawings, including if it will be reviewed and approved by the Engineer of Record (EOR).
- (v) Discuss the responsibilities, activities, and source of information associated with the Record Drawing process.
- (w) Discuss and define procedures to ensure the requirements of Section 116 are timely, accurate, and consistent throughout the Project. Define how information received by design and construction staff will be verified and checked prior to being provided to stakeholders. Discuss process for the accurate input of information into the SMS.

(C) Volume 3 – CQMP

(1) CQMP General Requirements

As part of the QMP, Design-Builder shall prepare a CQMP that describes Design-Builder's policies, procedures, and staffing to manage quality for Construction Work in accordance with the requirements of this Section 112.02(C) and the Contract Documents.

Design-Builder shall define processes and procedures for construction QC and QA to achieve compliance with the Contract Documents.

Design-Builder shall perform Construction Work in accordance with the RFC Submittal and other documents that have been formally released for construction as provided in Section 113.05(B)(4). The CQMP must contain systematic, auditable, and detailed procedures for Design-Builder's construction QC activities and accommodate the

1 IQF's Quality Acceptance and ADOT's OV activities. The IQF's construction Quality Acceptance must allow for
2 acceptance sampling, testing, and inspection activities by ADOT.

3 Design-Builder and the IQF shall ensure that personnel with appropriate training and qualifications for each
4 appropriate item of Work (including all items produced on and off the Site) perform inspections, reviews, and testing
5 using appropriate equipment that is accurately calibrated and maintained in good operating condition.

6 Design-Builder's QC program must be sufficient in scope to preempt and avoid repeated discoveries of
7 Nonconforming Work by the IQF or ADOT. Repeated discoveries of Nonconforming Work or issuance of NCR by any
8 party, or, in the reasonable opinion of ADOT, excessive use of engineering judgment to accept failing material or
9 workmanship will be considered a breakdown of the quality program and will be cause for investigation, suspension
10 of Work, and corrective action prior to recommencement of Work in the areas affected. Corrective action may
11 include the addition of new QC procedures, revision to existing QC procedures, re-training of QC personnel, removal
12 and replacement of QC personnel, or other such actions that will restore the effectiveness of the QC program.

13 The CQMP shall include the ITS Equipment and System Testing Plan as described in Section 738.

14 Design-Builder shall submit the CQMP to ADOT in accordance with Table 112-1.

15 (2) CQMP Content Requirements

16 The CQMP shall assure that all construction quality requirements are explicitly defined or described, measurable,
17 and understood by both production and quality organization personnel, and that internal process for continuous
18 construction quality documentation is in place and functioning properly, while always accommodating ADOT's
19 oversight and the IQF's acceptance activities.

20 The CQMP must include the following main components:

- 21 (a) General (See Section 112.02(C)(2)(a));
- 22 (b) Construction Quality Control (See Section 112.02(C)(2)(b));
- 23 (c) Construction Quality Acceptance (See Section 112.02(C)(2)(c));

24 The contents of each section are defined in the respective sections below.

25 (a) General

26 The CQMP must:

- 27 (i) Define the CQMP development and updating process. The process shall
28 clearly define the authority and responsibility for the administration of the
29 CQMP;
- 30 (ii) Discuss the structure, responsibilities, and hierarchy of the construction
31 quality organization;
- 32 (iii) Discuss the roles and responsibilities of Design-Builder management, QC,
33 and the IQF, clearly defining the distinction between the various
34 components of the quality program;
- 35 (iv) Discuss the interface between Design-Builder's quality activities, the IQF's
36 Quality Acceptance activities, ADOT's OV and independent assurance
37 activities; and
- 38 (v) Include an organizational chart which shows the relationship between
39 Design-Builders production staff, QC, and QA.

(b) Construction Quality Control**(i) General**

The CQMP must:

- A. Define the construction QC organization chart and staffing plan;
- B. Define the construction quality control workmanship inspection process;
- C. Define the QC sampling and testing frequency;
- D. Define the requirements for QC reports;
- E. Define the usage of pre-activity meetings, including elements of work that will require a pre-activity meeting, attendees, and typical agendas;
- F. Define Design-Builder's internal review and submittal process for the IQF's approval of all Portland cement concrete and AC mix designs; and
- G. Define the process for scheduling hold point inspections. Hold points shall be unique inspection activities and shall be documented and recorded independently from other daily documentation. All parties involved in the hold point inspection shall be notified of the upcoming hold point inspection a minimum of one Business Day in advance.

QC shall consist of members of the production staff and members of the construction quality control staff. The construction quality control staff must be independent from the production staff. QC shall be led by the CQM.

(ii) Production

The CQMP must:

- A. Define the process to ensure that members of Design-Builder's production staff are only constructing and building from RFC Submittal, approved Contract Documents, approved Shop Drawings and Working Drawings, approved mix designs, approved materials, etc.;
- B. Discuss the methods and procedures to be utilized by Design-Builder to obtain active participation of the production workforce in QC operations to achieve a high quality Project;
- C. Design-Builder shall define processes and procedures to ensure the production staff achieves compliance with the Contract Documents;
- D. Define measures to ensure that purchased materials, equipment, and services conform to the Contract Documents, Governmental Approvals, Community Approvals, BIA Approvals, applicable Laws, rules, and the RFC Submittal. These measures shall be consistent with good industry practice and shall 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; and

- E. Discuss the process for any Work Design-Builder elects to do at risk, including building at risk.

(c) Construction Quality Acceptance

(i) General

Design-Builder shall utilize an IQF to perform all QA. The IQF shall inspect and accept all permanent Work, temporary Work, and third-party Work associated with the Project.

Acceptance shall consist of a QA and OV.

QA policies, procedures, processes, and systems shall always accommodate OV activities.

QA shall be led by the CIQM. The size of the construction Quality Acceptance staff shall reflect the volume of Quality Acceptance activities necessary for the Work in progress and Design-Builder and the IQF shall maintain such staff size in accordance with the approved CQMP. The IQF staff shall perform Quality Acceptance, inspection, and testing services typically performed by ADOT on traditional projects, unless otherwise indicated in the Technical Provisions.

The CQMP must:

- A. Define the Quality Acceptance organization chart and staffing plan. The IQF staffing plan shall:

1. Include a hierarchal structure with clearly defined roles and responsibilities. The CIQM shall be the overall lead for the IQF organization and shall not be dually assigned to specific Project Segments or work elements;
2. Show the period of time that the Quality Acceptance staff members shall be present on the Site;
3. State the required minimum knowledge, technical skill, and experience level of the personnel related to the various inspection functions, such as grading, drainage, paving, structures, and electrical inspections that will occur on the Work; and
4. Identify the administrative/clerical support staff for management of records/documents pertinent to Quality Acceptance for the IQF activities;

- B. Define the procedures to ensure that the education, training and certification of Quality Acceptance personnel are achieved and maintained; and

- C. Define the procedures to make an electronic log available to ADOT that contains personnel certification status and expiration dates.

(ii) Workmanship

A key component of the Quality Acceptance program is the development and implementation of hold points. Hold points are a point in time when construction has proceeded to a stage at which representatives of Design-Builder and ADOT evaluate the Work completed to date by inspecting the Work and reviewing any pertinent data to

determine the acceptability of the Work. No additional Work shall take place past the hold point until Design-Builder and ADOT agree that the Work up to that point is acceptable.

The CQMP must:

- A. Define the process for inspecting and checking Work, including how the hold point process will be implemented;
- B. Establish procedures and checklists for inspection of the Work based on the Project Special Provisions and Contract Documents. Design-Builder shall establish these procedures based on the ADOT *Standard Specifications*;
- C. Discuss what will be inspected, how it will be inspected, who will be involved in the inspection, and what acceptance criteria will apply;
- D. Define the manner in which OV will be accommodated during the inspection process;
- E. Define hold points. Hold points must include:
 - 1. Roadway subgrade completion prior to base placement;
 - 2. Roadway base completion prior to pavement placement;
 - 3. Completion of placement of pipe bedding;
 - 4. Placement of pipe prior to pipe backfill placement;
 - 5. Structural excavation completion;
 - 6. Drilled shaft excavation completion;
 - 7. Completion of excavations for foundations and footings;
 - 8. Setting of structural concrete forms;
 - 9. Anchor/approach slab steel placement;
 - 10. Painting and patching of concrete surfaces;
 - 11. Bridge deck steel placement;
 - 12. Cast-in-place (CIP) bottom deck and web steel/forms placement;
 - 13. Post tensioning ducts installation;
 - 14. Prior to web pour;
 - 15. Prior to deck pour;
 - 16. Falsework installation and removal;
 - 17. Electrical conduit backfill placement at angle points and pull boxes;
 - 18. Electrical conductor completion;
 - 19. Concrete barrier pour;

- 20. Native plant inventory and salvage; and
- 21. Major utility relocation;
- F. Define the process for advancing Work past a hold point;
- G. Define the process for IQF accepting Work, meaning work that does not require a future hold point;
- H. Define how the IQF procedures will be used for documenting compliance or non-compliance for all items of Work;
- I. Define the process for the IQF exercising engineering judgement with regards to non-sampling and testing elements of Work. Discuss the format for documentation of the IQF's application of engineering judgement. At a minimum, this shall include unique identifying number of each instance, and a written document identifying the type and location of the Nonconforming Work; the circumstances and the engineering evaluation conclusions, and supporting documentation such as calculations or sketches, as appropriate;
- J. Define the process for IQF to execute the ADOT Construction Bulletins listed in TPA 112-2 (*ADOT Construction Bulletins*);
- K. Define the Nonconforming Work process. The process must include an NCR. The NCR must include the identification, classification, resolution, and documentation of Nonconforming Work. The NCR shall document the root cause of the issue and action plan to prevent future similar incidences. All proposed NCR resolutions require ADOT approval. No Work shall proceed on, or associated with, Nonconforming Work until the proposed resolution is approved by ADOT. All NCR resolutions shall be signed and sealed by the EOR prior to being submitted to ADOT for approval. The completion of the NCR process does not remove ADOT's right to DBA Section 7.04 (*Construction*). Upon identification of Nonconforming Work, the CQCM shall notify ADOT, including all available information. The CQCM shall submit NCRs to ADOT for approval; and
- L. Define the process for reviewing and approving Portland cement concrete and AC mix designs.

(iii) Documentation

The CQMP must:

- A. Define the process for documenting the Work and the manner in which the objective evidence used to verify compliance with the specified requirements shall be made available to ADOT;
- B. Define the IQF process for documenting Design-Builder daily Work activities;
- C. Provide a summary of the documentation that comprises the construction Quality Records, and define the procedures to submit

Quality Records to ADOT for review within 24 hours after Work is performed;

- D. Discuss methods to assure that all activities undertaken by or on behalf of Design-Builder affecting the quality of the Work are prescribed by documented instructions, procedures, mix designs, and appropriate drawings. Such instructions, procedures, mix designs, and drawings shall include quantitative and qualitative criteria to be used to determine compliance;
- E. Define and provide inspection documentation format for diaries and test reports; and

(iv) Record Keeping

The CQMP must:

- A. Define document control standards, the platform for data systems, document identification standards, and processes for logging and distributing controlled documents;
- B. Discuss the requirements and methods for controlling documents and discuss the document control system accessibility by quality organization personnel;
- C. Define where IQF Quality Records will be stored and the detailed organization and labeling system that will be used;
- D. Describe how Design-Builder will prepare Quality Records which consist of all documentation and other support material of any type, in any medium, which demonstrates compliance with the requirements of this Section 112;
- E. Describe how Design-Builder will load all Quality Records to the EDMS within one Business Day of creation and notify ADOT of such Records creation to support the timely inspection, review, and verification by ADOT. Quality Records shall be accessible at all times for inspection, review, and verification by ADOT. Design-Builder shall submit copies of Quality Records to ADOT within 24 hours of ADOT's request. While available to ADOT via the EDMS, ADOT may request specific records at any time. Requests may come in the form of meeting action items, e-mail correspondence, or formal correspondence. Design-Builder shall submit such records as requested within 24 hours in a means identified in the request;
- F. Discuss the RFC process;
- G. Define the requirements related to the different types of Construction Documents that can be used in the field for construction, and discuss the procedures and processes in place to assure that only RFC Submittals are distributed for such use;
- H. Include a list, and describe in detail, which documents will be used and how they will be used, during the acceptance process;
- I. Define procedures for processing a Request for Information (RFI) to resolve discrepancies and/or questions in the Plans and

specifications. Any RFI that results in a design change must be approved by the EOR and followed by an NDC. Discuss the change management and RFI process as it relates to construction and the quality organization. Discuss the interface between design and construction quality personnel and define the procedures that will assure that change of any type is not implemented outside of the RFC process; and

J. Design-Builder shall create and maintain IQF Quality Records including:

1. An electronic daily log of all inspections performed for Work operations in a format acceptable to ADOT and shall be made available to ADOT at all times. The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions proposed or taken. For placement of asphaltic concrete, the daily inspection report shall include final quantity of asphalt placed during each production shift supported by the last ticket from the asphalt supplier. The responsible technician and supervisor shall sign the daily inspection reports. IQF shall provide the results of the daily inspections to ADOT in an electronic format within one Business Day after the work shift;
2. The IQF shall be responsible for establishing an electronic system for recording all material test results and certifications. The responsible technician and his/her supervisor shall sign the daily test reports. Design-Builder shall submit the results of testing to ADOT within 24 hours of test completion;
3. The IQF's inspection and materials quality program shall deliver all inspection reports, laboratory, and field test results to ADOT in an electronic format acceptable to ADOT. This electronic reporting is intended to allow Design-Builder and ADOT to make timely and accurate decisions on workmanship and material quality issues;
4. The IQF shall review and maintain all *Certificates of Compliance* or *Certificates of Analysis*, as required, prior to the use of any materials or manufactured assemblies requiring such a certificate according to applicable ADOT *Materials Policy and Procedure Directives*. The certificates shall be made available to ADOT; and
5. The IQF or Design-Builder shall submit specific requested information mentioned herein to ADOT within 24 hours. Information available to ADOT does not constitute satisfaction of a specific request for information of such records.

(v) Audits

The CQMP must:

- A. Define the audit process;
- B. Define a comprehensive system of planned and random internal audits of the CQMP to determine adherence to and the effectiveness of the CQMP. IQF personnel unrelated to the Project must perform the audits in accordance with the written procedures or checklists. Design-Builder shall document, review, and act upon audit results. Design-Builder shall take follow-up action, including re-audit of deficient areas following corrective action, where indicated; and
- C. Provide 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 112.03.

(vi) Materials Sampling and Testing

The CQMP must:

- A. Describe the testing required to demonstrate compliance;
- B. Require that test results be documented and evaluated to ensure that test requirements have been satisfied;
- C. Demonstrate how the IQF tracks its sampling and testing frequencies to ensure compliance with the Contract Documents and is in accordance with TPA 112-1 (Quality Assurance Program) and how that information will be transmitted to ADOT, in a manner acceptable to ADOT, at least daily. Define how IQF will track and organize materials that are accepted on a lot basis;
- D. Define procedures for assessing compliance with the sampling and testing plan that include a process for tracking planned versus actual testing status;
- E. Define the nature and content of weekly reports that will be provided by Design-Builder's quality organization to show sampling and testing plan compliance, and discuss the manner in which noncompliance situations will be rectified, or otherwise justified;
- F. Discuss how Design-Builder accommodates inspections, sampling, and tests by third parties when applicable;
- G. Discuss the process by which the IQF may apply engineering judgment to substantiate the use of material failing to meet the specification if the material still meets the intended purpose;
- H. Incorporate the engineering judgement guiding principles for TPA 112-1 (Quality Assurance Program) and indicate how the IQF will comply with these guiding principles;

- 1 I. Discuss the format for documentation of the IQF's application of
2 engineering judgment, including, at a minimum, a unique
3 identifying number for each instance, and a written document
4 identifying the type and location of the Nonconforming Work, the
5 circumstances, and the engineering evaluation conclusions, and
6 any supporting documentation such as calculations or sketches, as
7 appropriate;
- 8 J. Address specific items, or components of items, that are planned
9 to be accepted on the basis of certification;
- 10 K. Define how material certificates will be collected or received, how
11 they will be checked in the field by inspection, how they will be
12 matched up and assigned to specific quantities of received
13 material, how they will be stored and organized to facilitate future
14 audits, what system will be used for tracking certificates, and who
15 will be responsible for managing the program; All certificates shall
16 be specifically identified as either a *Certificate of Compliance* or a
17 *Certificate of Analysis*;
- 18 L. Define test data organization methodology;
- 19 M. Identify the planned materials information database structure and
20 define the sample identification methodology that includes sample
21 ID structure, material type and usage codes, and location
22 referencing standards, all material codes shall be consistent with
23 those identified in TPA 112-1 (*Quality Assurance Program*);
- 24 N. Indicate methodology to transmit test data to ADOT in an
25 electronic format acceptable to ADOT;
- 26 O. Define the intended materials test summary reports and provide
27 examples; Define the materials information management software
28 and end user computer devices that will be utilized for collecting,
29 organizing, processing, retrieving, and reporting test data;
- 30 P. Discuss how Design-Builder will capture data and export
31 information to ADOT in an electronic format acceptable to ADOT;
- 32 Q. Discuss the content and format of the sampling and testing
33 requirements, consistent with those identified in TPA 112-1
34 (*Quality Assurance Program*), for all types of materials that will be
35 used on the Project;
- 36 R. Discuss methodology that will be used to assure that all collected
37 samples and performed material tests are reported with the proper
38 material codes;
- 39 S. Discuss internal quality control methodology that will be used to
40 check and assure data integrity;
- 41 T. Discuss procedures for reviewing and approving Quality
42 Acceptance test results, categorizing test results in a manner
43 acceptable to ADOT, transmitting Quality Acceptance test results
44 to ADOT in a format acceptable to ADOT for use in fulfilling is
45 statistical validation requirements, and working collaboratively

with ADOT to resolve statistical non-validation between the IQF and OV test results;

U. Discuss procedures for identification and control of materials, equipment, and elements of the Work. These procedures shall 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;

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

W. Define 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;

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

Y. Discuss procedures to ensure there is adequate quantity of material available for IQF sampling and testing and OV sampling and testing;

Z. Discuss procedures to track and assure that personnel performing IQF Quality Acceptance activities are evaluated randomly at least once a year by ADOT's independent assurance staff for the sampling and testing they perform; and

AA. Discuss procedures for reporting to ADOT which individuals are due for evaluation.

(vii) OV

ADOT will perform OV.

112.03 Submittals

Table 112-1 reflects a list of Submittals identified in this Section 112 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

1

Table 112-1: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>QMP General Requirements</u>	2	Not later than 30 Days after issuance of NTP 1	112.02(A)
2.	<u>Quality Records</u>	4	Not later than 24 hours from ADOT's request	112.02(A)(5)
3.	<u>Results of Internal Audits</u>	3	Not later than 5 Business Days after their completion	112.02(A)(5)
4.	<u>NCR</u>	2	Upon issuance of the nonconformance	112.02(A)(5)
5.	<u>Annual Audit Report</u>	3	Each year on the anniversary of approval of the QMP	112.02(A)(5)
6.	<u>PSQMP</u>	2	Prior to any submittal of any design package for ADOT review or prior to issuance of NTP 2, whichever is earlier	112.02(B)(1)
7.	<u>CQMP</u>	2	Prior to issuance of NTP 2	112.02(C)(1)
Notes: A. Levels of Review 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

2

End Section

113 Submittal Management**113.01 General Requirements**

Design-Builder shall perform all Work in compliance with the requirements of this Section 113. This Section 113 includes requirements related to Submittals and the Submittal review process for all Submittals required by the Technical Provisions.

Submittals are generally categorized as one of the following:

- (A) Administrative Documents;
- (B) Design Documents; and
- (C) Construction Documents.

All Submittals must be in English, use imperial units, and use dimensions in international feet. All Design Documents and Construction Documents must be professionally endorsed (signed, sealed, and dated) by the EOR or Architect-of-Record responsible in charge for that element or segment as required by Law.

Except as otherwise provided in the Contract Documents, Design-Builder shall submit all Submittals to ADOT as required under the Contract Documents and approved PMP. Submittals must include all supporting information necessary for ADOT and the Community, BIA, Utility Companies, and Governmental Entities to conduct a review and to verify that the design is progressing appropriately. The Submittal must include all information and documentation concerning the subject matter and must be accompanied by a transmittal letter that is electronically signed by Design-Builder.

113.02 Submittal Format

Submittals must have a unique alphanumeric identifier that remains with the package and identifies each Submittal stage (e.g., Preliminary Design Submittal, Final Design Submittal, RFC Submittal) as specified in TPA 113-1 (File Naming Convention). The alphanumeric identifier must remain constant and track the design package through the life of the Project.

Design-Builder shall submit all Submittals in electronic format as specified in Table 113-1. Design-Builder shall submit specific Submittals in hardcopy format as specified in the "Submittal Summary" table in each Technical Provision Section and as specified in the Contract Documents.

Table 113-1: Submittal Format

No.	Submittal Step/Submittal	Hardcopy	Electronic	
			Native ^A	PDF/A
1.	Administrative Documents	X	X	X
2.	<u>Project Special Provisions</u> , technical reports, calculations, modeling, input and output files		X	X
3.	<u>Preliminary Design Submittal</u>		X	X
4.	<u>Final Design Submittal</u>		X	X
5.	<u>RFC Submittal</u>		X	X
6.	<u>Shop Drawings and Working Drawings</u>			X

No.	Submittal Step/Submittal	Hardcopy	Electronic	
			Native ^A	PDF/A
7.	Request for Information			X
8.	<u>Design Changes</u>			X
9.	<u>Record Drawings</u>		X	X
10.	Utility Company and Governmental Entity Submittals ^B	X ^B		X
11.	Community Submittals	X ^B		X
12.	BIA Submittals	X ^B		X
Notes: A. Native files include design files. B. Unless otherwise specified in the Contract Documents, Design-Builder shall determine the additional format requirements required by the Community, BIA, Utility Company, or Governmental Entity.				

(A) CADD Requirements

Design-Builder shall prepare and name all drawings, Plans, and exhibits in accordance with the ADOT *Drafting Guides for Use in Office and Field* (Drafting Guide) and the CADD requirements included on <https://azdot.gov/business/engineering-and-construction/cadd> unless otherwise modified by the Technical Provisions to comply with the requirements of applicable Utility Company and Governmental Entity.

Design-Builder shall use all its design disciplines CADD base files to prepare KMZ File(s) for the Project. Design-Builder shall submit the KMZ File(s) to ADOT in accordance with Table 113-3.

(B) Media Format

Unless otherwise specified in the Contract Documents, Design-Builder shall prepare Submittals as follows:

- (1) Plans must be on 22-inch by 34-inch sized sheets with 1.25-inch margins on the left and right sides, and 0.75-inch margins on the top and bottom. The Plans must include a blank space, four inches wide by three inches high, inside the margin in the lower right corner. However, all design Submittals and Record Drawings shall be produced at half-size 11-inch by 17-inch PDF/A.
- (2) Documents, reports, and calculations must be on 8.5-inch by 11-inch sheets.
- (3) Exhibits must be on 8.5-inch by 11-inch, 11-inch by 17-inch, 22-inch by 34-inch or 36-inch by 72-inch sized sheets.
- (4) Roll plots must be sheets no larger than 36-inch by 72-inch, with 1.25-inch margins on the left and right sides, and 0.75 inch margins on the top and bottom. Design-Builder shall not use roll plots for Plans or RFC documents. Roll plots may be used for specific deliverables as specified in the Contract Documents, including any plans that are not included in the Record Drawings.
- (5) Shop Drawings and Working Drawings 22-inch by 34-inch sized sheets with 1.25-inch margins on the left and right sides, and 0.75-inch margins on the top and bottom. The Shop Drawings and Working Drawings must include a blank space, four inches wide by three inches high, inside the margin in the lower right corner. Design-Builder may prepare Shop Drawings and Working Drawings in either 8.5-inch by 11-inch or 11-inch by 17-inch sized sheets.

All Plans, exhibits, roll plots, and Shop Drawings and Working Drawings must be made in such a manner that clear and legible copies can be made from them.

(C) Electronic Format

Design-Builder shall use ADOT-provided electronic forms and process, where applicable. All electronic Submittals as identified in the Contract Documents must be compatible with existing ADOT program systems and/or software. Systems and software currently being used by ADOT include the following:

- (1) Microsoft Windows 10 (operating system);
- (2) Microsoft Word 2010;
- (3) Microsoft Excel 2010;
- (4) DocuSign for the Enterprise;
- (5) OpenRoads Designer (ORD) CE 2021 Release 1 v10.12 (2022 r3);
- (6) OpenBridge Designer/Open Bridge Modeler (OBD/OBM) CE 2021 Release 1 v10.12 (2022 r3); and
- (7) Oracle Primavera P6.

Each component of an electronic Submittal must be one continuous electronic copy, optical character recognition, searchable PDF/A format.

(D) Existing Ground Model

Design-Builder shall create an integrated-model of the existing condition to create a digital terrain model (DTM) using Bentley's OpenRoads Designer. 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) survey, subsurface Utility evaluation, field surveys, and existing plans data collection including currently available LiDAR or other existing ground surface data (.dgm or .tin format). Design-Builder 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, and in accordance with the *National Standard for Spatial Data Accuracy* method.

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

- (1) *Manual for Field Surveys*;
- (2) *Location Survey P-codes for Bentley InRoads*; and
- (3) *General Specifications for Photogrammetric Mapping*.

Design-Builder shall include the existing ground model in both *.dgn and LandXML format with the three dimensional (3D) Drawings.

(E) Design Files

Design-Builder shall prepare design files (ORD and OBD) including alignment file in both *.dgn and LandXML formats, storm drain intensity-duration-frequency (data IDF) tables, if applicable, and flex tables in LandXML format at, and new design surfaces in *.dgn and LandXML format. All Submittals that include Plans must include the associated design files.

(F) Building Information Modeling/3D Models

Design-Builder shall prepare 3D Models for the Project. 3D Models must conform to the same coordinate system as the Plans. Design-Builder shall prepare 3D Models in MicroStation DGN format, with model Elements for each actual Element that meet the level of development identified in TPA 113-2 (3D Drawing Elements). The 3D Models Submittal is separate from the design base files to be submitted as part of design Submittals.

Design-Builder shall use any commercially available software package, including manual drafting, to generate each model Element. Model Elements for each category identified in TPA 113-2 (3D Drawing Elements) must have a consistent appearance and must reside on the same drawing level. Design-Builder shall locate model Elements on a standard ADOT level (if the standard level exists). Model Elements must represent the exterior of each actual Element and need not include interior features like rebar. Unless otherwise noted, model Elements need not contain interior voids. Design-Builder shall combine all 3D Models into one final 3D Model container. The final 3D Model container must match the Record Drawings. Design-Builder shall submit the 3D Models to ADOT in accordance with Table 113-3.

(1) Existing Conditions

Design-Builder may approximate buildings and Project ROW as 3D solids extruded from 2D perimeters on survey from a constant elevation below grade to an approximate building height.

Design-Builder may generate existing bridge superstructures as a structure finished grade surface and a surface at a constant elevation from finished grade for each span or group of consecutive spans with equal girder heights. Existing girders and deck may not lie outside the inferred volume between superstructure top and bottom surfaces.

Design-Builder shall identify benchmarks and construction control points with graphic cells or text nodes with an origin corresponding to the benchmark or control point northing, easting, and elevation.

(2) Roadways

Design-Builder may generate curbs with constant cross-sectional dimensions complying with standard detail dimensions, excluding depressed curb details or curb transitions. All finished grade 3D Model Elements must have edges at each lane line between adjacent pavement surfaces with different cross-slope.

(3) Structures

Pre-cast girder Drawing Elements may neglect camber if the bottom of girder As-Built elevations are not lower than girder 3D Model Elements bottom elevations. Design-Builder may approximate horizontally curved girders and continuous cast in place superstructure supports such as U girders as chorded prisms similar to roadway components.

Design-Builder may approximate stay cables as linear features or solids without curvature with dimensionally accurate locations at deck and tower anchors.

(4) Miscellaneous

Drainage structure 3D Model Elements do not need to include interior voids. Permanent sign Drawing Elements must conform to panel height and width as detailed in Final Design Submittals and RFC Submittals.

(5) 3D Design Review

Design-Builder shall provide a platform in which 3D Models can be viewed and allows for creating and tracking issues and comments directly in the 3D model space.

At the completion of a design review, Design-Builder shall maintain a record of the issues/comments in either a spreadsheet or a PDF format.

113.03 Submittal Review Process**(A) ADOT Submittal Review Process****(1) Over-the-Shoulder Review**

OTS reviews are informal examinations by ADOT of Design Documents during the Project design process and are not considered formal reviews as specified in Section 113.03(A)(2). OTS reviews are mainly intended to assess whether the requirements and design criteria of the Contract Documents are being followed and whether PSQMP activities are being undertaken in accordance with the QMP.

The intent of these OTS reviews is to check for concept, level of detail, design criteria, and patent flaws. Comments made by ADOT are considered nonbinding. An OTS review does not relieve Design-Builder of its obligation to comply with the requirements of the Contract Documents. These OTS 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 OTS review may consist of an exchange of electronic files between Design-Builder's designer and ADOT.

OTS reviews must be in accordance with the PSQMP. Design-Builder shall schedule OTS reviews with ADOT during the development of each design Submittal. The OTS reviews are not critical activity points that restrict the progress of design. They are simply reviews of the design as it progresses and provide opportunities for ADOT to offer comments and feedback on the design.

If OTS reviews are performed, ADOT will conduct them, as appropriate, in either Design-Builder's office or at ADOT's offices or the Project Office, and in the presence of Design-Builder'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 special provisions, draft reports, or other Design Documents.

ADOT will have no obligation to conduct OTS reviews.

(2) Formal Submittal Review**(a) General**

This Section 113.03(A)(2) describes ADOT's formal Submittal review process and is illustrated in TPA 113-3 (ADOT Formal Submittal Review Process). ADOT has the right to perform DBA compliance reviews and provide comments on any Submittal or element of Work at any time throughout the Work at any time throughout the duration of the DBA. Design-Builder 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 has 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, Design-Builder shall notify all recipients to remove all copies from circulation. Design-Builder shall redistribute the replacement Submittal to ADOT and other appropriate Utility Companies and Governmental Entities, as authorized by ADOT.

(b) Submission

Design-Builder shall use or integrate with the ADOT EDMS for all electronic Submittals to ADOT in accordance with the Contract Documents and the PMP. If Design-Builder chooses to integrate with the ADOT EDMS, Design-Builder shall use data systems, standards, and procedures compatible with those employed by ADOT and implement any new operating practices required as a result of ADOT's amendments to any such systems, standards, naming conventions, identifier number, and procedures. Web services application programming interface for real time integration using industry-standard protocols and event driven integrations triggered through structured workflows provide options to integrate with the ADOT EDMS. Design-Builder shall obtain all software, licenses, training, and support to use or integrate with the ADOT EDMS throughout the duration of the DBA.

(c) Resolution of ADOT Comments**(i) Compilation of ADOT Comments**

To the extent practicable, ADOT will provide review comments to Design-Builder numbered in a manner corresponding to the drawing or report page in question in the ADOT EDMS that is consistent with TPA 113-4 (Comment Resolution Form). Design-Builder shall respond to all comments using the Comment Resolution Form in the ADOT EDMS. The Comment Resolution Form in the ADOT EDMS is a living document in which Design-Builder shall incorporate all resulting resolutions for each comment for each Submittal through all Submittal stages. Design-Builder shall include the Comment Resolution Form containing previous Submittal comments, if applicable, with each subsequent Submittal.

(ii) Comment Resolution

Design-Builder shall respond to all comments and complete all fields assigned to Design-Builder in the Comment Resolution Form in the ADOT EDMS, and propose modifications to Submittals for ADOT's concurrence as necessary to fully reflect and resolve all ADOT comments. Design-Builder shall submit the completed Comment Resolution Form to ADOT in accordance with Table 113-3.

Design-Builder shall respond to and propose to make modifications to Submittals for ADOT's concurrence to fully reflect and resolve all Preliminary Design Submittal comments by the Final Design Submittal and prior to submitting the RFC Submittal. Design-Builder shall resubmit the Final Design Documents as many times as necessary to obtain approval of the Final Design Documents. Except as otherwise specified in DBA Section 8 (Changes to the Contract Documents), Design-Builder shall not be entitled to an increase in the Contract Price, adjustment of a Contractual Deadline, or any other Claim due to required resubmittals.

(iii) Comment Resolution Meeting

Design-Builder shall schedule a comment resolution meeting (CRM) to discuss all comments with a status of "open" or "pending" in the Comment Resolution Form in the ADOT EDMS. Design-Builder may request ADOT to waive a CRM. ADOT may waive a CRM at its sole discretion. The purpose of the CRM is to discuss Design-Builder's responses to review comments, determine which of the review comments Design-Builder shall incorporate into the Work in the next Submittal, and discuss and resolve the "open" or "pending" comments. More than one CRM per Submittal may be necessary to discuss all review comments provided to Design-Builder. The Design Manager, EOR(s), Architect(s)-of-Record, and all Design-Builder staff requested by ADOT must attend the CRM.

(iv) Comment Escalation

The Parties will escalate comments in dispute after each CRM by making use of the Design Partnering Escalation Process in accordance with DBA Section 14.03 (Dispute Escalation During Design).

(3) Build at Risk

Design-Builder may identify and provide in-process Plans or other documentation that identifies the work such as removals, rough grading, drainage pipes, temporary works, or maintenance of traffic that Design-Builder plans to proceed at risk. Any such work shall only be performed on the mainline and must comply with the EMP and must be within the Existing ROW.

(B) All Other Submittal Review Process**(1) General**

Design-Builder shall be responsible for obtaining all required approvals required for the design and construction of the Project from the Utility Companies and Governmental Entities as applicable. Comments on the Submittals received from parties other than ADOT may not follow ADOT Submittal Review Process specified in Section 113.03(A). In addition, Design-Builder may receive separate comment packages from each party that reviews

a Submittal. Unless otherwise specified in the Contract Documents, Design-Builder shall coordinate with the applicable Utility Company and Governmental Entity to determine those entities' necessary Submittals and submittal review requirements. ADOT will coordinate all design Submittal reviews with the Community. Community, Utility Company, and Governmental Entity reviews may include collaborative design review meetings with discipline specific staff with each entity that are required to be held outside the Project Office as required by such entity. Community, Utility Company, and Governmental Entity reviews may be concurrent with ADOT reviews. Design-Builder shall accommodate such review requirements to resolve comments. Design-Builder shall invite ADOT to all such Utility Company and Governmental Entity Submittal review meetings. Design-Builder shall provide ADOT with copies of all comments received and the final dispositions to all design review meetings. ADOT will coordinate any such meetings with the Community.

(2) Community Design Review Submittals

Design-Builder shall submit all Community design review Submittals to ADOT. ADOT will coordinate all design submittal reviews with the Community. Design-Builder shall submit Community Submittals to ADOT in accordance with Section 113.03(A)(2) and TPA 113-3 (ADOT Formal Submittal Review Process). The Technical Provisions identify Submittals that require the Community's review. The following design submittals must be reviewed by the Community, through ADOT:

- (a) All crossroads Plans: roadway design, removals, signing, pavement marking;
- (b) All drainage design Plans and reports;
- (c) Community traffic signal modification Plans;
- (d) Landscape Plans for Wild Horse Pass Blvd/Sundust Rd TI;
- (e) Aesthetic design Plans;
- (f) ITS Plans, as they relate to GRTI facilities;
- (g) Crossroad and local street TCPs; and
- (h) Land survey (as required in Section 925).

(3) Utility Company and Governmental Entity

Design-Builder shall submit Submittals directly to the Utility Company and Governmental Entity as applicable. Prior to submitting concurrent copies of such Submittals to ADOT, Design-Builder shall promptly notify ADOT in writing of any additional Utility Company or Governmental Entity requirements. Design-Builder shall submit a copy of all Utility Company and Governmental Entity Correspondence and Submittals that Design-Builder submits to or receives from each entity, to ADOT in accordance with Table 113-3.

(C) Submittal Review Periods

After ADOT receives a complete and comprehensive Submittal, ADOT will review the Submittal for compliance with the Contract Documents within the review periods reflected in Table 113-2. Review times are applicable only for the submission of complete and comprehensive documents that are deemed acceptable by ADOT for review. If Design-Builder submits a Submittal prior to 12:00 P.M., ADOT's review periods will begin the next Business Day after receipt from Design-Builder. If Design-Builder submits a Submittal after 12:00 P.M., ADOT's review periods will begin two Business Days after receipt from Design-Builder.

Upon receiving a complete and comprehensive Community Submittal, ADOT will send the Community Submittal to the Community for review. Community review times in Table 113-2 are applicable only for the submission of complete and comprehensive documents that are deemed acceptable by ADOT for review. If Design-Builder submits a Community Submittal prior to 12:00 P.M., Community's review periods will begin the next Business Day after

receipt from Design-Builder. If Design-Builder submits a Community Submittal after 12:00 P.M., Community's review periods will begin two Business Days after receipt from Design-Builder.

Subject to Table 113-2 and any right to relief Design-Builder has under the Contract Documents, ADOT does not guarantee any specific review period for Utility Companies and Governmental Entities. The review period for each review to be performed by a Utility Company and Governmental Entity is established by such entity, at its discretion, after a Submittal has been provided to the respective entity, in accordance with Section 113.03(B).

Table 113-2: Submittal Review Periods

No.	Submittal to	Review Period (Business Days)
Administrative Documents		
1.	ADOT	10
Design Documents		
2.	ADOT (Design Documents, excluding Nos. 3 through 8 below)	10
3.	ADOT (<i>Environmental Analysis</i>)	45
4.	ADOT (Design Decision Documents for ADOT Roadway Design Guidelines variances)	20
5.	ADOT (Design Decision Documents AASHTO Controlling Design Criteria Variances and Change of Access)	20 ^A
6.	FHWA (Design Decision Documents for AASHTO Controlling Design Criteria variances)	Varies ^A
7.	ADOT (<i>Initial Prior Rights Determination</i>)	20
8.	ADOT (ROW Submittals)	10 ^B
9.	Community (Design Documents)	17 ^C
10.	Utility Company and Governmental Entity (Design Documents)	Varies ^A
Construction Documents		
11.	ADOT (<i>Design Changes</i>)	10
12.	ADOT (<i>Record Drawings</i>)	20
13.	Community (<i>Design Changes</i>)	17 ^C
14.	BIA (Permits)	20
15.	Utility Company and Governmental Entity (<i>Design Changes</i>)	Varies ^A

No.	Submittal to	Review Period (Business Days)
16.	Utility Company and Governmental Entity (<i>Record Drawings</i>)	Varies ^A
Notes: A. Unless otherwise specified in the Contract Documents, Design-Builder shall coordinate with the applicable Utility Company and Governmental Entity to determine those entity's Submittal requirements. B. Additional requirements for ADOT review of ROW Submittals are further described in <u>Section 118</u> . C. The Community celebrates all federal holidays plus Good Friday, American Indian Day, and GRIC Historic Water Settlement.		

No more than 10 Submittals (Design Documents and Construction Documents) per technical discipline may be in the aggregate for review by ADOT at any given time and no more than four Submittals (Design Documents and Construction Documents) per technical discipline may be in the aggregate for review by the Community at any given time. For the roadway technical discipline, Submittals shall be staggered to ensure there shall not be more than seven miles of mainline nor more than one TI/crossroad under review at any given time. RFIs and TCPs, including Detour Plans, are excluded from this 10 Submittal limitation. Technical disciplines for the purpose of maximum review Submittals include the following:

(1)	Aesthetics and landscaping;	16	(8)	Maintenance of traffic;
(2)	Drainage;	17	(9)	Pavement;
(3)	Environmental;	18	(10)	Public information;
(4)	Geotechnical/earthwork;	19	(11)	Roadway;
(5)	Intelligent Transportation System;	20 21	(12)	Signing and pavement markings;
(6)	Land surveying;	22 23	(13)	Structures (bridges, walls, miscellaneous structures);
(7)	Lighting and signals;	24	(14)	Utilities.

Design-Builder may request authorization from ADOT for the right to make Submittals in excess of the stipulated maximum number in this Section 113.03(C) or reprioritize Submittals for review. ADOT will have the right to withhold authorization if ADOT deems the request unreasonable or if ADOT personnel cannot accommodate the additional reviews or change in priority.

113.04 Submittal Review Planning

Design-Builder shall perform all Work in this Section 113.04 to enable ADOT to adequately plan its review resources.

(A) Segment Limits Map

Design-Builder shall prepare a Segment Limits Map that identifies how Design-Builder intends to divide the Project into design segments for the intent of submitting design Submittals to ADOT. The Segment Limits Map must include stations and mileposts of:

- (1) Beginning of Project;
- (2) End of Project;
- (3) Existing bridge crossings with structures identification numbers;
- (4) Bridge crossings;

(5) Construction segment delineation; and

(6) Other Project specific landmarks.

Design-Builder shall submit the Segment Limits Map to ADOT in accordance with Table 113-3.

113.05 Design Requirements

(A) General Design Submittal Requirements

Design-Builder shall prepare all Design Documents by, or under the supervision of a registered Professional Engineer of the applicable discipline or a registered architect, as applicable.

Submittals must include all Plans, calculations, and reports required to check the design and to construct the Project.

(1) Revised Change of Access Report

ADOT will maintain responsibility for the development, submittal, and approval of the Change of Access Report for the SR 347/Queen Creek Rd TI. If Design-Builder makes other changes to the Schematic Design which impact the previously approved *Change of Access Report* for the Wild Horse Pass Corridor, Design-Builder shall coordinate with ADOT and FHWA to review changes from the Schematic Design and any additional information that may require a revision to the *Change of Access Report*. A Technical Provisions-compliant design may require amendments and updates to the *Change of Access Report*. Design-Builder shall be responsible for preparing information to modify and professionally endorse (sign, seal, and date) a Revised Change of Access Report as required by ADOT and FHWA. Design-Builder shall submit the Revised Change of Access Report to ADOT in accordance with Table 113-3. ADOT will submit the approved Revised Change of Access Report to FHWA.

Any delay caused by Design-Builder pursuing changes to the *Change of Access Report* or disapproval of proposed changes shall not entitle Design-Builder to an increase in the Contract Price, a Contractual Deadline Adjustment or any other Claim, or otherwise constitute a Relief Event.

Design-Builder is responsible for making any changes to Submittals to ensure compliance with the *Change of Access Report* or Revised Change of Access Report, as applicable.

(2) Plans

Design-Builder shall prepare Plans in accordance with the Contract Documents, the applicable Community, BIA, Utility Company, and Governmental Entity approvals, requirements, and standard of care and the Plans must include design drawings specific for the Project that show the location, character, dimensions, and details of the Work to be performed. Design-Builder shall incorporate all Utility information into Design-Builder's Utility CADD base file and shall indicate the quality and reliability of existing Utility information. Vertical locations of existing and proposed underground Utilities must be shown on all profiles, cross sections, and details on the Plans. Utility conflicts and relocations shall be noted on the Plans in accordance with Appendix 1 of the ADOT *Utility Coordination Guide for Design Consultants*. Plans must include all existing topographical features, natural and man-made, surface and subsurface facilities for the area included in the Project ROW, all proposed and actual changes to the planned Project ROW, and all easements, including Community Right of Entry Permits, that are mutually agreed to by ADOT and Design-Builder to be known at the time of the associated Submittal stage.

Design-Builder shall reference standard drawings and details from ADOT (or Utility Company and Governmental Entity) on the Plans and need not be recreated such that no alterations or modifications are required. Design-Builder shall include all non-ADOT (or Utility Company and Governmental Entity) standards drawings and details on the Plans. Unless otherwise approved in writing by ADOT, Design-Builder shall design any modified ADOT or Utility Company and Governmental Entity standard drawings and details and include such designs on the Plans.

(3) Specifications

(a) Interpretation of the ADOT Standard Specifications, the ADOT Stored Specifications, Item Specifications, and Technical Provision Attachments

The following rules of interpretation apply to the *ADOT Standard Specifications* and the *ADOT Stored Specifications*:

- (i) **Design-Builder exercises engineering judgment as to conditional terms, subject to ADOT review and comment.** When the language includes conditional provisions that imply design discretion, including provisions qualified by language such as “may be justified,” “may be based,” “may be used”, or provisions conditioned by “designer’s discretion,” “engineering judgment or experience,” or similar, Design-Builder shall exercise its professional or engineering judgment, subject to ADOT’s review and comment. All language granting discretion with respect to acceptances means “subject to ADOT’s review and comment.”
- (ii) **Words related to “required” mean “required.”** When the language refers to an action as “necessary,” or “needed,” Design-Builder shall construe the action as required.
- (iii) **Generalized exceptions do not apply.** Design-Builder shall disregard qualifying words such as “usually,” “normally,” “generally,” “where possible,” “as early as practical,” or “to the maximum extent practicable.”
- (iv) **Other design-bid-build-specific provisions generally do not apply.** Design-Builder shall disregard references related to pay items or quantities, measurement for payment, method of measurement, basis of payment, extra work, adjustment of unit prices, except diesel fuel, bituminous price adjustment, time extensions, or similar phrases.
- (v) **The meaning of “Contractor”.** The term “Contractor” means Design-Builder.
- (vi) **The meaning of “Engineer”.** The term “Engineer” means “IQF” when referring to acceptance and “ADOT” when referring to administration, with ADOT having the final determination of how the term “Engineer” is applied.

(b) Project Special Provisions

Design-Builder shall use the construction requirements described in the Contract Documents, *ADOT Standard Specifications*, *ADOT Stored Specifications*, and *Item Specifications (Project specific Special Provision)* to design and construct the Project. The *ADOT Standard Specifications* and *ADOT Stored Specifications* can be obtained on the ADOT Contracts and Specifications website. *Item Specifications* are provided by reference throughout the TPs and in TPAs. A summary index of applicable *ADOT Stored Specifications* is included in TPA 113-5 (Summary Index of ADOT Stored Specifications).

Design-Builder shall prepare Project Special Provisions based on the Design-Builder’s design and the requirements of the Community, Utility Companies, and Governmental Entities. The Project Special Provisions must include:

- (i) The required *ADOT Standard Specifications*, *ADOT Stored Specifications*, and *Item Specifications*;
- (ii) All revisions to the *ADOT Standard Specifications*, *ADOT Stored Specifications*, and *Item Specifications* using Microsoft Word “Track Changes” function (“Redline” version);

(iii) Proposed revisions to references to “ADOT” or the “Department” in the ADOT *Standard Specifications*, ADOT *Stored Specifications*, and *Item Specifications* to Design-Builder; and

(iv) TP requirements for construction.

Design-Builder shall prepare a “Clean” version of the Project Special Provisions that accepts all of the proposed revisions that used “Track Changes”. Design-Builder shall include both “Clean” and “Redline” versions of the Project Special Provisions with each Project Special Provisions Submittal. Design-Builder may submit relevant Project Special Provisions sections independently to correlate with construction activities or design Submittals.

(4) Calculations and Reports

Design-Builder shall prepare calculations and reports for Project elements including, but not limited to, structural elements, final geometry, pavement, hydraulics, hydrology, storm water management, Utility protection, mechanical, electrical, plumbing, track, and systems. Design-Builder shall prepare calculations necessary to demonstrate that the design complies with the Contract Documents. Design-Builder shall include the calculations and reports as part of Submittals as specified in the Technical Provisions.

(5) RFC Quantities

Design-Builder shall prepare a RFC Quantities List based on all RFC Submittals. The RFC Quantities List must follow the ADOT item numbers and must be in an acceptable format as outlined in the *FIS Feature Configuration.xlsx* file, ADOT *Highway Feature Inventory System (FIS) Data Collector’s Handbook*, and *FIS Ramp Naming Keymaps* included in the RIDs. The RFC Quantities List does not need to be professionally endorsed (sign, seal, and date). Design-Builder shall submit the RFC Quantities List to ADOT in accordance with Table 113-3. ADOT will be responsible for entering the information into the FIS.

(B) Design Review Stages

Except as otherwise specified in the Contract Documents or approved by ADOT, Design-Builder shall develop formal Submittals of Design Documents following the steps described in this Section 113.05(B). The primary design Submittal stages are:

- (1) Geometric Drawings Submittal;
- (2) Preliminary Design Submittal;
- (3) Final Design Submittal; and
- (4) RFC Submittal.

Notwithstanding the foregoing, Design-Builder may request the right to propose to eliminate a design Submittal stage identified herein, as reflected by the Project Schedule. ADOT may, at its discretion, allow for Design-Builder to move to a subsequent design Submittal stage or skip design Submittal stages. Each determination by ADOT will be based on the individual Submittal request. ADOT has the right to withhold approval of such request in its sole discretion.

(1) Geometric Drawings Submittal

Design-Builder shall prepare a Geometric Drawing that includes the following:

- (a) Typical cross sections of the various roadways, representing all the various configurations of the roadways;
- (b) Plan view at a scale to show basic striping, topographic features, curve data, changes in alignment (e.g., begin of curve, end of curve, point of compound curve, angle points, etc.), bearings, dimensions, etc.;

- (c) Profiles and superelevation diagrams that identify grades, vertical curves, changes in profile (i.e., begin vertical curve, end vertical curve, point of intersections, point of tangency, vertical curve lengths, grade breaks, etc.);
- (d) Identification of pedestrian and bicycle facilities;
- (e) Identification of structural and drainage facilities; and
- (f) Identification of any AASHTO *Controlling Design Criteria* variances or ADOT *Roadway Design Guidelines* variances.

Design-Builder shall submit the Geometric Drawings to ADOT in accordance with Table 113-3.

(2) Preliminary Design Submittal

To supplement or augment Design-Builder's design schematic included in the Proposal and when the design for a given element or segment is approximately 60% complete, Design-Builder shall prepare a Preliminary Design Submittal. The Preliminary Design Submittal must include Plans, Project Special Provisions, and other pertinent data needed to verify the design, as applicable with each Preliminary Design Submittal. The Plans must comply with Stage IV requirements of Appendix 1 of the ADOT *Utility Coordination Guide for Design Consultants*. Design-Builder shall submit the Preliminary Design Submittal to ADOT in accordance with Table 113-3.

Alternatively, Design-Builder can propose an alternate schedule for submittal of Project Special Provisions to be approved at ADOT's sole discretion.

(3) Final Design Submittal

When the design for a given element or segment is 100% complete, Design-Builder shall prepare a Final Design Submittal. Each Final Design Submittal must include Plans, Project Special Provisions, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable. The Plans must comply with Stage V requirements sealing the Utility information as shown in Appendix 1 of the ADOT *Utility Coordination Guide for Design Consultants*. The Final Design Submittal must also include a Comment Resolution Form that includes responses to the review comments generated during the previous design Submittal reviews, including comments on the Preliminary Design Submittal and describes how the Final Design Submittal includes modifications to fully reflect and resolve the review comments generated during the previous design Submittal reviews. Design-Builder shall submit the Final Design Submittal to ADOT in accordance with Table 113-3.

(4) RFC Submittal

When the design for a given element or segment is 100% complete and all previous comments have been responded to and modifications have been incorporated to fully reflect and resolve the previous comments in the Design Documents, Design-Builder shall prepare an RFC Submittal. The RFC Submittal must include Plans, technical memorandums, reports, studies, calculations, and other pertinent data, as applicable. The RFC Submittal must also include a Comment Resolution Form that includes responses to the review comments generated during the previous design Submittal reviews and describes how the Final Design Submittal includes modifications to fully reflect and resolve the review comments from ADOT and the Community, Utility Company and Governmental Entity as applicable that were generated during the previous design Submittal reviews. The registered EOR (by discipline) or Architect-of-Record, as applicable, must professionally endorse (sign, seal, and date) the Plans, Project Special Provisions, and all calculations and reports prior to construction of the relevant element or segment. Design-Builder shall submit Project Special Provisions to ADOT in accordance with Table 113-3. Design-Builder shall submit RFC Submittal to ADOT in accordance with Table 113-3. If Project Special Provisions are contained within a separate Submittal, as approved by ADOT, the RFC Submittal Plans will not be approved until ADOT also approves the Project Special Provisions for the associated Work.

ADOT's review of any RFC Submittal does not constitute approval of subsequent construction and does not relieve Design-Builder of its responsibility to comply with the requirements of the Contract Documents. Design-Builder shall

ensure construction complies with the requirements of the Contract Documents, Laws, and Governmental Approvals and Community Approvals. Design-Builder shall bear the risk of any required modifications to the component construction due to subsequent design changes resulting from further design development.

113.06 Construction Requirements

(A) Shop Drawings and Working Drawings

Design-Builder shall prepare Shop Drawings and Working Drawings necessary to construct the Project. Shop Drawings and Working Drawings must include drawings, calculations, certifications, a description of the methods of construction proposed, and adequate definition and control of the Work. PSQM shall review and certify Shop Drawings and Working Drawings in accordance with approved QMP. Unless otherwise approved in writing by ADOT, the Design Manager or designee as specified in the QMP, must approve all Shop Drawings and Working Drawings prior to submitting to ADOT. Design-Builder shall submit all Shop Drawings and Working Drawings to ADOT in accordance with Table 113-3.

(B) Request for Information

Design issues or questions may arise in ongoing Work reflected in RFC Submittals. Design-Builder may use the RFI process as a communication tool between design and construction. RFIs may be initiated by Design-Builder, IQF, or ADOT. Design-Builder-initiated RFIs must reflect the following:

- (1) The general nature, Plans or exhibits, location, and description of the issue; and
- (2) Design-Builder's proposed mitigation with supporting documentation of the issue.

ADOT will prepare an RFI for issues or questions identified by ADOT. ADOT will submit ADOT-initiated RFIs to Design-Builder for incorporation into the RFI process. Design-Builder shall coordinate all RFIs with the Design Manager, Construction Manager, or Project Manager, as appropriate, to assist with determining the proposed mitigation and provide any supporting documentation.

RFIs pertaining to elements of Work maintained, within or adjacent to Governmental Entity or Utility Company limits or appurtenances, must be approved by such Governmental Entity or Utility Company prior to submittal to ADOT. For RFIs pertaining to Elements of Work or appurtenances within or adjacent to the Community's design authority limits shall be submitted to ADOT for approval by the Community.

Design-Builder shall follow the RFI response procedures in accordance with Section 113.06(B)(2).

Any changes in design must be in accordance with Section 113.06(C).

(1) RFI Log

Design-Builder shall prepare an RFI Log that:

- (a) Includes all RFIs with an independent and unique numbering system for Design-Builder-initiated RFIs, different from ADOT-initiated RFIs or those of the Community, Utility Company and Governmental Entity;
- (b) Logs all open issues;
- (c) Describes how the RFI was resolved; and
- (d) Provides a status of all RFIs.

Design-Builder shall submit the RFI Log to ADOT in accordance with Table 113-3.

(2) RFI Response Procedures

The RFI responses procedures must be as follows:

- (a) Initiate all RFIs in Design-Builder's EDMS;
- (b) Notify ADOT via e-mail of the initiated RFI;
- (c) Follow the PSQMP process to develop the RFI Response that includes:
 - (i) The Design Manager proposed mitigation with supporting documentation;
 - (ii) A copy of the Governmental Entity or Utility Company RFI approval, or request for Community approval, if applicable; and
 - (iii) An RFI disposition category in accordance with Section 113.06(B)(3);
- (d) Design-Builder shall submit the RFI Responses to ADOT in accordance with Table 113-3;
- (e) Upload ADOT approved mitigation plans to Design-Builder's EDMS prior to implementation if the RFI specifies incorporation into the Record Drawings; and
- (f) Design-Builder shall not implement a proposed solution from an RFI if a Design Change is required. If a Design Change is required, Design-Builder shall follow Section 113.06(C).

(3) RFI Disposition

Design-Builder shall include a disposition on all RFIs with one of the following categories:

- (a) Design Change required. Comply with Section 113.06(C);
- (b) Incorporate into the Record Drawings. Comply with Section 113.06(D) after concurrence by ADOT; or
- (c) No change required. Additional clarification provided.

If ADOT and Design-Builder have a disagreement in disposition category, Design-Builder shall use the formal issue resolution process discussed in Section 113.03(A)(2)(c)(iv).

(C) Design Changes

During Construction Work, adjustments to the design may be required to fit field conditions or because of an RFI. The EOR or the Architect-of-Record, as applicable, for the design at the time of the Design Change must provide written approval for any Design Change that occurs during construction, or Design Changes that occur to Design Documents, unless otherwise specifically authorized in writing by ADOT. All Design Changes must undergo the same QMP checks, reviews, and certifications and are subject to the same review process beginning at Final Design Submittal stage, as the original design. Design Changes must include Plans, special provisions, technical memorandums, reports, studies, calculations, and other data, as applicable per the Submittal content required by the Submittal stage.

Design Change documentation must include confirmation that:

- (1) The Design Change has been designed in accordance with the requirements of the Contract Documents, applicable Laws, Community Approvals, and Governmental Approvals;
- (2) The Design Change has been checked in accordance with PSQMP;

- (3) The Design Change has been prepared consistently with other elements of the original design;
- (4) The Design Change complies with the design certification requirements as set forth in the QMP; and
- (5) ADOT comments are resolved.

Design-Builder shall submit the Design Changes to ADOT in accordance with Table 113-3. Design-Builder shall document all changes made through the Design Change process in the Record Drawings in accordance with Section 113.06(D).

(D) Record Drawings

Design-Builder shall prepare Record Drawings in accordance with TPA 113-6 (Project Specific Record Drawing Requirements) and the Contract Documents. The Record Drawings must be a composite set of Plans for the Project. The Record Drawings numbering system must be in accordance with the QMP and consistent with TPA 113-1 (File Naming Convention). The Design Manager, EOR, or Architect-of-Record must professionally endorse (sign, seal, and date) the Record Drawings. The PSQM must certify that the Record Drawings comply with the QMP. The CIQM shall assume the role of "Construction Administrator" as it relates to the ADOT Record Drawing Guidelines in review of the Record Drawings. Design-Builder shall submit the Record Drawings to ADOT in accordance with Table 113-3.

(E) As-Built Quantities

Design-Builder shall prepare an As-Built Quantities List based on all quantities constructed for the Project. The As-Built Quantities List must follow the ADOT item numbers and must be in an acceptable format as outlined in the FIS Feature Configuration.xlsx file, ADOT Highway Feature Inventory System (FIS) Data Collector's Handbook, and FIS Ramp Naming Keymaps included in the RIDs. Design-Builder does not need to include quantities for removal or maintenance of traffic elements in the As-Built Quantities List. The As-Built Quantities List does not need to be professionally endorsed (sign, seal, and date). Design-Builder shall submit the As-Built Quantities List to ADOT in accordance with Table 113-3. ADOT will be responsible for entering the information into the Feature Inventory System.

113.07 Submittals

Table 113-3 reflects a list of Submittals identified in this Section 113 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 113-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>KMZ File(s)</u>	4	Every 30 Days until the final <u>RFC Submittal</u> and every 90 Days thereafter through issuance of Project Substantial Completion	113.02(A)
2.	<u>3D Models</u>	3	With the RFC roadway Plan submittal and every 90 Days through Substantial Completion	113.02(F)
3.	<u>Comment Resolution Form</u>	3	With each subsequent Submittal	113.03(A)(2)(c)(ii)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
4.	<u>Utility Company and Governmental Entity Correspondence and Submittals</u> ^B	3	Concurrent with Design-Builder's submittal or receipt of <u>Utility Company and Governmental Entity Correspondence and Submittals</u>	113.03(B)(3)
5.	<u>Segment Limits Map</u>	2	Not later than 20 Business Days after issuance NTP 1, and as a condition precedent to ADOT's issuance of NTP 2	113.04(A)
6.	<u>Revised Change of Access Report</u>	2	Prior to NTP 2, if required	113.05(A)(1)
7.	<u>RFC Quantities List</u>	3	Not later than 20 Business Days after approval of each <u>RFC Submittal</u>	113.05(A)(5)
8.	<u>Geometric Drawings</u>	4	Prior to submittal of any other design Submittal	113.05(B)(1)
9.	<u>Preliminary Design Submittal</u> ^C	3	When the design for a given element or segment is approximately 60% complete	113.05(B)(2)
10.	<u>Final Design Submittal</u> ^C	2	When the design for a given element or segment is approximately 100% complete	113.05(B)(3)
11.	<u>Project Special Provisions</u> ^C	2	Not later than 10 Business Days prior to submission of the associated <u>RFC Submittal</u>	113.05(B)(4)
12.	<u>RFC Submittal</u> ^C	2	When the design for a given element or area is 100% complete and all previous comments have been addressed and appropriately incorporated	113.05(B)(4)
13.	<u>Shop Drawings and Working Drawings</u>	4	Not later than 10 Business Days prior to implementation unless otherwise specified in the Contract Documents	113.06(A)
14.	<u>RFI Log</u> ^C	3	Every week	113.06(B)(1)
15.	<u>RFI Responses</u> ^C	3	Prior to implementation of the associated RFI Work	113.06(B)(2)
16.	<u>Design Changes</u> ^C	2	Varies	113.06(C)
17.	<u>Record Drawings</u>	2	Not later than 6 months prior to Final Acceptance (D&C) in accordance with <u>DBA Exhibit 6-6 (Conditions Precedent to Final Acceptance (D&C))</u>	113.06(D)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
18.	<u>As-Built Quantities List</u>	3	As a condition of Final Acceptance (D&C) in accordance with <u>DBA Exhibit 6-6 (Conditions Precedent to Final Acceptance (D&C))</u>	113.06(E)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none">1. Sole discretion or absolute discretion approval (<u>DBA Section 3.01(B)(1)</u>)2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>)3. Review and comment (<u>DBA Section 3.01(B)(3)</u>)4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required, ADOT will coordinate review.</p> <p>C. Community review required for RFC drawings of the disciplines noted in <u>Section 113.03(B)(2)</u>, ADOT will coordinate review.</p>				

1

End Section

114 Safety Management

114.01 General Requirements

Design-Builder shall perform all Work in compliance with the requirements of this Section 114. Design-Builder shall provide all safety Work to support design and construction of the Project.

Design-Builder shall have sole responsibility for the safety and convenience on the Site until Final Acceptance (D&C). Design-Builder shall require and undertake all reasonable efforts to ensure that all Design-Builder employees, Subcontractors, and all persons on Site comply with the Safety Management Plan, applicable Laws, and associated provisions of Design-Builder's injury and illness prevention program.

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

114.02 Safety Management Plan

As part of the PMP, Design-Builder shall develop, implement, and maintain a comprehensive Safety Management Plan that describes the policies, plans, training programs, 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 duration of the DBA. Design-Builder shall take full account of the unique attributes of this Project in preparing the Safety Management Plan, including the urban and rural environment, weather conditions, the traffic conditions, and the size and scope of the Project. The Safety Management Plan must be Project-specific and must include Work to be performed by Subcontractors.

The Safety Management Plan must:

- (A) Be consistent with the Project insurance requirements;
- (B) Clearly establish the safety organization, in accordance with Section 114.02(A);
- (C) Describe the process of conducting safety orientation for all personnel;
- (D) Describe Design-Builder's alcohol and drug-free workplace policy;
- (E) Describe personnel training requirements;
- (F) Describe the process for conducting job hazard analysis;
- (G) Describe safety inspection procedures;
- (H) Describe procedures and policies for:
 - (1) Working in active traffic locations for Work over traffic and adjacent to traffic;
 - (2) Protection of the public from falling debris; and
 - (3) Falsework and shoring erection and removal.
- (I) Describe Incident reporting procedures, including near-miss Incidents;
- (J) Describe Design-Builder's hazard communication program;
- (K) Describe Design-Builder's management and auditing of the Safety Management Plan;
- (L) Describe personal protective equipment (PPE) requirements and policy;
- (M) Describe safety procedures for personnel 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;
- (P) Describe the process for submittal of OSHA *Forms for Recording Work-Related Injuries and Illnesses* to ADOT;
- (Q) Describe procedures in the event of an Emergency or if an evacuation is required that complies with the Contract Documents;
- (R) Include all other requirements for the safety of personnel working on the Project and of the general public affected by the Project;
- (S) Clearly state policies that establish the obligations of all personnel in adhering to the Safety Management Plan;
- (T) Describe the coordination with the Project Communication Team for each activity, as applicable, in the Safety Management Plan;
- (U) Include goals that establish and communicate safety, security, and health, including defined objectives for meeting the goals;
- (V) Describe the process for reporting work-related injuries and illnesses to ADOT; and
- (W) Include requirements for evaluating the effectiveness of policies and measuring success in meeting the goals and objectives of the Safety Management Plan.

Design-Builder shall establish an environment and means for continuous evaluation and improvement to achieve the Safety Management Plan goals and to identify deficiencies so that the goals and objectives can be revised as needed to improve the safety and health of Project personnel and of the general public affected by the Project.

Design-Builder shall submit the Safety Management Plan to ADOT in accordance with Table 114-1.

(A) Safety Organization

The Safety Management Plan must:

- (1) Clearly establish the specific chain of command and specify the lines of authority, responsibility, and communication with regard to safety compliance activities;
- (2) Identify full-time dedicated safety professionals or managers covering all production shifts;
- (3) Delineate administrative responsibilities for implementing the Project safety program;
- (4) Describe the process of including representatives from Design-Builder and all Subcontractors, as well as ADOT personnel working on the Project;
- (5) Specify which on-site personnel have the authority to stop on-site activities when unanticipated and uncontrolled hazards are recognized, and it must specify those personnel with the authority to restart site activities after the previously unrecognized hazards have been controlled; and
- (6) Define the specific safety responsibilities of each level of supervision.

The Project Manager is accountable for health and safety performance.

(B) Safety Orientation Process

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

- (1) The extent and nature of the Project;
- (2) Any hazard that can typically be expected during the course of Work that are specific to the job assignment;
- (3) Conducting and using a job hazard analysis;
- (4) Required Work practices, job conduct, and injury-reporting procedures;
- (5) Acquainting personnel with special Work and safety requirements at the Site; and
- (6) Emergency response procedures.

(C) Personnel Training Requirements

Design-Builder shall establish a safety training program that includes requirements for general and Project-specific training to ensure that all personnel understand and are aware of the hazards to which they may be exposed and are aware of the proper methods for avoiding such hazards. The safety training program must include methods to identify, develop, and provide supervisory training programs to ensure supervisors understand the key role they play in job site safety and to enable them to carry out their safety and health responsibilities effectively; to analyze the Work under their supervision to anticipate and identify potential hazards; and to maintain physical protection in their Work areas, including by establishing policies that ensure each individual has the equipment necessary to complete assigned tasks safely. The safety training program must include procedures to prepare for Emergencies and to conduct training and Emergency drills. All levels of staff shall be trained prior to working or entering the Site.

Design-Builder shall conduct safety meetings that are relevant to the specific types of Work at the Site, which comply with applicable Laws. Design-Builder shall prepare documentation of meeting content and personnel attendance.

(D) Personal Protective Equipment Requirements and Policy

The Safety Management Plan must define specific PPE requirements for all personnel for each task, including fall protection, confined space, and water work. All PPE must comply with OSHA and ANSI/ISEA standards. Design-Builder shall provide a consistent type of PPE, including high-visibility safety vests (ANSI 107-2004 Class 2 daytime, Class 3 nighttime), ANSI-approved hard hats, safety glasses with side shields, and work boots, specific for the job being performed to be worn by all personnel.

During Construction Work, the Site will be a hard hat area. Design-Builder shall require all persons within the Site to wear hard hats and high-visibility vests. Design-Builder shall ensure that all vendors and visitors wear hard hats and other required PPE, while within the Site. Design-Builder shall ensure that anyone not complying with these requirements does not enter the Site or is required to leave the Site. Design-Builder shall document all such Incidents. Design-Builder's job hazard analysis must include all required PPE for the specific task.

(E) Occupational Safety and Health

Design-Builder shall comply at all times with applicable Federal, State, and local Laws governing safety and health, including the Federal Construction Safety Act (Public Law 91-54), 29 CFR Part 1926, Occupational Safety and Health Regulations for Construction, and the Occupation Safety and Health Act (Public Law 91-596), 29 CFR Part 1910 Occupational Safety and Health Standards for General Industry, and subsequent publications updating these regulations. Design-Builder shall take any other needed action or proceed as directed to protect the life, health, and general occupational welfare of personnel employed on the Project, to provide confined-space training on the proper use of the testing equipment and all safety procedures to ensure a safe operation to Design-Builder personnel and ADOT personnel required to access the area for inspection purposes and to provide all safety and testing equipment required by 29 CFR Part 1910.146, to both ADOT personnel and Design-Builder personnel, to ensure the

safety of all workers and inspectors during construction operations and inspection operations of any confined spaces. Design-Builder shall also provide proof of training, such as a course sign-in sheet or certificate of training. Design-Builder shall provide appropriate rescue services, personnel, and equipment as required by 29 CFR Part 1910.146(k). If, in ADOT's opinion, persons within the Site are exposed to extraordinary conditions, which could or do constitute a hazard, then Design-Builder shall modify such equipment, devices, and job procedures to ensure protection against the hazard or to reduce the risk. Design-Builder shall give special emphasis to providing safeguards for any specially or unusually hazardous operations and health hazards. Design-Builder shall provide initial indoctrination and continuing instructions for all personnel to enable them to perform work in a safe manner. Design-Builder shall include in the instruction Project safety practices, manner of reporting accidents, availability of medical facilities, and explanation of individual responsibility for accident-free operations.

(F) Alcohol and Drug Free Workplace Policy

Design-Builder 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 from the Project for an employee reporting for work under the influence of alcohol or a prohibited substance or possession of a prohibited substance. Design-Builder shall include the policy at the Site and any pre-job Site and post-Incident drug testing to satisfy Project insurance requirements.

(G) Hazard Prevention

The Safety Management Plan must include:

- (1) Methods and procedures to identify and detail all hazards that may be encountered by personnel while performing the Work;
- (2) Practices and procedures to address prevention of identified hazards;
- (3) A communications protocol to ensure all personnel are aware of hazards in all areas and how to deal with them appropriately; and
- (4) Means to evaluate all anticipated and unanticipated activities, and to address potential hazards related to these activities.

Design-Builder shall provide the means to ensure personnel understand and comply with safe work practices and procedures through training, positive reinforcement, correction of unsafe performance, and if necessary, enforcement through a clearly communicated disciplinary system established within the Safety Management Plan.

Design-Builder shall handle Hazardous Materials in accordance with DBA Section 11.05 (Hazardous Materials) and the applicable requirements of these Technical Provisions.

(H) 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. Design-Builder shall schedule, conduct, and document safety inspections in all Work areas to identify and reduce physical and environmental hazards that could contribute to injuries or illnesses.

(I) Emergency Procedures

Design-Builder shall prepare, implement, manage, and, as required, update an *Emergency Action Plan* that specifies the procedures for potential Emergencies, Incidents, and Force Majeure Events, notification requirements, and training, and shall identify those individuals responsible for implementing the plan if the plan is activated. The potential for an Emergency 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 describe Design-Builder's plan for responding to Emergencies and other situations that may disturb the Work or damage the Project including:

- (1) Emergencies, including fire, explosions, natural disasters, chemical releases, law enforcement activities, and civil disruptions;
- (2) Major injuries or fatalities;
- (3) Severe weather, including dust storms;
- (4) Power failures that may affect traffic signals and lighting;
- (5) Contact with energized Utilities;
- (6) Vehicular accidents that may damage facilities or interfere with traffic flow; and
- (7) Hazardous Materials spills, including flammable liquids.

The *Emergency Action Plan* must describe how Design-Builder will coordinate with local law enforcement agencies and emergency personnel to respond to Emergencies. The *Emergency Action Plan* must describe how Design-Builder will notify the public about an Emergency. The *Emergency Action Plan* shall include coordination with the Project Communication Team and Crisis Communication Plan as quickly as is practicable. The *Emergency Action Plan* must be included as part of the *Safety Management Plan*.

(J) Incident Response Procedures

The *Safety Management Plan* must include processes to investigate and report accidents and Incidents involving Design-Builder and to retain safety records. Design-Builder shall develop a list of Project-specific requirements for documentation and reporting. The *Safety Management Plan* must include procedures to:

- (1) Maintain communication and the exchange of information between Design-Builder, ADOT, and other involved agencies;
- (2) Coordinate support through interaction with local, State, and federal governmental entities, as well as other entities, for safe and efficient construction;
- (3) Coordinate with Emergency response, traffic control, security, and operational issues affecting construction of the Project and associated system feeders and exits; and
- (4) Update other involved agencies regarding status of construction of the Project, and associated system feeders and exits, to assure safe and timely response to Emergency events, including off-site and on-site traffic routing changes (evacuations), and changes to job site access, fire suppression system modifications and in-service availability of standpipes or fire suppression water supply, if applicable, and changes in the Work that may create a greater likelihood of occurrence of a particular type of Emergency.

Design-Builder shall include the reporting of near-miss Incidents. Design-Builder shall provide verbal notification and submit a report to ADOT of all Incidents to the extent Design-Builder is aware of the same arising out of or in connection with the performance of the Work, whether on or adjacent to the Site, which cause death, material personal injury, or material property damage. Design-Builder shall notify ADOT within a half hour from time of occurrence of an Incident (or Design-Builder's discovery of the occurrence thereof) causing public injury, and include the date and time, the location, a brief description, the extent of material property damage, and the extent of injuries. When such Incidents take place, Design-Builder shall promptly initiate an investigation and notify ADOT and other individuals as required by the Contract Documents.

Design-Builder shall continuously (24 hours per day, seven days per week) maintain an Emergency contact telephone number with a responsible Person in charge empowered to take any necessary actions on behalf of Design-Builder, from NTP 1 through Final Acceptance (D&C).

(K) Job Hazard Analysis and Communications

Design-Builder 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. On a daily basis, all personnel involved with the task shall discuss the hazards anticipated, equipment needed to work safely, and PPE to be worn. The communications may include on-site gatherings where the task is to be performed. If the task changes from what was anticipated during the shift, the job hazard analysis shall be updated and each worker given the opportunity to review the updated document. Design-Builder shall give personnel an opportunity to provide input regarding task steps, hazards identified, and appropriate control measures, without fear of reprisal. Design-Builder shall document all job hazard analysis training. Design-Builder shall keep readily available at the Project Office and field offices an updated summary of Work related incidents, which may include, at a minimum, a board promoting the number of consecutive incident-free days.

(L) Materials Safety Procedures and Communication Policy

Design-Builder shall ensure that the Safety Management Plan describes safety procedures and communication policy for Design-Builder's employees and personnel working around and handling Hazardous Materials and complies with the requirements in DBA Section 11.05 (Hazardous Materials).

Design-Builder shall provide all personnel with information and training regarding any Hazardous Materials to which they may be exposed. Additionally, Design-Builder shall ensure that Hazardous Materials are not delivered, stored, or used at the Site unless they are properly labeled, tagged, or marked and the safety data sheets are readily available. Additionally, Design-Builder shall establish a location with a master set of safety data sheets.

(M) 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.

(1) Safety Performance Analysis

Design-Builder shall complete a detailed analysis of safety performance in accordance with the AASHTO Highway Safety Manual. Design-Builder shall conduct the safety performance analysis to document that Design-Builder 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 provisions designed to prevent Incidents, such as personnel training and orientations, toolbox meetings, audits and inspections, immediately dangerous to life and health interventions. Design-Builder shall document the measures to verify proactive efforts relative to safety performance results. Design-Builder shall prepare a Safety Performance Analysis Report that includes the analysis and results as described in this Section 114.02(M)(1). Design-Builder shall submit the Safety Performance Analysis Report to ADOT in accordance with Table 114-1. If the safety performance analysis reveals an error or deficiency, Design-Builder shall take immediate measures to correct the observed error or deficiency and immediately prepare Safety Corrective Measures that includes a description of all measures to correct the safety error or deficiency. Design-Builder shall submit the Safety Corrective Measures to ADOT in accordance with Table 114-1.

(2) Safety Results, Statistics, and Reports**(a) Monthly Safety Report**

Design-Builder shall prepare Monthly Safety Reports that includes:

- (i) A summary report for all OSHA recordable injuries, first aid cases, and reported near misses including the date of Incident, type of injury, OSHA reporting classification and claim status (open/closed);

- (ii) An Incident rate calculation for all OSHA recordable Incidents for the Project since inception and OSHA recordable rate calculation for Incidents for the previous month. Incident rate calculations shall include all Project Incidents, with a separate calculation for direct labor such as self-perform work and management of the Project; and for each Subcontractor who has an OSHA recordable incident on the Project. (Recordable Incidents x 200,000 / Manhours);
- (iii) A report detailing, corrective actions taken to prevent reoccurrence of similar Incidents for Design-Builder and all Subcontractors; and
- (iv) A summary of property damage and public liability Incidents occurring the in previous month including date of Incident, description of Incident and corrective actions taken.

Design-Builder shall submit Monthly Safety Reports to ADOT in accordance with Table 114-1.

(b) Quarterly Safety & Claims Report

Design-Builder shall prepare Quarterly Safety & Claims Reports that includes:

- (i) A summary of all Incidents that occurred on the Project including:
- A. Type of Incident, brief description of the Incident; and
 - B. Status of corrective actions plans.
- (ii) Summary of all property or liability claims made against the Project including:
- A. Date of loss;
 - B. Brief description of the allegation;
 - C. Status of the claim;
 - D. If the claim has been accepted; and
 - E. The date closed.
- (iii) Summary of all claims tendered by the State including:
- A. State claim number;
 - B. Date of loss;
 - C. Brief description of the allegation;
 - D. Status of the claim;
 - E. If the claim has been accepted; and
 - F. The date closed.
- (iv) Summary of safety audits performed in the preceding quarter including:
- A. Date of audit;
 - B. Description of findings; and
 - C. Status of corrective actions.

Design-BUILDER shall submit Quarterly Safety & Claims Reports to ADOT in accordance with Table 114-1.

(N) Periodic Updates to Safety Management Plan

Design-BUILDER 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, Design-BUILDER shall review and update the Safety Management Plan for compliance with regulations, policies, and procedures. Design-BUILDER shall submit the updated Safety Management Plan to ADOT in accordance with Table 114-1.

114.03 Site Security, Temporary Fencing, and Steel Plating

In conjunction with the Safety Management Plan, Design-BUILDER shall prepare a Site Security Plan that includes processes and procedures to discourage unauthorized access to the Site or to specific hazard areas. The Site Security Plan must include providing 72-inch temporary chain link fencing, or ADOT approved equal, around any unattended excavation deeper than four 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. Design-BUILDER may take into consideration permanent ROW fencing in protecting Work from unauthorized access if approved by ADOT. The Site Security Plan must describe the controls that will be implemented at each construction entrance such as gates, guards, or signs. Design-BUILDER shall submit the Site Security Plan to ADOT in accordance with Table 114-1.

Design-BUILDER shall limit individual open utility trenches to 50 feet in length, except for CIP pipe installations during nonworking hours. Design-BUILDER shall cover all open trenches where accessible to traffic with steel plates. Design-BUILDER shall prepare an Open Trench Safety and Security Plan for all trenches greater than 50 feet in length that describes and details how Design-BUILDER intends to construct the trench and to make it safe and secure for workers and the general public. Design-BUILDER shall submit the Open Trench Safety and Security Plan to ADOT in accordance with Table 114-1.

114.04 Audits/Inspections

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

114.05 Non-Compliance with Safety Program

ADOT 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, Design-BUILDER 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.

Design-BUILDER shall discipline and, in those cases that Design-BUILDER finds appropriate, 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. Design-BUILDER 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 the Community, BIA, Utility Company, and Governmental Entity because of an unsafe condition.

114.06 Submittals

Table 114-1 reflects a list of Submittals identified in this Section 114 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-BUILDER shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-BUILDER shall submit the following to ADOT in the formats described in Section 113.02:

1

Table 114-1: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Safety Management Plan</u>	2	Prior to issuance of NTP 2	114.02
2.	<u>Safety Performance Analysis Report</u>	4	Each quarter not later than the 20 th of the month after the quarter ends	114.02(M)(1)
3.	<u>Safety Corrective Measures</u>	4	Immediately, as needed	114.02(M)(1)
4.	<u>Monthly Safety Reports</u>	4	Not later than 20 Business Days after the end of the month	114.02(M)(2)(a)
5.	<u>Quarterly Safety & Claims Reports</u>	4	Each quarter not later than the 20 th of the month after the quarter ends	114.02(M)(2)(b)
6.	Updated <u>Safety Management Plan</u>	2	Yearly	114.02(N)
7.	<u>Site Security Plan</u>	3	Concurrent with the <u>Safety Management Plan</u>	114.03
8.	<u>Open Trench Safety and Security Plan</u>	3	Not less than 10 Business Days prior to excavating trenches greater than 50 feet in length	114.03
Notes: A. Levels of Review 1. Sole discretion or absolute discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

2

End Section

2 **End Section**

116 Community Relations and Public Involvement Program**116.01 Purpose**

The purpose of the Community Relations and Public Involvement Program (CRP) is to facilitate successful completion of the Project by actively sharing Project information and seeking and responding to input from stakeholders defined in Table 116-1 throughout the design and construction of the Project. The CRP minimizes impacts of construction by detailing how Project public involvement staff will work closely with the stakeholders to keep them apprised of the schedule for construction and progress achieved to ensure that their issues and concerns are addressed by Design-Builder and ADOT.

The CRP is built on the FHWA-approved ADOT *Public Involvement Plan (PIP)*, which is provided in the RIDs. The CRP incorporates its requirements for compliance with Title VI, the Americans with Disabilities Act (ADA), Limited English Proficiency, and other federal regulations.

Design-Builder shall coordinate with ADOT to implement and execute a CRP that:

- (A) Follows the guidelines and best practices delineated by the International Association of Public Participation;
- (B) Provides the stakeholders with reasonable access to technical and policy information about the Project;
- (C) Demonstrates Design-Builder's consideration of and response to stakeholder input obtained during the Work;
- (D) Provides adequate opportunity for public involvement; and
- (E) Solicits and considers the needs of those traditionally underserved by existing transportation systems to ensure that their involvement in decision-making helps prevent disproportionately high and adverse impacts upon such individuals and ensures that they receive a proportionate share of benefits of the Project. Traditionally underserved populations include, but are not limited to, low income and minority households, ADA populations and Native Americans.

For purposes of this Section 116, stakeholders shall be as follows:

Table 116-1: Project Stakeholders

No.	Types of Stakeholder	Example Entities
1.	Businesses	Businesses and commercial enterprises located along the Project limits. Other businesses and commercial enterprises in the vicinity of the Project limits that are affected by construction.
2.	Governmental Entities	As defined in <u>DBA Exhibit 1 (Abbreviations, Acronyms, and Definitions)</u> .
3.	The Community	As defined in <u>DBA Exhibit 1 (Abbreviations, Acronyms, and Definitions)</u> .
4.	General Public	Members of the public within the area or who use the roadways within the Project limits and roadways that are affected by the Project, including arterial streets and alternate highway routes.

116.02 Public Involvement Plans**(A) ADOT Public Involvement Plan**

Design-Builder shall follow the principles of the ADOT PIP and incorporate its guidelines throughout the D&C Period. All outreach content must comply with the most-recent versions of the ADOT PIP and *Guide to Graphic and Editorial*

Standards for the Arizona Department of Transportation and Associated Press Style, and be free of grammatical, spelling, style, punctuation, factual and other errors.

(B) ADOT Corridor Public Involvement Plan

(1) Goals and Objectives

Design-Builder shall review, contribute to and support the ADOT *I-10 Wild Horse Pass Corridor Public Involvement Plan (Corridor PIP)*, included in the RIDs to fulfill the following goals, objectives and activities:

- (a) Develop public understanding of the Project;
- (b) Actively provide opportunities for engaging in two-way information sharing and encourage participation from a broad range of Community representatives, including business owners/operators, residents, Community leaders, and Community organizations throughout the D&C Period;
- (c) Engage with stakeholders at ADOT's request in necessary formats including but not limited to virtual and online formats to ensure robust, meaningful, and inclusive engagement;
- (d) Support and maintain ADOT's accountability, credibility, and accessibility with Project stakeholders;
- (e) Provide support to ADOT in its efforts to inform the media and maximize potential for informed traditional and new media coverage in a timely manner and in accordance with 24/7 media deadlines while recognizing the needs of different media outlets;
- (f) Allow a two-way flow of information among the Project team and successful implementation of the Project;
- (g) Provide proactive and timely construction updates for ADOT to share publicly through all appropriate outreach tools to ensure traveling public and other impacted stakeholders are informed well in advance of construction or other Project-related impacts;
- (h) Provide timely and appropriate communications and information in response to all crisis situations;
- (i) Work closely with ADOT and Project stakeholders to keep them apprised of the Project Schedule and progress achieved to ensure their issues and concerns are addressed professionally and promptly by the appropriate staff;
- (j) Provide information to ADOT to create Project collateral for stakeholders;
- (k) Investigate and resolve concerns and, in consultation with ADOT, provide information to ADOT for responses to public comments regarding design and construction activities within the Site;
- (l) Ensure access to and from residences, businesses, schools, rest stops, and other properties within the Project;
- (m) Ensure safe movement of construction equipment, personnel, and materials to and from work zones, in a manner least disruptive to others;
- (n) Minimize noise, light, and dust pollution and provide prompt, reasonable mitigation as necessary;

- (o) Avoid encroachment on private properties adjacent to the Site;
- (p) Maximize effectiveness of traffic control schemes;
- (q) Coordinate with concurrent activities on other projects in area adjacent to the Project, including all the projects listed in Table 105-1; and
- (r) Ensure that deadlines are met so that information may be effectively communicated to the public, stakeholders, the traveling public, and the media.

(2) Description of Activities

Design-Builder shall support ADOT in implementing the ADOT *Corridor PIP* in its entirety to accomplish the goals, objectives and activities described in this Section 116, as follows:

- (a) Notify ADOT of activities and support ADOT's processes for preparing and distributing public information, including:
 - (i) Notice of traffic, Utility, or other service disruption, including timing and method of such disruption in accordance with the Contract Documents;
 - (ii) General construction progress updates;
 - (iii) Contribute information to ADOT as needed to support updates of all Project information platforms and the development of Project collateral;
 - (iv) Support the development of Project collateral in collaboration with ADOT; and
 - (v) Support the development of materials for and attendance at Public and stakeholder meetings (in-person or virtual);
- (b) Provide schedule of activities and timely notification thereof (to be distributed by ADOT across ADOT platforms, e.g., website updates, collateral production, public meetings, summary reports, and public comment/contact and response logs);
- (c) Support ADOT's participation in community activities such as community and neighborhood celebrations and fairs, public/business organization events and homeowners' association meetings;
- (d) Support ADOT and Community media relations procedures regarding media tour support, media event support, determining safe locations for media interviews, messaging, outreach materials, and media kits; and
- (e) Support ADOT in implementing the ADOT *Crisis Communication Plan* that requires Design-Builder to call ADOT within a half hour after becoming informed of any Project-related Emergency, Incident, or other crisis affecting the Project requiring unexpected Closures or Utility service disruptions.

(3) Reputation Management Plan

Design-Builder shall prepare a multi-faceted, multi-lingual *Reputation Management Plan* to implement immediately if any employee, consultant, representative, or agent of Design-Builder engages in any action that results in a negative impression of ADOT, its employees, or the Project and/or offends the public and/or stakeholders during the course of the D&C Work. The *Reputation Management Plan* shall identify strategies and tactics that Design-Builder will utilize, including paid advertising, press releases and/or statements, and other remediation tools, as well as the appropriate timeframe over which these strategies and tactics are to be employed. Design-Builder shall submit the *Reputation Management Plan* to ADOT in accordance with Table 116-3.

ADOT may require, in its sole discretion, that Design-Builder immediately remove the individual(s) involved in the action from the Project. Design-Builder shall not be entitled to an increase to the Contract Price, a Contractual Deadline adjustment or any other Claim arising out of the preparation or implementation of the Reputation Management Plan. The need for implementation of the Reputation Management Plan may be determined at ADOT's sole discretion.

(4) ADOT Crisis Communication Plan

Design-Builder shall participate in implementing the ADOT *Crisis Communication Plan*, which is provided in the RIDs, that sets forth how Design-Builder will respond to a crisis that affects the Project, which includes Emergencies and Incidents within the Project ROW, a sudden, catastrophic event that materially impairs the ability to use the freeway, materially and adversely impacts construction activities, requires Closures of an unusual or more frequent nature than normal, or otherwise creates a health or safety hazard. The ADOT *Crisis Communication Plan* will include Design-Builder's plan to support ADOT's dissemination of information on an expedited basis, which could include ADOT's messaging systems to motorists, to the media, and through social media to make the public aware of the crisis within 30 minutes of the crisis occurring Table 116-3.

116.03 Community Relations and Public Involvement Program Responsibilities

Design-Builder acknowledges that close coordination with ADOT is required of Design-Builder to ensure the communications effort in support of the Project is effective and successful as the Work advances.

Allocation of CRP responsibilities between ADOT and Design-Builder are reflected in Table 116-2.

Table 116-2: Community Relations and Public Involvement Program Responsibility Matrix

No.	Activity	ADOT Responsibilities	Design-Builder Responsibilities
1.	ADOT <i>Corridor PIP</i>	Prepare, implement, update and revise bi-annually or as needed. The ADOT <i>Corridor PIP</i> will comply with the ADOT PIP.	Review, contribute to and support the ADOT <i>Corridor PIP</i> .
2.	Project collateral and notification	Using ADOT developed templates, create Project materials, including but not limited to: public outreach notifications, brochures, notification materials, graphics, PowerPoint presentations, maps, mailers, newspaper ads, scripts, and other collateral as needed to implement the ADOT <i>Corridor PIP</i> . Manage and document notification and collateral distribution process. Distribute materials through project website, social media, news media and government officials.	Keep ADOT informed daily of Construction Work and traffic changes to assist the program for the Community and public awareness and to avoid major congestion or other planned or unplanned site-specific impacts (included but not limited to utility interruptions, traffic incidents. Provide information to ADOT prior to restrictions or Closures in accordance with the Contract Documents. Support ADOT in preparation of outreach materials.
3.	QA/QC	Develop and implement QA/QC process on all Project collateral.	Provide accurate and current content for outreach materials. Content must clearly and concisely explain restrictions, closures, detour routes and other necessary and important design and construction information in alignment with the most current average reading level in the United States.

No.	Activity	ADOT Responsibilities	Design-Builder Responsibilities
4.	<u>Reputation Management Plan</u>	Review and approve, oversee and evaluate implementation.	Develop, maintain, and implement Reputation Management Plan to be utilized in the event a Design-Builder action negatively impacts ADOT reputation among Project stakeholders.
5.	ADOT <i>Crisis Communication Plan</i>	Develop, review, and approve; insert into the ADOT <i>Corridor PIP</i> . Review and revise ADOT <i>Crisis Communication Plan</i> as needed.	Review and implement the ADOT <i>Crisis Communication Plan</i> .
6.	Corridor Transportation System Management Meetings	Attend and participate, take notes; track action items.	Attend and participate.
7.	Inquiry response including but not limited to verbal, telephone, email, online, and mail	Project information management and maintenance including: (A) Setting up a Project hotline, checking messages twice per business day (once between 8 a.m. and 12 p.m., and once between 12 p.m. and 5 p.m.); (B) Manage ADOT project email inbox; (C) Receive, process, and respond to mailed inquiries; (D) Log all inquiries, comments, and input from all formats; (E) Respond to inquiries, comments, and input from all formats within 48 hours of receipt; and (F) Review and approve responses.	Provide supplementary content as requested by ADOT through a <u>Public Inquiry Request Package</u> including information that will support ADOT's timely responses to questions or comments.
8.	ADOT <i>Stakeholder Management System</i>	Develop and provide an ADOT <i>Stakeholder Management System</i> for all Project contacts, inquiries, submittals and public information Project collateral; Update the ADOT <i>Stakeholder Management System</i> ; log in the ADOT <i>Stakeholder Management System</i> within 48 hours of their occurrence and update as needed. If the ADOT <i>Stakeholder Management System</i> is offline or unavailable for any reason, track all inquiries and interactions in another format to be uploaded into the ADOT <i>Stakeholder Management System</i> when it becomes available.	Provide supplementary content as requested by ADOT through a <u>Public Inquiry Request Package</u> including information that will support ADOT's timely responses to questions or comments.

No.	Activity	ADOT Responsibilities	Design-Builder Responsibilities
9.	Government and Community Relations	Lead tours and establish tour procedures for elected and other officials from Government Entities and the Community. Provide information, materials, safety, and equipment to be available for tours.	Support ADOT by assisting in the resolution of elected official inquiries and facilitating tours by coordinating with ADOT staff to oversee and maintain all safety protocols for ADOT and elected officials. Notify ADOT, immediately, if contacted by any elected and other Government officials.
10.	Media Relations	Lead tours and establish tour procedures for news media and plan and provide tours and safe interview locations in coordination with ADOT. Provide information, materials, and personal safety equipment for tours and planned media events. Develop and distribute media alerts and news releases. Handle all media requests.	At ADOT's request, provide an <u>Outreach Plan Package</u> for planned media releases. Provide a <u>Public Inquiry Response Package</u> to ADOT for assistance with media inquiries. Notify ADOT and the ADOT Public Information Officer, immediately, if contacted by any news media.
11.	Stakeholder meetings	Manage notifications, prepare for, plan, set up, attend, conduct and document summary of meetings.	At ADOT's request, provide supplemental Project information related to design modifications, construction schedule and impacts, and coordinate with Project team to resolve outstanding inquiries or complaints through a <u>Public Inquiry Request Package</u> . A minimum of one member of Design-Builder team shall attend and actively participate in stakeholder meetings in person or virtually.
12.	Stakeholder Presentations	Maintain presentation request database, coordinate logistics, provide Project support/materials and presentations, attend, present and document summary of presentations.	At ADOT's request, provide supplemental Project collateral related to design modifications, Project Schedule and impacts, and coordinate with Project team to resolve outstanding inquiries or complaints. A minimum of one member of Design-Builder's team shall attend and actively participate in stakeholder meetings in person or virtually.
13.	Public Meetings/Open Houses	Identify meeting locations, manage logistics; host virtual meeting website. Develop all meeting collateral and present. Log and address public inquiries. Draft and submit Public Open House Summary within 30 Days of each event.	Support the development of meeting collateral and present the design overview and construction schedule. A minimum of three staff, including the manager of Design-Builder's team shall attend and actively participate in open houses in person or virtually.
14.	<i>Construction Operations Survey</i>	Develop, conduct and manage Construction Operations Survey, produced every six months, and associated processes for implementation; distribute electronically	At ADOT's request, provide detailed construction information to assist in the development of the survey.

No.	Activity	ADOT Responsibilities	Design-Builder Responsibilities
15.	Title VI of the Civil Rights Act, the Americans with Disabilities Act and other applicable and required federal nondiscrimination regulations	Develop activities/techniques as part of the ADOT <i>Corridor PIP</i> to meet needs of all populations identified in the ADOT <i>Corridor PIP</i> .	Comply with the ADOT PIP and the ADOT <i>Corridor PIP</i> to ensure all audiences are effectively reached and engaged.
16.	ADOT Project website	Develop and host the site; provide templates/specifications; manage all information updates; upload content provided by Design-Builder, including text and graphics and provide timely updates with an adherence to deadlines for information, especially information that changes quickly. All content must be 508c compliant and comply with the ADOT <i>PIP</i> . Site will accommodate Project information from a mobile device.	Support ADOT and provide Project information promptly, including but not limited to Plans, Project Schedule updates, Project information and other information/graphics. Provide accurate and current content to ADOT to upload to website.
17.	Project photography and videography	Use Project photos and videos on Project website, other websites, online communications and all social media applications. ADOT will coordinate with the Community for public use of all photos and video.	Compile monthly Project progress photographs and video and provide to ADOT throughout construction for use in Project collateral and outreach material in accordance with <u>Section 100.19(C)</u> . Provide ADOT with additional photographs or videos at ADOT's request. If ADOT wants to take its own photos/video, coordinate with ADOT to accommodate onsite visits to comply with safety regulations. Comply with the Community's requirements for photo review.
18.	Project newsletter/Email Alerts	Prepare and distribute	Provide <u>Outreach Plan Packages</u> and <u>Public Inquiry Response Packages</u> to support ADOT's timely responses to questions or comments.
19.	Social media	Manage accounts; prepare graphics.	Provide <u>Outreach Plan Packages</u> and <u>Public Inquiry Response Packages</u> to support ADOT's timely responses to questions or comments.

No.	Activity	ADOT Responsibilities	Design-Builder Responsibilities
20.	Translation and interpretation of all Project materials and information	ADOT shall translate and provide interpretation for all materials and information that will be provided to the public and stakeholders as needed or in compliance with the translation requirements including ADA and results of the Limited English Proficiency and Four-Factor Analyses on file with the ADOT Civil Rights Office. Without limiting the foregoing, translation of the following: brochures, flyers, mailers, newspaper ads, meeting/event signage, printed materials, explanations of diagrams or maps, and all materials available for attendees at any meetings. ADOT to provide interpreter as needed.	Provide ADOT with accurate and current content for outreach materials to be translated in a timely manner.
21.	Project Tours	Coordinate Project tours with stakeholder groups.	Provide water, PPE, safety escorts, transportation (to/from Project Office), lighting and safe locations.
22.	Community Event	Identify, coordinate and attend Community events, as appropriate to the Project's communications goals. Prepare and provide materials and Project collateral at events.	Provide supplementary content as requested by ADOT for development of materials or talking points.

(A) Public Involvement Point of Contact

Design-Builder shall identify a public involvement point of contact who can be reached at all times for the facilitation of information-sharing to support the CRP. This person shall have knowledge of or access to information about current design and construction plans and progress as well as work zone conditions.

(B) Emergency Communication and Management

Design-Builder shall take all actions indicated in the ADOT *Crisis Communication Plan* as and when required by circumstances addressed by the ADOT *Crisis Communication Plan*. Design-Builder shall notify ADOT of Emergencies and Incidents within the Project limits in accordance with the ADOT *Crisis Communication Plan* for facilitation of information sharing with Project stakeholders and the Community. Design-Builder shall hold a debrief meeting and invite all person(s) identified in the ADOT *Crisis Communication Plan* within 24 hours of the inception of such circumstances.

(C) Meetings

Design-Builder shall attend team meetings as described in the ADOT *Corridor PIP*. These meetings must be attended by the appropriate Design-Builder representative(s) with subject matter expertise.

Design-Builder, in coordination with ADOT, shall ensure the subjects of community relations and community impact from construction operations are included on the agenda of each construction progress meeting.

Design-Builder shall participate in any other public involvement-related meetings that may be called as needed at the direction of and in coordination with ADOT.

Design-Builder shall provide ADOT access to all Project meetings associated with traffic control planning by Design-Builder.

(D) Communication with Media, Elected Officials, and Key Stakeholders

Design-Builder shall not communicate or schedule meetings with elected officials, news media, or key stakeholders identified by ADOT. Any requests for communications or meetings with elected officials shall be forwarded by e-mail and a telephone call to the appropriate ADOT personnel (in accordance with the ADOT *Corridor PIP*) within two hours of receipt of such request. ADOT will coordinate the resolution of issues or complaints from the following:

- (1) Government Entities;
- (2) The Community;
- (3) Elected officials;
- (4) High-profile businesses/tourism/university representatives;
- (5) Media; and
- (6) Other key stakeholders, as determined by ADOT.

Design-Builder shall immediately direct all questions from the media or elected officials to ADOT and copy news@azdot.gov. ADOT will interface with the media and elected officials; however, Design-Builder shall provide information, materials, public outreach notification(s) and/or a designated representative to be available for media interviews as determined by ADOT. Unauthorized communication by Design-Builder staff may require Design-Builder to replace its employee(s) with an alternate staff member(s) possessing equivalent experience and approved by ADOT.

(E) Information Sharing**(1) Planned Outreach Materials**

ADOT will provide a notification to Design-Builder with not less than five Business Days of a planned outreach activity, including media releases, videos, newsletters, etc. Design-Builder shall prepare an Outreach Plan Package that includes Project details such as traffic alerts, restrictions, I-10 detours utilizing the traffic interchange ramps, rolling Closures, ramp Closures, crossroad Closures, schedules, photos, or other information as requested. Design-Builder shall submit the Outreach Plan Package to ADOT in accordance with Table 116-3.

(2) Media and Public Inquiries

ADOT will provide a notification to Design-Builder, as needed, when ADOT receives an inquiry from members of the media, stakeholders or the public for which Design-Builder's assistance is needed in preparing an accurate response. Design-Builder shall prepare a Public Inquiry Response Package that includes requests for information, schedules, design or construction updates, photos, videos or graphics, depending on the notification from ADOT. Design-Builder shall submit a Public Inquiry Response Package to ADOT in accordance with Table 116-3.

(F) Notification

Design-Builder shall keep ADOT informed of Construction Work and traffic changes to assist the program for community awareness and to avoid major congestion or other site-specific conflicts. Design-Builder shall:

- (1) (Re)notify ADOT if construction activities that require notification have changed within one hour from the time they are informed of any changes to ensure the public is alerted to traffic impacts. These construction activities may include lane restrictions and closures, ramp closures, detour changes and utility disruptions.
- (2) Provide information as requested for weekly construction status reports and traffic control reports in coordination with ADOT. Design-Builder -provided information must discuss the next seven Days of traffic restrictions, locations and types of construction, potential impacts

to traffic and the date and time for such restrictions. Design-Builder-provided information will form the basis for weekly email newsletters, which ADOT will distribute to the public.

(3) Support ADOT's day-to-day coordination and notification to affected property owners, businesses, and residents regarding disruptions attributable to the Construction Work scheduled in their areas.

(4) Comply with the timing of notifications outlined in the ADOT *Corridor PIP*.

(5) Notify ADOT five Business Days prior to Lane Closures and other restrictions to aid in the development of messaging and notification of Project stakeholders.

(6) At ADOT's direction, hold construction briefings with businesses, schools, or any others whose access will be impacted, and provide them with printed information regarding the impact, schedule, any detours, and other relevant and useful information, a minimum of seven Business Days prior to the impact.

(G) Stakeholder Pre-Construction Briefings

At ADOT's request, following issuance of NTP 1 Design-Builder shall accompany ADOT and other designated Project representative(s) to up to eight pre-construction briefings to be held with primary stakeholders, including the general public; adjacent neighborhoods; communities and residential areas; schools; businesses; agricultural stakeholders; nonprofit organizations; governmental officials and staff; news media; major tourist attractions in central and southern Arizona; and other stakeholders. In conjunction with ADOT, Design-Builder shall become familiar with Project stakeholders and allow these stakeholders to become familiar with Design-Builder, thus allowing each an opportunity to gain a greater mutual understanding of the challenges to be faced by each other throughout the D&C Period.

(H) Public Open House

At least 30 Days prior to commencement of Construction Work, Design-Builder shall participate in up to four public open houses (one virtual and one in-person in the Community and one virtual and one in-person outside of the Community) with the Project team and key stakeholders, property owners and tenants. The in-person meetings will take place in locations within five miles of the Project area that are selected to maximize convenience for potential attendees. Design-Builder shall support ADOT in presenting the design overview and construction schedule. Design-Builder shall introduce stakeholders to the Project, describe anticipated phasing, Closures and methods to be used to communicate traffic changes, alerts and restrictions and answer questions about the Project. At the meetings, Design-Builder shall address community concerns and provide information on its construction approach and Emergency plan. Design-Builder shall assist ADOT in meeting all ADA, 508c and Title VI requirements relating to the public open houses.

(I) Reporting and Tracking

Design-Builder shall provide ADOT with detailed construction information to assist ADOT in the development of a *Construction Operations Survey* every six months, with the last to be submitted after the end of the D&C Period. Each *Construction Operations Survey* is intended to measure customer satisfaction with the Project regarding traffic control, dust control, noise control, access interference, encroachments onto private property, advance warnings of potential construction impacts on daily routines, and the reliability of information emanating from the Project. ADOT will disseminate surveys in areas affected by Construction Work, with the Project locations to be surveyed and based on magnitude of Construction Work (i.e., where magnitude of Construction Work has the greatest potential for adverse impacts to properties or the traveling public). ADOT shall poll residents, schools, businesses and motorists affected by construction using a methodology agreed to with ADOT in the ADOT *Corridor PIP*. ADOT shall provide survey results within 30 Days after the close of the survey.

116.04 Submittals

Table 116-3 reflects a list of Submittals identified in this Section 116 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 116-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Reputation Management Plan</u>	2	Prior to issuance of NTP 2	116.02(B)(3)
2.	<u>Outreach Plan Package</u> ^B	3	Not less than 5 Business Days prior to ADOT media release	116.03(E)(1)
3.	<u>Public Inquiry Response Package</u>	2	Not less than 2 hours of ADOT's notification, unless otherwise specified by ADOT	116.03(E)(2)
<u>Notes:</u> A. Levels of Review 1. Sole discretion or absolute discretion approval (DBA Section 3.01(B)(1)) 2. Good faith discretion approval (DBA Section 3.01(B)(2)) 3. Review and comment (DBA Section 3.01(B)(3)) 4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4)) B. Community review required, ADOT will coordinate review.				

End Section

117 Environmental**117.01 General Requirements**

Design-Builder shall perform all environmental Work in compliance with the requirements of this Section 117.
Design-Builder shall:

- (A) Perform or cause to be performed all environmental commitments required under the Contract Documents; and
- (B) Comply with the provisions, requirements, and obligations regarding environmental compliance in accordance with this Section 117.

117.02 Administrative Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all Work in accordance with the Standards listed in Table 117-1.

Table 117-1: Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADEQ	Clean Water Act Section 402; Arizona Pollutant Discharge Elimination System (AZPDES)
2.	ADOT	I-10 Corridor Study: SR 202L to SR 387 Draft Environment Assessment
3.	ADOT	I-10 Corridor Study: SR 202L to SR 387 Final Environment Assessment (Final EA)
4.	ADOT	Noise Abatement Requirements
5.	ADOT	Project Programmatic Agreement for Cultural Resources
6.	ADOT	Standard Specifications for Road and Bridge Construction
7.	ADOT	Erosion and Pollution Control Manual for Highway Design and Construction
8.	ADOT	Clean Water Act Section 402; Stormwater Management Plan for AZPDES Municipal Separate Storm Sewer System Permit
9.	ADOT	Temporary Traffic Control Design Guidelines
10.	ADOT	Asbestos Management Policy
11.	ADOT	Roadside Vegetation Management Guidelines
12.	ADOT	Right of Way Procedures Manual
13.	ADOT	Public Involvement Plan
14.	ADOT	ADOT Environmental Management Plan
15.	Federal	Clean Water Act Section 402; National Pollutant Discharge Elimination System (NPDES)
16.	Federal	Council of Environmental Quality EQ Regulations for Implementing the Procedural Provisions of NEPA

No.	Organization	Name
17.	Federal	Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, 48 FR 44716
18.	ADOT	I-10 Koli Road TI Draft Environment Assessment (Draft EA)
19.	ADOT	I-10 Koli Road TI Final Environment Assessment (Final EA)

(B) Environmental Management Program

Design-Builder shall develop, operate, and maintain a comprehensive Environmental Management Program for the Work to establish the environmental requirements, approach, and procedures to be employed to protect the environment from Project impacts. The Environmental Management Program must comply with all Environmental Approvals for the Project, and all applicable Law (including Environmental Law), environmental commitments, Community Approvals and Governmental Approvals issued thereunder, whether obtained by ADOT or Design-Builder. The Environmental Management Program must obligate Design-Builder to follow the established protocols and procedures. Design-Builder shall:

- (1) Establish and implement environmental compliance measures taken during the performance of the Work to avoid and minimize impacts on the environment from the design and construction activities of the Project;
- (2) Effectively demonstrate as appropriate throughout the Work, in detail Design-Builder's knowledge of all applicable Environmental Approvals, environmental Governmental Approvals and Community Approvals, environmental issues, environmental commitments and constraints, and any applicable Environmental Laws;
- (3) Provide concise, consistent environmental monitoring, documentation, and reporting activities throughout the Work, applicable to the environmental activities being performed;
- (4) Understand and complete the processes that are necessary during the course of the Work to comply with those Environmental Approvals, environmental Governmental Approvals and Community Approvals, environmental issues, environmental commitments, and Law, as well as the documentation required to verify and validate environmental compliance;
- (5) Understand and complete any documentation required to verify and validate compliance of the Environmental Management Program with all applicable Environmental Laws, Environmental Approvals, environmental Governmental Approvals and Community Approvals, and Contract Documents;
- (6) Establish a goal of zero environmental violations during the performance of all Work, and provide detailed processes for rectifying such violations in an appropriate and timely way;
- (7) Provide design certifications with every design Submittal or Design Change indicating that an environmental review of the design package has been completed and that the design does not change any conditions of the original NEPA Approval or any existing permit conditions;
- (8) Identify known or reasonably expected environmental constraints for review with each design Submittal or Design Change;
- (9) Provide qualified and appropriately experienced staff for each of the environmental disciplines as required, including cultural resources, biology, hazardous materials, environmental documentation; and

- (10) Discuss sensitive environmental topics and areas prior to the start of construction at the pre-construction meeting and again at applicable pre-activity meetings.

(C) Environmental Management Plan

Design-Builder shall prepare an EMP that describes Design-Builder's approach to implementing the environmental commitments. The EMP shall provide the clear detail and guidance that will serve as a reference for project staff to understand actions to be taken or steps in the process to be followed. Design-Builder shall incorporate all environmental commitments into the EMP.

The EMP shall include, at a minimum, the following elements:

- (1) Design-Builder's environmental personnel organizational chart and their training including the ECM;
- (2) Design-Builder's environmental commitments including all forthcoming permit conditions;
- (3) Environmental monitoring plan that indicates timing, locations, and other primary monitoring parameters;
- (4) Weekly environmental monitoring report content;
- (5) Monthly report content that combines the weekly report forms into a document that summarizes the month's environmental monitoring activities;
- (6) Documentation confirming that Design-Builder has provided each Subcontractor, including its agents associated with the design and construction of the Project, with a copy of all permits and training issued by Governmental Entities and the Community for the Project;
- (7) Environmental notification contact list;
- (8) Pre-construction survey plan for nesting birds and roosting bats;
- (9) Schedule of EMP activities;
- (10) Spill containment and countermeasure plan describing Design-Builder's plans to prevent, contain, clean up, remove, dispose of, and mitigate all regulated material spills caused by Design-Builder or its Subcontractors and/or agents associated with the design and construction, of the Project. The spill containment and countermeasure plan shall be in accordance with the July 2002 United States EPA update. The spill containment and countermeasure plan shall include a notification list for containing and reporting;
- (11) Plan for verifying that all personnel entering the Site have completed the Project-specific environmental awareness and Cultural Sensitivity Orientation as specified in Section 117.02(G);
- (12) Hazardous Materials Management Plan, including procedures for discovery of unanticipated hazardous waste or contaminated materials;
- (13) Unanticipated archaeological discovery plan;
- (14) Construction noise management plan;
- (15) Air quality management plan;
- (16) Asbestos control management plan;
- (17) Lead-based paint control management plan;

- (18) Sedimentation and erosion control plan;
- (19) Plan for construction water use including source, use, and quantities anticipated and Best Management Practices to be implemented that reflect an awareness of drought conditions and water stewardship responsibilities ADOT has in Arizona;
- (20) Design-Builder's plan to ensure identified environmental constraints are communicated with all Design-Builder teams that could be affected, through to Construction;
- (21) The *Environmental Communications Protocol* (ECP) specified in Section 117.02(C)(1); and
- (22) Environmental training schedule in accordance with Section 117.02(F).

Design-Builder shall submit the EMP to ADOT in accordance with Table 117-4. Design-Builder shall not perform any Construction Work prior to ADOT's approval of the EMP. Design-Builder 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 Laws or guidelines. Design-Builder shall prepare interim EMP revisions, in the form of addenda, if revisions to the EMP are needed before the annual update. Design-Builder shall submit the EMP Update to ADOT for approval in accordance with Table 117-4.

(1) Environmental Communications Protocol

The EMP must provide for the development, documentation, and implementation of an ECP. The ECP must describe the process to be used for compliance and noncompliance 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 Design-Builder's Public Involvement Plan and the EMP. The ECP must include organizational charts that identify Design-Builder's ECM and other personnel who will be assisting the ECM to ensure compliance with all permit conditions, performance standards, and environmental commitments.

(a) Internal Communications

For internal communications procedures, Design-Builder shall ensure that the EMP:

- (i) Describes Design-Builder's organizational hierarchy and identifies compliance roles and internal reporting responsibilities;
- (ii) Includes a clear discussion regarding which Key Personnel, in addition to the ECM, have the authority to stop Work to prevent a violation from occurring; and
- (iii) Describes the process for identifying and reacting to Noncompliance Events.

(b) External Communications

For external communications procedures, Design-Builder shall ensure that the EMP describes the procedures that define how all external communications received by Design-Builder shall be documented and handled, including how ADOT will be involved. External communications may originate from Local Jurisdictions, regulatory agencies, and the public. Issues may range from public noise complaints to violation notices from regulatory agencies. Where appropriate, this communication procedure shall be consistent with the EMP. ADOT will remain the main point of contact (unless Design-Builder is otherwise directed by ADOT) with the public and for environmental and permit coordination with Local Jurisdictions and regulatory agencies. ADOT will lead all agency and stakeholder communication related to cultural resources and the *Section 106 of the National Historic Preservation Act* process. Design-Builder shall be responsible for external notification and reporting requirements associated with the permits Design-Builder obtains and for which Design-Builder is listed as the permittee, including reporting protocols identified within Design-Builder's spill containment and countermeasure plan specified in Section 117.02(C).

(c) Communications with ADOT

For communications with ADOT, Design-Builder shall ensure that the EMP:

- (i) Describes interactions between Design-Builder and ADOT with regard to reporting noncompliance issues;
- (ii) Describes Design-Builder's communication process and Key Personnel responsible for recognizing when a design change and/or alternative construction technique may require a permit modification or new approval; and
- (iii) Describes Design-Builder's strategy for managing design changes that may require permit modifications or additional approvals.

(D) Environmental Monitoring Reports

The ECM must prepare Environmental Monitoring Reports that documents environmental compliance monitoring and is organized into a single document for each reporting period and further organized by resource type. The Environmental Monitoring Reports must include the following information:

(1) For each resource:

- (a) The location of the area monitored (map, with stationing, addresses, or other reference);
- (b) The name of inspector or monitor;
- (c) The date(s) monitoring occurred;
- (d) The weather conditions;
- (e) Observations/conditions (typical details are listed below); and
- (f) Resolution of any and all violations or other problems encountered.

(2) Conditions to be reported shall include:

- (a) Air and water quality standards compliance;
- (b) Any and all violations of applicable Governmental Approvals, Community Approvals, Environmental Laws, or commitments in the Environmental Documents;
- (c) Status of all Work in streams;
- (d) Any and all spills, either by third-parties or Design-Builder;
- (e) Discharge of groundwater;
- (f) Discovery of migratory bird nest or raptor nest, whether active or not;
- (g) Discovery of any sick, dead, or injured migratory or raptor bird;
- (h) Discovery of potentially historic artifacts, human bones or remains, or non-human bones;
- (i) Agency field oversight, inspection, and coordination;
- (j) Status of impacts to cultural resources; and
- (k) Detection of hazardous substances and status of any remediation work.

Design-Builder shall submit Environmental Monitoring Reports to ADOT in accordance with Table 117-4.

(E) Project Environmental Commitment Requirements

Design-Builder shall comply with environmental mitigations, commitments, and requirements (“environmental commitments”) included in the NEPA Approval. TPA 117-1 (Environmental Commitments) includes the Project-specific environmental commitments associated with the NEPA Approval and ADOT’s standard commitments. Environmental commitments have been reviewed and approved by ADOT for the construction of the Project. These environmental commitments are not subject to change without prior written approval from ADOT. Design-Builder shall be responsible for all environmental commitment requirements in TPA 117-1 (Environmental Commitments), except those requirements that are specifically identified as ADOT responsibilities.

If, at any time, Design-Builder is not in compliance with any applicable Laws, including any Environmental Laws, Community Approvals, and Governmental Approvals, ADOT may suspend the Work, in whole or in part, under DBA Section 16 (Contractual Noncompliance) until such time that the errors, deficiencies, or noncompliant situations have been corrected. Any associated monetary fines and environmental restoration activities required to resolve violations are the responsibility of Design-Builder.

(F) Environmental Training Program

Design-Builder shall design and implement an environmental protection training program for all Design-Builder and Subcontractor employees. Every Design-Builder and Subcontractor employee who Works on the Project (management through workers, including each new employee who begins Work after issuance of NTP 1) 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 Design-Builder employees and Subcontractors to the following:

- (1) The overall importance of environmental issues in achieving a successful Project; and
- (2) 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. Design-Builder shall notify the Governmental Entities and Project staff of the training sessions and invite them to participate.

Design-Builder 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 TPA 117-1 (Environmental Commitments).

(G) Cultural Sensitivity Orientation

The Community’s Tribal Historic Preservation Officer and Cultural Resources Management Program will establish a *Cultural Sensitivity Orientation*, in coordination with ADOT. All ADOT, GEC, and staff performing Work from all Design-Builder-Related Entities will be required to attend *Cultural Sensitivity Orientation* prior to any individual beginning any Work. Design-Builder shall prepare a Cultural Sensitivity Orientation Staffing Schedule that lists all Design-Builder-Related Entities’ staff that are required to and that have not attended *Cultural Sensitivity Orientation* and the requested date that Design-Builder would like the staff to complete the *Cultural Sensitivity Orientation* by. Design-Builder shall submit the Cultural Sensitivity Orientation Staffing Schedule to ADOT in accordance with Table 117-4. ADOT will provide the Cultural Sensitivity Orientation Staffing Schedule to the Community and assist the Community, as needed, in scheduling the orientation. The Community will accommodate Design-Builder’s schedule to the extent possible.

(H) Confidential Cultural Information

Data Recovery for cultural resources will be completed by the Community and results submitted to the ADOT. If cultural resource features or boundaries are identified that require avoidance or monitoring by an approved cultural resource specialist, information defining the boundary for those features or areas will be submitted by ADOT to Design-Builder's ECM as an environmentally sensitive area as set forth in Section 117.04(A). Environmentally sensitive resource information may include but is not limited to CADD files, shapefiles, maps, or KMZ File(s).

117.03 Governmental Approvals, Community Approvals, and BIA Approvals

Design-Builder shall implement and adhere to all commitments and requirements included in, or required for compliance with, all Governmental Approvals, and Community Approvals.

(A) ADOT-Provided Approvals

The Governmental Approvals that ADOT is responsible for acquiring (ADOT-Provided Approvals), and their status, are set forth in Table 117-2. Any ADOT-Provided Approvals that have already been secured are provided in the RIDs.

Table 117-2: ADOT -Provided Approvals

No.	Governmental Entities	Name	Status
1.	ADOT	Final EA Interstate 10 Corridor Study: State Route 202L to State Route 387 and Finding of No Significant Impact	Signed March 28, 2024
2.	ADOT	Final EA I-10 Koli Road TI and Finding of No Significant Impact	Signed October 2025

Design-Builder shall implement and adhere to all commitments and requirements included in, or required for compliance with, all ADOT-Provided Approvals, except for those commitments or requirements for which ADOT, Governmental Entities, the Community, or a third-party is specifically identified in the Contract Documents as being responsible. TPA 117-1 (Environmental Commitments) lists the commitments and requirements included in the NEPA Approval.

The ADOT-Provided Approvals are based on the Schematic Design that is provided in the RIDs and the ADOT-Provided Approvals may require re-evaluation, amendment, or supplement as the Work progresses or in order to accommodate actions not identified in or permitted by those approvals. Changes to the design shown on the Schematic Design may require new Governmental Approvals or Community Approvals. Design-Builder shall identify any such changes and immediately notify ADOT. ADOT will determine whether an additional environmental study, re-evaluation, amendment, or modification is necessary to address potential impacts resulting from such changes in the Schematic Design or into the Project.

If Design-Builder seeks an additional environmental study, re-evaluation, amendment, or modification, Design-Builder shall be solely responsible for pursuing and undertaking any such study, re-evaluation, amendment, or modification, including any delay or cost associated therewith, notwithstanding that a Governmental Approval may be identified as an ADOT-Provided Approval in Table 117-2. Design-Builder shall prepare a Governmental Approval Package that includes material in connection with the re-evaluations, amendments, or supplements to the ADOT-Provided Approvals. Design-Builder shall submit the Governmental Approval Package to ADOT in accordance with Table 117-4. ADOT will submit the Governmental Approval Package to the Governmental Entities.

Design-Builder shall provide ADOT all support documentation and analysis required to ensure that ADOT is able to complete coordination and resolution of all environmental issues with affected interests, the Community and Governmental Entities.

(B) All Other Governmental Approvals

Design-Builder shall obtain all Governmental Approvals and Community Approvals, other than those specified in Section 117.03(A), to complete the Work. Known Governmental Approvals, Community Approvals, and BIA Approvals that must be applied for or issued in ADOT's name are listed in Table 117-3.

Table 117-3: Known Governmental Approvals Applied for or Issued in ADOT's Name

No.	Entity	Governmental Approval, Community Approval, or BIA Approval	Preliminary Work and Certain Requirements to be Performed by Design-Builder
1.	United States Army Corps of Engineers (USACE)	Approved Jurisdictional Determination (File No. SPL-2025-00039)	None
2.	Maricopa County Air Quality Department	Dust Control Permit	Design-Builder to obtain
3.	Gila River Indian Community Department of Environmental Quality Air Quality Program	Earth Moving Permit / Dust Control Plan	Design-Builder to complete, ADOT will submit permit to the Community

(1) Governmental Approvals Applied for or Issued in ADOT's Name

Design-Builder shall provide assistance for Governmental Approvals that must be formally submitted or issued in ADOT's name. In cases that require ADOT to act as the coordinating party for Governmental Approvals, Design-Builder shall provide all required data to support, to secure, or to comply with the conditions of such Governmental Approvals. ADOT has undertaken certain preliminary efforts concerning such Governmental Approvals, including applications, exhibits, and correspondence, which are included in the RIDs. For Governmental Approvals that must be applied for or issued in ADOT's name, Design-Builder shall prepare Applications for Governmental Approvals in ADOT's Name that provide complete design information and include applications and all other required documentation. A list of known 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 Design-Builder with respect to such Governmental Approvals are included in Table 117-3. Design-Builder shall submit the Applications for Governmental Approvals in ADOT's Name to ADOT in accordance with Table 117-4.

(2) Community Approvals Applied for or Issued in ADOT's Name

Design-Builder shall provide assistance for environmental related Community Approvals that must be formally submitted or issued in ADOT's name. In cases that require ADOT to act as the coordinating party for Community Approvals, Design-Builder shall provide all required data to support, to secure, or to comply with the conditions of Community Approvals. ADOT has undertaken certain preliminary efforts concerning such Community Approvals, including applications, exhibits, and correspondence, which are included in the RIDs. For Community Approvals that must be applied for or issued in ADOT's name, Design-Builder shall prepare Applications for Community Approvals in ADOT's Name that provide complete design information and include applications and all other required documentation. A list of known Community 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 Design-Builder with respect to such Community Approvals are included in Table 117-3. Design-Builder shall submit the Applications for Community Approvals in ADOT's Name to ADOT in accordance with Table 117-4.

(3) BIA Approvals Applied for or Issued in ADOT's Name

Design-Builder shall provide assistance for environmental related BIA Approvals that must be formally submitted or issued in ADOT's name. In cases that require ADOT to act as the coordinating party for BIA Approvals, Design-Builder shall provide all required data to support, to secure, or to comply with the conditions of BIA Approvals. ADOT has undertaken certain preliminary efforts concerning such BIA Approvals, including applications, exhibits, and correspondence, which are included in the RIDs. For BIA Approvals that must be applied for or issued in ADOT's name, Design-Builder shall prepare Applications for BIA Approvals in ADOT's Name that provide complete design information and include applications and all other required documentation. A list of known BIA 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 Design-Builder with respect to such BIA Approvals are included in Table 117-3. Design-Builder shall submit the Applications for BIA Approvals in ADOT's Name to ADOT in accordance with Table 117-4.

(4) Governmental Approvals Issued in Design-Builder's Name

For Governmental Approvals that must be applied for or issued in Design-Builder's name, Design-Builder shall prepare Applications for Governmental Approvals in Design-Builder's Name that provides complete design information and include applications and all other required documentation. Design-Builder shall submit the Applications for Governmental Approvals in Design-Builder's Name to ADOT in accordance with Table 117-4.

(5) Community Approvals Issued in Design-Builder's Name

For any environmental related Community Approvals that must be applied for or issued in Design-Builder's name, Design-Builder shall prepare Applications for Community Approvals in Design-Builder's Name that provides complete design information and include applications and all other required documentation. Design-Builder shall submit the Applications for Community Approvals in Design-Builder's Name to ADOT in accordance with Table 117-4.

(6) BIA Approvals Issued in Design-Builder's Name

For any BIA Approval that must be applied for or issued in Design-Builder's name, Design-Builder shall prepare Applications for BIA Approvals in Design-Builder's Name that provides complete design information and include applications and all other required documentation. Design-Builder shall submit the Applications for BIA Approvals in Design-Builder's Name to ADOT in accordance with Table 117-4.

117.04 Environmental Requirements

Design-Builder shall comply with the environmental requirements contained in TPA 117-1 (*Environmental Commitments*) during the duration of the DBA.

Design-Builder shall not conduct or perform any ground disturbing activities until the appropriate environmental clearance (e.g., cultural resources, hazardous materials, or biological evaluation) has been issued for the applicable area.

(A) Environmentally Sensitive Areas

As part of the Environmental Management Program, Design-Builder shall identify environmentally sensitive areas and create a plan to 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 preconstruction environmental survey(s) process. Design-Builder shall map environmentally sensitive areas, as applicable, on all Design Documents and identify and address them in the EMP.

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

(1) Environmentally Sensitive Area Fencing

Design-Builder shall protect environmentally sensitive areas by installing four-foot tall orange plastic barrier fencing with metal T-posts around all environmentally sensitive areas within the Project ROW, or Design-Builder's Temporary Work Areas prior to any ground disturbing activities. ADOT will provide the approximate location of any environmentally sensitive areas and compensate the Design-Builder as an ADOT-Directed Change for any required fence installation. Design-Builder shall notify ADOT a minimum of 14 Days prior to installing environmentally sensitive area fence to schedule coordination of fence installation with an archaeological monitor that will be provided by ADOT. During Construction Work near these areas, Design-Builder shall provide daily inspection of environmentally sensitive areas for damage or impact to the fencing in accordance with the EMP, and immediately report any damage or impact to ADOT and the appropriate Governmental Entity. Design-Builder shall coordinate with ADOT on such damage or impacts and provide potential on-site or off-site mitigation for such impacts, as required by the Community and Governmental Entities.

Design-Builder shall remove fencing from environmentally sensitive areas prior to Final Acceptance (D&C). Design-Builder shall notify ADOT a minimum of 14 Days prior to the removal of fencing around environmentally sensitive areas to schedule coordination of the fence removal with an archaeological monitor.

(B) Archaeological

Archaeological testing and recovery that is required within the Project ROW will be performed by ADOT prior to construction. After the completion of archaeological testing and recovery, additional areas may require archaeological monitoring. Design-Builder shall notify ADOT a minimum of five Business Days prior to the start of any ground disturbing activity requiring an archaeological monitor that will be provided by ADOT. Design-Builder may seek relief for any unknown cultural sites in accordance with DBA Section 8.03(C)(3) (Items Eligible for Design-Builder Requested Relief Events).

If previously unidentified cultural resources are encountered during construction of the Project, Design-Builder shall stop work immediately at that location, notify ADOT, and take all reasonable steps to secure the preservation of those resources. ADOT will make arrangements for proper treatment of those resources in coordination with the Community. Design-Builder shall not resume Construction Work at that location until given direction by ADOT.

If human remains or funerary objects are encountered during construction, Design-Builder shall cease all further disturbances and activities within 300 feet of the human remains or funerary objects and immediately notify ADOT and the ADOT Environmental Planning Historic Preservation Team ((480) 489-9256 or (480) 486-0049). Design-Builder shall not resume Construction Work at that location until given direction by ADOT.

(C) Cultural Resources

ADOT will fulfill the commitments made in the Final EA and *Section 106 Programmatic Agreement* for the known cultural resources. The *Section 106 Programmatic Agreement* is included in the RIDs. This will include any required data recovery. ADOT will notify Design-Builder of clearance of parcels with cultural resources in accordance with Section 118. Design-Builder shall manage unexpected cultural resources discoveries.

(D) Hazardous Materials

Design-Builder shall manage Hazardous Materials in accordance with TPA 117-1 (Environmental Commitments) and the Contract Documents. If suspected Hazardous Materials are encountered during construction-related activity, Design-Builder shall cease all further disturbances and activities at that location and notify ADOT to make arrangements for assessment, treatment, and disposal of the Hazardous Materials. Design-Builder shall comply with the protocols outlined in the EMP in the event of the discovery and substance disturbance of any materials containing lead-based paint or asbestos.

Design-Builder shall prepare a Lead-Based Paint and Asbestos Removal Plan that addresses removal of silver lead-based paint and asbestos stanchion pads on the Riggs Rd (structure #01148) and Goodyear Rd (structure #01149) bridges. Design-Builder shall submit the Lead-Based Paint and Asbestos Removal Plan to ADOT in accordance with

Table 117-4. The Lead-Based Paint and Asbestos Removal Plan must be approved by ADOT and implemented prior to any Construction Work associated with these structures.

Design-Builder shall prepare a National Emission Standard for Hazardous Air Pollutants (NESHAP) Notification for asbestos abatement outlined above or Work associated with modification of any bridge structures in the Project limits. Design-Builder shall submit the NESHAP Notification to ADOT in accordance with Table 117-4.

(E) Noise

Design-Builder shall prepare a Construction Noise Assessment Memo for specific noise sensitive areas identified in the ADOT-provided noise technical analysis that will include a description of the planned construction methods and operations, any basic measures that have been identified to reduce construction noise impacts, and a process to address public comments during construction. Design-Builder shall submit the Construction Noise Assessment Memo to ADOT in accordance with Table 117-4.

(F) Biological Resources

Design-Builder shall adhere to the biological requirements in accordance with TPA 117-1 (Environmental Commitments). Design-Builder shall employ a Qualified Biologist in accordance with Section 110.03(C), prior to any survey, monitoring, or other biology related work.

Design-Builder's Qualified Biologist shall conduct a migratory bird nest search of all vegetation within 10 Business Days prior to clearing, grubbing, or tree/limb removal if the vegetation removal will occur between March 1 and August 31 of any year throughout the duration of the DBA. If Design-Builder finds active nests or nestlings, Design-Builder shall flag the area for avoidance and determine a strategy to avoid disturbance and allow the nestlings to fledge from the nest. If Design-Builder surveys the vegetation and no active bird nests are present, then Design-Builder may remove the vegetation. If Design-Builder cannot avoid active bird nests, then Design-Builder shall notify ADOT to evaluate the situation. During the nonbreeding season (September 1 to February 28), vegetation removal is not subject to this restriction.

Design-Builder shall design box culverts to promote wildlife crossing by mammals, tortoises, amphibians, and reptiles. These designs shall:

- (1) Include natural substrate bottom;
- (2) Not include drop-offs greater than four inches such as may be caused by erosion on downstream side of a concrete-bottom drainage structure or stepped elevation within a structure;
- (3) Not include rip rap blocking access to the structure; Design-Builder shall grout or bury and maintain rip rap so that it does not block tortoises from entering the structure; and
- (4) Use materials that are not toxic to aquatic life and are not prone to erosion.

Design-Builder shall comply with the requirements in Section 800.02 for native plant inventory and salvage.

Design-Builder's Qualified Biologist shall inspect all underpass bridges that will be affected by construction to address day or night roosting bats. If bats are present, Design-Builder shall develop mitigation measures to avoid impacts on bats during construction.

If Design-Builder encounters any Sonoran Desert tortoises during construction, Design-Builder shall:

- (1) Adhere to the Arizona Game and Fish Department *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects*, 2014; and
- (2) Notify ADOT within 12 hours to report the encounter.

Design-Builder shall adhere to the Arizona Department of Transportation Environmental Planning “*Western Burrowing Owl Awareness*” flier. If any burrowing owls or active burrows are identified, Design-Builder shall:

- (1) Notify ADOT immediately;
- (2) Cease construction activities within 100 feet of any active burrow; and
- (3) Employ a qualified biologist holding a U.S. Fish and Wildlife Service permit to relocate burrowing owls from the Project area if it is determined that burrowing owls cannot be avoided.

Any relocation of burrowing owls found on Community Lands shall be coordinated through the Community’s Department of Environmental Quality to identify an appropriate location for relocation.

(G) Waters of the United States

An *Approved Jurisdictional Determination* has been signed by the USACE and determined that no Waters of the United States occur within the Project limits. Design-Builder is not required to address Section 404 of the Clean Water Act for work within the Project limits.

117.05 Submittals

Table 117-4 reflects a list of Submittals identified in this Section 117 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 117-4: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>EMP</u>	2	Prior to issuance of NTP 2	117.02(C)
2.	<u>EMP Update</u>	2	Annually or promptly if revisions to the <u>EMP</u> are needed before the annual update	117.02(C)
3.	<u>Hazardous Materials Management Plan</u>	2	Prior to construction activities	117.02(C)
4.	<u>Environmental Monitoring Reports</u>	3	Monthly	117.02(D)
5.	<u>Cultural Sensitivity Orientation Staffing Schedule</u>	4	By the 15th of every month a new employee is starting	117.02(G)
6.	<u>Governmental Approval Package</u> ^B	1	As determined by Design-Builder	117.03(A)
7.	<u>Applications for Governmental Approvals in ADOT’s Name</u> ^B	2	As determined by Design-Builder	117.03(B)(1)
8.	<u>Applications for Community Approvals in ADOT’s Name</u>	2	As determined by Design-Builder	117.03(B)(2)
9.	<u>Applications for BIA Approvals in ADOT’s Name</u>	2	As determined by Design-Builder	117.03(B)(3)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
10.	<u>Applications for Governmental Approvals in Design-Builder's Name</u> ^B	4	Prior to submittal to the Governmental Entity	117.03(B)(4)
11.	<u>Applications for Community Approvals in Design-Builder's Name</u>	4 1*	Prior to submittal to the Community	117.03(B)(5)
12.	<u>Applications for BIA Approvals in Design-Builder's Name</u>	4	Prior to submittal to the BIA	117.03(B)(6)
13.	<u>Lead-Based Paint and Asbestos Removal Plan</u>	2	As determined by Design-Builder	117.04(D)
14.	<u>NESHAP Notification</u>	2	As determined by Design-Builder	117.04(D)
15.	<u>Construction Noise Assessment Memo(s)</u>	2	Prior to Work in adjacent to identified noise sensitive areas	117.04(E)
<p><u>Notes:</u></p> <p>*Level of review of the Community</p> <p>A. Levels of Review</p> <ol style="list-style-type: none"> 1. Sole discretion or absolute discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required, ADOT will coordinate review.</p>				

118 Right-of-Way**118.01 General Requirements**

Design-Builder shall perform all Work related to ROW in compliance with the requirements of this Section 118.

118.02 Administrative Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all ROW Work in accordance with the standards, manuals, and guidelines listed in Table 118-1.

Table 118-1: Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Right of Way Procedures Manual
2.	State of Arizona	Arizona Boundary Survey Minimum Standards

118.03 Project ROW**(A) General**

The Project ROW consists of the Schematic ROW.

Design-Builder shall notify ADOT a minimum of 48 hours prior to any initial Work on Project ROW and as required by any permit or agreement.

(B) Schematic ROW

The Schematic ROW will be established by the following ADOT Right-of-Way Projects:

- (1) 010 MA 161 F0252 (SR 202L to the County Line); and
- (2) 010 PN 176 F0336 (County Line to Dirk Lay Rd).

The New ROW for the Project are those real property interests of the Community/Bureau of Indian Affairs (BIA) as identified in TPA 118-1 (Acquisition and Relocation Status Report). The Schematic ROW, minus the Community encroachment permits for the crossroads, is shown in the existing and new ROW CADD files included in the RIDs. The Schematic ROW includes properties on Community Land that must be acquired to construct the Project as identified in the NEPA Approval, but does not include all property needed for Utility Adjustments, drainage corridors, or Temporary Work Areas. TPA 118-1 (Acquisition and Relocation Status Report) identifies, for each parcel of the Schematic ROW, the anticipated date by which a right of entry in favor of ADOT and Design-Builder will be obtained. ADOT has no obligation to provide Design-Builder access to those parcels before the respective dates set forth in TPA 118-1 (Acquisition and Relocation Status Report). Design-Builder shall not access the Schematic ROW or any new easements until ADOT provides notification to Design-Builder that a right of entry has been obtained. Design-Builder shall not enter into any negotiations for purchase of or possess any interest in parcels identified as the Schematic ROW.

The approval of Community Land usage requires consent of the Gila River Indian tribal council and the issuance of a *Grant of Easement* from BIA.

All such acquisitions are to be in accordance with the Code of Federal Regulations (25 CFR 169) and amended 25 CFR 169, November 19, 2015, effective March 21, 2016.

The New ROW on the Project will be obtained through a *Grant of Easement* with the BIA.

(1) Access and Physical Possession

ADOT will provide Design-Builder with those real property interests of the Schematic ROW indicated in TPA 118-1 (*Acquisition and Relocation Status Report*) vacant of legal occupants, with the exception of Utility Companies and ADOT will provide Design-Builder the Schematic ROW with necessary legal possessory rights secured to construct permanent improvements for the Project.

Right of possession of all Project ROW and the improvements made thereon by Design-Builder will remain at all times with ADOT. Design-Builder's right of entry and use of the site arises solely from permission granted by ADOT under the Contract Documents.

ADOT will provide a status when material changes have occurred in the acquisition for those real property interests of the Schematic ROW indicated in TPA 118-1 (*Acquisition and Relocation Status Report*) until all such real property interests have been acquired. ADOT will notify Design-Builder once each real property interest is acquired and will include any access restrictions that may be applicable.

(C) Temporary Work Areas

(1) General

Design-Builder is advised that all requirements of the Final EA are based upon the Schematic ROW and the *Section 106 Area of Potential Effect (APE)* established by the Schematic Design. These requirements are rigid and must be adhered to in the design and construction of this Project. Design-Builder is responsible for any re-evaluation of the Final EA, schedule implications, and costs related to Temporary Work Area acquisitions, unless otherwise provided for in the Contract Documents.

Any Temporary Work Areas outside the Schematic ROW shall be the responsibility of Design-Builder in accordance with DBA Section 11.04(B) (*Temporary Work Areas*) and the ADOT ROW acquisition process, the requirements of which are contained in the Uniform Act and the standards, manuals, and guidelines referenced in Table 118-1. Design-Builder shall be responsible for any further re-evaluation of the Final EA and resulting schedule implications for any Temporary Work Areas beyond those previously assessed in the Final EA.

(2) ADOT Responsibilities

ADOT is responsible for providing mapping, and all necessary documentation to acquire rights in order to construct the Project.

(3) Design-Builder Responsibilities

Design-Builder is responsible for keeping their staff from trespassing onto private property where rights have not been granted. Design-Builder shall follow all federal, State and local Laws and procedures.

118.04 Encroachment Permits

(A) General

The provisions of this Section 118.04 and DBA Section 11.06 (*Encroachment Permits*) shall govern such third-party applications.

(B) ADOT Encroachment Permits

(1) ADOT Encroachment Permits for Utility Adjustments

An ADOT encroachment permit is required for each Utility that will be installed, adjusted, or abandoned in the Project ROW. For all Design-Builder designed and constructed Utility Adjustments, Design-Builder shall coordinate with the Utility Companies and ADOT to secure an ADOT encroachment permit. Such ADOT encroachment permit

must be in place prior to commencing any construction within the Project ROW. An ADOT encroachment permit is also required for any existing Utility that is to remain in the Project ROW that does not have an ADOT encroachment permit.

The Utility Company must file the ADOT encroachment permit application through ADOT's Project-specific web-based project management information system for review and approval. Prior Rights information must be included with each application. See the ADOT website (<http://azdot.gov/business/Permits/encroachment-permits>) for more information regarding encroachment permits.

Design-Builder shall prepare and maintain a Utility Permit Matrix that includes the following for existing and new Utilities:

- (a) Utility Owner;
- (b) Location;
- (c) Disposition (e.g., new installation; adjustment; protect in place; abandonment);
- (d) Date of Permit Application;
- (e) Date of Permit Issuance; and
- (f) Date of Permit Expiration.

Design-Builder shall submit the Utility Permit Matrix to ADOT in accordance with Table 118-2.

(2) Design-Builder Assistance to ADOT

It is anticipated that during the Work, third parties will apply to ADOT for encroachment permits and other agreements, including Utility permits and approvals to access ADOT ROW to install new Utilities or that would cross or longitudinally occupy the ADOT ROW, or to modify, upgrade, relocate or expand existing Utilities within the ADOT ROW for reasons other than to accommodate the Project or for any other reason. Design-Builder shall review and mitigate any conflicts and schedule impacts with the third party or ADOT to allow for such ADOT encroachment permits to be granted. If any conflicts occur as a result of such permit request Design-Builder must immediately notify ADOT. Such applications shall be governed by DBA Section 11.06 (Encroachment Permits) and this Section 118.04.

Design-Builder shall assist ADOT in deciding whether to approve an encroachment permit or other agreement or approval applied for by a third party. Design-Builder shall analyze the application for a permit or other agreement or approval and prepare an Encroachment Permit Review Package that includes a recommendation, together with supporting analysis as to whether it should be approved, denied, or approved subject to conditions. Design-Builder shall limit the grounds for its recommendation of denial or conditions to approval to:

- (a) The grounds (as ADOT communicates to Design-Builder from time to time) on which ADOT is legally entitled to deny or condition approval of the application, or
- (b) The extent that approval would result in a delay to the Critical Path.

Design-Builder shall submit the Encroachment Permit Review Package to ADOT in accordance with Table 118-2.

(3) Encroachment Permit Conditions

To the extent permitted by Law, ADOT will impose conditions on any approved permit or other agreement or approval:

- (a) Prohibiting the third party from interfering with Design-Builder's schedule for the Work in the Project Schedule or Design-Builder's performance of the Work;

- (b) Requiring the third party to compensate Design-Builder for the adverse impact to Design-Builder of any prohibited interference;
- (c) Requiring the third party and its contractors to cooperate and coordinate with Design-Builder and its Subcontractors; and
- (d) Requiring the third party to adhere to Design-Builder's safety standards and procedures whenever the third party or its subcontractors are in any active work zone of Design-Builder or its Subcontractors.

(4) Design-Builder Recommendation

If Design-Builder recommends denial of the permit on the ground that issuance thereof and design and construction of the subject Utility or other item would result in a delay to the Critical Path, and ADOT issues the permit, Design-Builder may seek relief for such issuance in accordance with DBA Section 8 (Changes to the Contract Documents), provided that Design-Builder establishes that all other requirements for issuance of an ADOT-Directed Change are met.

(C) Right of Entry Notification on Community Land

Design-Builder shall prepare and submit a Right of Entry Notification to the Community through ADOT which must document the Work being performed on Community Land, including the labor, and equipment of each Design-Builder Related Entity involved in the Work. Design-Builder must update this Right of Entry Notification as needed throughout the Term. Design-Builder shall submit the Right of Entry Notification to ADOT in accordance with Table 118-2.

(D) Community Encroachment Permit

Prior to performing Work beyond the limits of the New ROW or Existing ROW on the Wild Horse Pass Blvd/Sundust Rd crossroads, including areas of approach roadways required for traffic control or other Technical Provision requirements, Design-Builder shall obtain a Community Encroachment Permit. The Community Encroachment Permit application shall include RFC Plans for all Construction Work to be performed beyond the limits of the New ROW or Existing ROW, including Plans for all removals, roadway, drainage, signing, pavement marking, landscape, all aesthetic plans, MOT and Traffic Control plans, including all signing and traffic control in advance of the Work areas. The Community Encroachment Permit must be one package inclusive of all the required RFC Plans and Traffic Control Plans. All RFC Plans for the Community Encroachment Permit application, including traffic control plans, must be sealed (in accordance with Community Encroachment Permit requirements). Design-Builder shall submit the Community Encroachment Permit to ADOT in accordance with Table 118-2.

(E) MCDOT Encroachment Permit

Prior to performing Work beyond the limits of the New ROW or Existing ROW on Queen Creek Rd and Riggs Rd, including areas of approach roadways required for traffic control or other Technical Provision requirements, Design-Builder shall obtain a MCDOT Encroachment Permit. The MCDOT Encroachment Permit application must include RFC Plans for all Construction Work to be performed beyond the limits of the New ROW or Existing ROW, including Plans for all removals, roadway, drainage, signing, pavement marking, landscape, MOT and Traffic Control plans, including all signing and traffic control in advance of the Work areas. Additional information regarding the MCDOT Encroachment Permit requirements can be found here: <https://www.maricopa.gov/499/Permits>. Design-Builder shall submit the MCDOT Encroachment Permit to ADOT in accordance with Table 118-2.

(F) BIA Encroachment Permit

Prior to performing any Work beyond the limits of the Existing ROW on Goodyear Rd, including areas of approach roadways required for traffic control or other Technical Provision requirements, Design-Builder shall obtain a BIA Encroachment Permit. The BIA Encroachment Permit application must include RFC Plans and/or Sealed Traffic Control Plans for all Construction Work to be performed beyond the limits of the Existing ROW. Additional

information regarding the BIA Encroachment Permit requirements can be found in the RIDs. Design-Builder shall submit the BIA Encroachment Permit to ADOT in accordance with Table 118-2.

(G) Other Encroachment Permits

Prior to commencing construction of any Design-Builder designed Utility Adjustments within the ROW of the applicable Governmental Entity, Design-Builder shall cause the Utility Company to obtain the associated Governmental Entity's encroachment permit. Design-Builder shall submit a copy the Governmental Entity Encroachment Permit for the Utility to ADOT in accordance with Table 118-2. Additionally, prior to performing Work within the jurisdictional limits of any Governmental Entity Design-Builder shall obtain an encroachment permit from the respective entity. Design-Builder shall submit the Governmental Entity Encroachment Permit to ADOT in accordance with Table 118-2.

118.05 Project ROW Markings

Design-Builder shall be responsible for establishing the existing ROW when new construction or construction activities are adjacent to the ROW. Design-Builder shall mark the Project ROW limits in accordance with the *Arizona Boundary Survey Minimum Standards*. Design-Builder shall coordinate this activity with ADOT sufficiently in advance of any construction activities.

118.06 Easement Restoration

Design-Builder shall restore any disturbed property within an easement to the condition at the time of occupancy by Design-Builder, unless specifically noted in TPA 118-1 (*Acquisition and Relocation Status Report*).

118.07 Submittals

Table 118-2 reflects a list of Submittals identified in this Section 118 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 118-2: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Utility Permit Matrix</u>	4	Prior to submitting any Utility permits	118.04(B)(1)
2.	<u>Encroachment Permit Review Package</u>	4	Not later than 10 Business Days of receipt of the encroachment permit request	118.04(B)(2)
3.	<u>Right of Entry Notification</u>	3	Prior to when a Design-Builder Related Entity is scheduled to perform Work on Community Land	118.04(C)
4.	<u>Community Encroachment Permit</u> ^B	2	After RFC and as needed to receive permit in time to meet Design-Builder's schedule	118.04(D)
5.	<u>MCDOT Encroachment Permit</u>	4	After RFC and as needed to receive permit in time to meet Design-Builder's schedule	118.04(E)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
6.	<u>BIA Encroachment Permit</u>	2	After RFC and as needed to receive permit in time to meet Design-Builder's schedule	118.04(F)
7.	<u>Governmental Entity Encroachment Permit</u>	4	Prior to performing Work within the jurisdictional limits of a Governmental Entity	118.04(G)
8.	<u>Governmental Entity Encroachment Permit for the Utility</u>	4	Prior to performing Work within the jurisdictional limits of a Governmental Entity	118.04(G)

Notes:**A. Levels of Review**

1. Sole discretion or absolute discretion approval (DBA Section 3.01(B)(1))
2. Good faith discretion approval (DBA Section 3.01(B)(2))
3. Review and comment (DBA Section 3.01(B)(3))
4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))

B. Community review required, ADOT will coordinate review.

119 Utilities**119.01 General Requirements**

Design-Builder shall perform all Work related to Utilities in compliance with the requirements of this Section 119. Any Governmental Entity facilities under this Section 119.01 are considered Utilities. ADOT traffic signals, ADOT street lighting, and ADOT ITS and freeway management systems are not considered "Utilities" to be adjusted under this Section 119.

(A) Design-Builder Responsibilities for Utility Company Encroachment Permits

For all Utility Company encroachment permits described in DBA Section 11.06 (Encroachment Permits) and pending as of or submitted after the Effective Date, Design-Builder shall:

- (1) Furnish to the applicants the most recent pertinent Project design information or Record Drawings, as applicable;
- (2) Assist the applicants with information regarding the location of other proposed and existing Utilities; and
- (3) Use commercially reasonable efforts to coordinate work schedules with the applicants so that the applicants' activities do not interfere with the Project Schedule. Design-Builder shall keep records of its costs related to new Utilities separate from other costs.

119.02 Administrative Requirements**(A) Design-Builder Qualifications for Water/Sewer Lines**

Design-Builder shall ensure that any personnel of either Design-Builder or a Subcontractor assigned to perform any Work on water or sewer lines has experience doing work for and are familiar with the requirements of the water/sewer owner/operator.

(B) Sewage Discharge Prevention Plan

For any Work which may impact active sanitary sewer pipes, whether new or existing, Design-Builder shall prepare a Sewage Discharge Prevention Plan (SDPP) which shall describe Design-Builder's procedures and Work plan for such lines. The SDPP shall also describe the precautions that Design-Builder shall take to prevent unplanned breakage or spills, and the procedure which Design-Builder shall follow if breakage or a spill occurs.

Design-Builder's method of Work described in the SDPP shall ensure that any Work done in or near any active sewer line is performed in a safe and controlled manner resulting in no accidental discharges. As a minimum, Design-Builder's equipment and procedures shall be appropriate for the intended Work, and shall conform to standard industry practices.

The SDPP shall include information, as specified below, for all portions of the Project which involve the following Work activities, and for any other element of Work which may involve contact with an active sanitary sewer line:

- (1) Interrupt, divert, relocate, plug, or abandon a sewer line or service connection, or
- (2) Brace, or tie into a sewer line or service connection.

Construction Work in the vicinity of active sanitary sewer lines or service connections shall also be included in the SDPP if any of the following conditions exist:

- (1) Any Work crossing beneath the pipe, at any angle, regardless of vertical separation.
- (2) Any Work crossing over the pipe, at any angle, within two feet of the top of pipe.

(3) Work located parallel to the pipe within the following areas:

(a) For the area from the bottom of the pipe to two feet above the top of the pipe, any work within two feet horizontally of the pipe wall.

(b) For the area below the bottom of the pipe, any work located below an imaginary line beginning at the pipe springline and progressing downward at a slope of 1.5 feet vertically to 1.0 feet horizontally.

(4) Any Work in the vicinity of a sewer manhole.

Design-Builder's SDPP shall address each of the items tabulated below, as applicable, for every location where construction activity will involve an active sanitary sewer line.

(1) Required Elements of the Sewage Discharge Prevention Plan

The following elements shall be addressed in the SDPP:

(a) Describe the proposed Work in general, including the reasons for the Work, scope, objectives, locations, dates, and estimated times the work will be conducted. Include Plans detailing the proposed Work, and indicating the peak flow rates of active sewer lines, determined as specified.

(b) For all existing sanitary sewer pipes, determine whether the lines are active or abandoned, and the peak flow rates of lines in service, as provided by the owner of the Utility.

(c) List the key personnel (crew foreman, superintendent, and manager) and field office that are proposed to perform the work (include phone numbers).

(d) Describe the Work in step-by-step detail for each location, including excavation plans and how both the new and existing structures and Utilities will be identified and protected.

(e) Provide a detailed listing of any hardware, fittings, pipe plugs, flex couplings, tools, and materials needed to accomplish the work, and note the status of these items (on-hand, to-be-fabricated, on-order with expected delivery date, etc.). Include any manufacturer's specifications or recommendations, especially for any pipe plugs, sewer line fittings, and patching materials.

(f) List all major equipment to be used to perform the Work. Include in this item any pumps that will be used to perform the Work and the rated capacity of the pumps at the anticipated suction head.

(g) List all equipment to be used in the event of an unplanned release and specify how the equipment will be used. The locations of standby pumps shall be specified in this item. The plan shall indicate that all standby equipment to be used in the event of an unplanned discharge can be delivered to the site and put into service within two hours of identification of any unplanned flow.

(h) List the safety equipment to be used, and describe any unique safety procedures. Cite the applicable OSHA standards covering the Work.

(i) Describe any contingency plans Design-Builder will implement in the event of unplanned releases and/or damage to existing facilities. List all personnel and Subcontractors that will be responsible for responding to unplanned releases or

damaged lines. Provide qualifications for all such personnel and Subcontractors, including education, formal training, and relevant experience.

(j) Describe how the public will be protected during the Work, and include or cite any applicable TCPs.

(k) Describe the QC procedures that will be used in the field.

(l) Discuss how temporary plugs or flow control devices will be secured, monitored, and removed.

The SDPP shall be in written form, and shall include any diagrams or sketches necessary for clarity. When possible, diagrams and sketches should be shown using the applicable Plans for the Project.

(2) Sewage Discharge Prevention Plan Approval

Design-Builder shall submit the SDPP to ADOT in accordance with Table 119-4. Design-Builder shall modify the SDPP as necessary throughout the duration of the DBA to include any new or revised information relevant to the items listed in Section 119.02(B)(1). Design-Builder shall submit the SDPP Update to ADOT in accordance with Table 119-4.

Approval of the SDPP, personnel, or construction methods and operation shall not relieve Design-Builder from its responsibility to safely perform the Work, nor from its liability for damage resulting, either directly or indirectly, from its performance of the Work.

(C) Utility Coordination

(1) Utility Coordination Plan

Design-Builder shall prepare a Utility Coordination Plan that includes the following information:

(a) Description of the Utility Adjustment Coordinator's staff, their roles, and responsibilities;

(b) Description of the procedures and schedule for contacting Utility Companies;

(c) Description of the documentation of all Work with the Utility Companies;

(d) Description of the process of coordinating Design Work performed by Design-Builder and Utility Adjustment Work with Utility Companies;

(e) Description of the process of coordinating and managing the execution of encroachment permits;

(f) Description of the process of coordinating Construction Work and Utility Adjustment Work with Utility Companies;

(g) Description of the process to track Utility Design and Construction schedules by utility conflict;

(h) Description of the mitigation and escalation plan for any schedule slippage;

(i) Appendix:

(i) Utility coordination staff organizational chart;

(ii) Utility contact list;

(iii) Utility coordination flow chart;

(iv) Utility coordination check list; and

- (v) Utility design and construction schedule with CPM Activity, including Predecessors, Successors, and Float for each Utility Company and each conflict.

(j) Utility Conflict Matrix (See Section 119.02(C)(2))

Design-Builder shall submit the Utility Coordination Plan to ADOT in accordance with Table 119-4. Design-Builder shall update the Utility Coordination Plan for known conflicts every six months or as mutually agreed upon by Design-Builder and ADOT. Design-Builder shall submit the Utility Coordination Plan Update to ADOT in accordance with Table 119-4.

(2) Utility Conflict Matrix

Design-Builder shall prepare, update, and maintain a Utility Conflict Matrix that includes:

- (a) Conflict ID number;
- (b) Approximate freeway station and offset;
- (c) Facility owner;
- (d) Utility description;
- (e) Prior rights (Yes/No);
- (f) Disposition description;
- (g) Relocation Plans submittal dates (60%, 90%, and Final);
- (h) Utility Agreement (Yes/No/Executed);
- (i) Approved permits (ADOT, City of Phoenix, Maricopa County Environmental Services Department, SRP, MCDOT, the Community);
- (j) Construction start and completion (plan/actual);
- (k) Conflict on Critical Path (Yes/No);
- (l) Utility acceptance;
- (m) Record Drawings received date; and
- (n) Progress update and meeting summary.

Design-Builder shall include the current Utility Conflict Matrix in each submission of the Utility Coordination Plan. Design-Builder shall submit the Utility Conflict Matrix to ADOT in accordance with Table 119-4.

(3) Utility Company Correspondence

Design-Builder shall maintain Utility Company Correspondence that includes documentation of contact and discussions with Utility Companies, including all correspondence between Design-Builder's Utility Adjustment Coordinator, their staff, and any Utility Company. Design-Builder shall submit the Utility Company Correspondence to ADOT in accordance with Table 119-4.

(D) ADOT-Provided Information

Information on existing Utilities located within the Project limits are shown on the Utility Mapping Investigation Plans provided with the RIDs. The information may not show all existing Utilities and/or the current state of the existing Utilities. Design-Builder shall also coordinate with City of Phoenix, City of Chandler, the Community, ADOT Central District and Maintenance Permit Section to determine if any new utility installations have been permitted.

An existing Utility CADD file and inventory matrix was developed for the Project. The Utility inventory matrix, Utility CADD file, and any maps provided by the Utility Companies are included in the RIDs.

ADOT has conducted a *Subsurface Utility Engineering* quality level B investigation and the associated *Subsurface Utility Engineering Utility Mapping Investigation Plans* and CADD file are included in the RIDs. ADOT has also conducted testhole investigations at selected locations and the associated *Testhole Data Summary and Reports* are included in the RIDs. Design-Builder may rely on the information provided in the *Subsurface Utility Engineering Utility Mapping Investigation Plans* and *Testhole Data Summary and Reports* to design Utility Adjustments.

(E) Procedures and Agreements

(1) Prior Rights Determination

Utility Companies affected by the Project may claim that they have prior rights to real property that entitles them to compensation before ADOT and Design-Builder may encroach or make use of such property. ADOT will approve or disapprove of any prior right claims. Preliminary prior rights determinations are included in TPA 119-1 (Prior Rights Document Index).

Should any Utility Company claim prior rights throughout the duration of the DBA, Design-Builder shall obtain the Prior Rights Documentation from the Utility Company and prepare an Initial Prior Rights Determination to ADOT. The Initial Prior Rights Determination must include the following information:

- (a) Date;
- (b) Project name;
- (c) Project number and TRACS Number;
- (d) Utility Company claiming prior rights;
- (e) Description of the conflict and proposed relocation;
- (f) Utility Company's basis of prior right claim (e.g., easement, Utility agreement). Documentation shall be included as an attachment to the Initial Prior Rights Determination;
- (g) Design-Builder shall verify that the Prior Rights Documentation submitted by the Utility Company represents the areas of the Project where the Utility Adjustments are anticipated;
- (h) An exhibit depicting the plan view location of the existing Utility, proposed improvements, conflict, ROW, and easement information; and
- (i) Signature page for ADOT and the Utility.

Design-Builder shall submit the Initial Prior Rights Determination to ADOT in accordance with Table 119-4. ADOT will make the final determination of whether a Utility Company has prior rights to a facility or section of facility. Design-Builder shall coordinate with the Utility Companies to continue to resolve the potential Utility conflicts pending the prior rights determination.

(2) Utility Agreements

If a Utility Company has proper Prior Rights Documentation in connection with a Utility Adjustment, ADOT will execute a separate Utility Agreement between ADOT and the Utility Company for the sole purpose of indicating its consent to the Utility Company's prior rights. ADOT will be responsible for negotiating and entering into Utility Agreements with Utility Companies when the Utility Company is responsible for completing the Utility Adjustment. ADOT will be responsible for negotiating and entering into Utility Agreements for all Community-owned Utility

Adjustments. ADOT will obtain such Utility Agreements and provide Design-Builder with a copy within three Days of execution.

Design-Builder is responsible for preparing, negotiating, and entering into Utility Agreements with Utility Companies when Design-Builder performs the Utility Adjustment Work, except for Utility Adjustment Work that is identified as protect in place in the Utility Conflict Matrix. For Community owned Utilities that require a Utility Agreement, Design-Builder is responsible for preparing instruction-specific, construction-detailed Draft Community Owned Utilities Utility Agreements for ADOT's review and approval and use to negotiate and secure such Utility Agreement.

Each Utility Agreement must set forth all required terms and conditions for the subject Utility Adjustment Work, including:

- (a) A clear description and specification of the scope of Utility Adjustment Work Design-Builder is to perform, and the scope the Utility Company is to perform;
- (b) The applicable Utility conflict map;
- (c) A schedule for the Utility Adjustment Work, or procedures for preparing and implementing such schedule;
- (d) The applicable Utility Adjustment standards and any terms and conditions regarding any change in Utility Adjustment standards;
- (e) Provisions for payments, payment terms, controlling specifications, and Work description;
- (f) Security that Design-Builder will provide to the Utility Company for reimbursement of the Utility Adjustment costs to which the Utility Company is entitled;
- (g) Provisions for liability insurance that Design-Builder shall provide for the Utility Company to protect the Utility Company in connection with Design-Builder's performance of Utility Adjustment Work;
- (h) Any Utility permits that may then exist with respect to the construction and relocation of the subject Utility;
- (i) Specific procedures for resolving scheduling, design, construction, and payment issues arising due to errors or omissions in information the Utility Company provides to Design-Builder or other disputes between Design-Builder and the Utility Company; and
- (j) Terms and provisions regarding Betterments, if any.

A sample ADOT Utility Agreement format is included in the RIDs. ADOT will not be a party to Utility Agreements between Design-Builder and a non-Community owned Utility, except as identified herein. Design-Builder shall submit the original Utility Agreements for Design-Builder performed Utility Adjustments to ADOT in accordance with Table 119-4. Design-Builder shall submit the Draft Community Owned Utilities Utility Agreements to ADOT in accordance with Table 119-4.

(3) Utility Clearance Letters

Design-Builder shall prepare a Design-Builder Utility Clearance Letter for each RFC Submittal, except for aesthetic Submittals as approved by ADOT.

Design-Builder Utility Clearance Letters for each RFC Submittal must include the following:

- (a) Each Utility Company with facilities within the limits of the RFC Submittal listed separately, showing the name of the Utility Company and contact information;
- (b) For each of the Utility Company a description of each Utility within the RFC Submittal and one of the following conditions identified:
 - (i) The Utility is not in conflict with construction if a Utility is present, but does not need to be the subject of a Utility Adjustment; or a Utility is present, and it needs to be avoided or protected in place;
 - (ii) The Utility is in conflict and a Utility Adjustment is needed. The Utility Adjustment must be identified as a Utility Adjustment to be completed by Design-Builder, or the Utility Adjustment to be completed by the Utility Company. Utility Adjustments must include estimated completion date or number of working Days tied to another Milestone;
- (c) Statement of confirmation that all Utilities within the RFC Submittal have been identified and all conflicts have been mitigated; and
- (d) Signatures of certification by the Design Manager, Construction Manager, and Utility Adjustment Coordinator.

Design-Builder shall submit Design-Builder Utility Clearance Letters, along with copies of correspondence from Utility Companies verifying the information contained in the letter is accurate or communications regarding the Utilities included in the RFC Submittal as available, to ADOT in accordance with Table 119-4.

Design-Builder shall prepare Final Utility Clearance Closeout Letters for each Project Segment indicating that all needed Utility Adjustments have been completed and all Utility conflicts have been addressed. Final Utility Clearance Closeout Letters must include permit numbers for any ADOT issued permits related to Utility Adjustment Work done within the Project Segment. Design-Builder shall submit a Final Utility Clearance Closeout Letters to ADOT in accordance with Table 119-4.

Design-Builder shall prepare a Project Final Utility Clearance Closeout Letter. The Project Final Utility Clearance Closeout Letter must list each Utility Company separately, showing:

- (a) The name of the Utility Company;
- (b) The nature of required Utility Adjustment, if any;
- (c) Date of completed Utility Adjustment;
- (d) Record Drawings including x, y, and z coordinates (RFC Submittal if Record Drawings are not available);
- (e) Permit number(s); and
- (f) Project related abandonments.

Design-Builder shall submit a Project Final Utility Clearance Closeout Letter to ADOT in accordance with Table 119-4.

119.03 Design Requirements**(A) Standards, Manuals, and Guidelines**

Design-BUILDER perform all Design Work related to Utilities in accordance with the standards, manuals, and guidelines listed in Table 119-1.

Table 119-1: Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Guideline for Accommodating Utilities on Highway Rights-of-Way
2.	ADOT	Encroachment Permit (http://azdot.gov/business/permits/encroachment-permits)
3.	Varies	Utility Company Standards
4.	ADOT	ADOT Utility Coordination Guide for Design Consultants
5.	ADOT	Standard Specifications for Road and Bridge Construction
6.	MAG	MAG Specifications for Public Works Construction.
7.	ASCE	American Society of Civil Engineers Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data
8.	SRP	Salt River Project Electric Service Specifications (2017 Edition).
9.	SRP	Salt River Project Underground Distribution Construction Standards (2023 edition)

Design-BUILDER shall perform the design of Utility Adjustment Work in accordance with the applicable Utility Company's standards, 23 CFR 645 for Utilities, and the Contract Documents.

Design-BUILDER shall design Utility Adjustments in accordance with the applicable Utility Company's and Governmental Entity's standards, manuals, guidelines, and the Contract Documents.

(B) General Design Requirements

It shall be the responsibility of Design-BUILDER to identify all Utility conflicts and coordinate mitigations and/or relocations with the affected Utilities. Design-BUILDER shall make good faith effort to design the Project to minimize impacts to all Utilities.

Prior to permit application, Design-BUILDER shall obtain Utility Company approval of Utility Adjustment Plans prepared by Design-BUILDER. Design-BUILDER shall include Utility Adjustment Plans approved by the Utility Company to ADOT as part of the Utility Report(s). In addition to the permit process, Design-BUILDER shall process Utility Adjustment Plans in accordance with Section 113.03(A). For Utility design completed by the Utility Company, Design-BUILDER shall review and approve such plans and confirm Utility Company plans do not conflict with the Work prior to submitting permit application.

(C) Utility Identification

Design-BUILDER 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 and the contact person and contact information as of the Setting Date is included in Table 119-2.

1

Table 119-2: Utility Contacts

No.	Company Name	Contact Person	Email	Phone Number
1.	Arizona Public Service	Bobby Garza	baldemar.garza@aps.com	(602) 361-6840
2.	Arizona Dept. Of Transportation	Priscilla Thompson	pthompson@azdot.gov	(520) 221-0783
3.	Century Link/Lumen/ Level 3	Jason Jensen	jjensen@terratechllc.net	(801) 735-2464
4.	City of Chandler	Gina Ishida-Raybourn	gina.ishida-raybourn@chandleraz.gov	(480) 782-3584
5.	City of Phoenix Water Dept.	Jami Erickson	jami.erickson@phoenix.gov	(602) 261-8229
6.	El Paso Natural Gas	Steve Weatherhead Nick Amoroso	steve_weatherhead@kindermorgan.com nick_amoroso@kindermorgan.com	(520) 509-3265 (480) 254-3581
7.	Gila River Indian Community Utility Authority	Christopher Miller	cmiller@gricua.net	(602) 690-7701
8.	Gila River Telecommunications	Enez Jackson	ejackson@gilarivertel.com	(520) 769-8803 (520) 610-8890
9.	Gila River Indian Community Department of Public Works	Aaron Fred	Aaron.Fred.DPW@gric.nsn.us	(520) 610-5602
10.	Lone Butte Development Corp.	Jim Dean	jdean@lbidc.com	(520) 705-5965
11.	Maricopa County Dept. of Transportation	Efren Guevara	efren.guevara@maricopa.gov	(602) 506-8660 (602) 722-1907
12.	Salt River Project	Jason Hughes Jorge Garcia Curtis Chaney	jason.hughes@srpnet.com jorge.garcia@srpnet.com curtis.chaney@srpnet.com	(602) 236-0886 (602) 236-4609
13.	San Carlos Irrigation Project	Johnny Federico	juan.federico@bia.gov	(520) 560-1599
14.	SWG High Pressure	Mike McGovern	cazeastreviews@swgas.com	(602) 271-4277

It is the responsibility of Design-Builder to ensure that all Utilities within the Project limits have been designated and included in the CADD base file(s). Design-Builder is responsible for performing or causing to perform potholes as necessary to confirm Utility locations and conflicts. All Utility designation, including potholes, shall follow the *American Society of Civil Engineers Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data* (CI/ASCE 38-02). Design-Builder shall prepare a Pothole Report after performing potholing that includes all potholing information. Design-Builder shall submit Pothole Reports to ADOT in accordance with Table 119-4.

Design-Builder shall coordinate with Arizona 811 and ADOT will not be responsible for any delays or costs associated with Arizona 811 coordination.

(D) Utility Report

Design-Builder shall prepare Utility Reports for the Project that document the progress of the Utility coordination efforts. The Utility Report must include copies of all correspondence, including meeting minutes. The Utility Reports must include:

- (1) A narrative detailing the various Utility conflicts and resolutions;
- (2) Most current Utility Conflict Matrix;
- (3) CPM of utility relocations by location;
- (4) A list of all Utility Companies within the Project limits along with their contact person and contact information;
- (5) Identification of the quality of Utility information shown on the final RFC Submittal in accordance with ASCE 38-02;
- (6) All approved meeting minutes from any meetings held with Utility Companies for the period in which the report is being submitted;
- (7) Pothole data summary (spreadsheet);
- (8) Anticipated Utility Adjustment costs for Utility Adjustments determined to be prior rights as described in Section 119.02(E)(1);
- (9) Utility Agreement status summary (spreadsheet);
- (10) ROW needed for relocations;
- (11) Acquisition status (provided by ADOT);
- (12) Encroachment permit status summary (spreadsheet); and
- (13) A copy of all correspondence between Design-Builder and each Utility Company.

Design-Builder shall submit Utility Reports to ADOT in accordance with Table 119-4. The Final Utility Reports must be signed and sealed by a registered Professional Engineer. Design-Builder shall submit a Final Utility Report to ADOT in accordance with Table 119-4.

(E) Utility Adjustments

Design-Builder shall perform Utility Adjustments or ensure that the adjustments are made by the Utility Companies to accommodate the Project in accordance with Table 119-1, TPA 119-2 (*Project Specific Utility Specific Technical Provisions*), and the Contract Documents.

Design-Builder shall coordinate access requirements of the Utility Companies. Design-Builder shall provide for such access as may be requested by the Utilities and shall ensure that it is acceptable to ADOT. For Utilities that possess proper Prior Rights Documentation, Design-Builder shall design and construct any replacement access roads that may be displaced by the Project.

(F) Utility Service Connections

Design-Builder shall provide new Utility service connections as required for the Project, including for lighting, ITS, traffic signals, irrigation controllers, or other facilities in accordance with the Contract Documents. Design-Builder shall provide new Utility service connections in the vicinity of the Koli Rd TI. Nonmetered services are not known to exist within the Corridor; however, in the event a nonmetered service is discovered, Design-Builder shall also convert all existing nonmetered services to metered services. The conversions approved by ADOT will be considered additional work and will be compensated as an ADOT-Directed Change. Design-Builder shall also provide any

temporary service connections as may be needed during construction. Design-Builder 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 and Governmental Entity's requirements.

Design-Builder shall prepare Utility Service Request Letters to establish new services in accordance with the applicable ADOT and Utility Company standards. Utility Service Request Letters must include the service address or coordinates, in accordance with the Utility's requirements and information for the individual responsible for paying the Utility bill. Design-Builder shall submit Utility Service Request Letters to ADOT in accordance with Table 119-4. Design-Builder shall obtain and comply with all permit requirements for all Utility service establishment and disconnections needed for the Project.

Design-Builder shall remove any temporary Utility facilities no longer required prior to Substantial Completion. Design-Builder shall furnish the necessary trenching, conduit, 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, Design-Builder shall be responsible for the extension.

(G) Utility Plans

(1) Utility Adjustment Work by Design-Builder

Design-Builder shall prepare Utility Disposition Plans as separate Design Documents. The Utility Disposition Plans must include:

- (a) Cover Sheet – Keymap depicting segment limits and a table with contact information of existing Utilities within the segment. The contact table must include:
 - (i) Utility Company name;
 - (ii) Contact person name, e-mail, and phone number.
- (b) 50 Scale Plan Sheets – Plan sheets must include the entire Project where any Work is proposed and must include:
 - (i) All Utility location information provided by ADOT, the Utility Companies and obtained through Design-Builder's own research into the disposition of Utilities;
 - (ii) All existing and proposed Project features including Utilities. All existing utilities, Utility conflicts, new Utilities including services, pothole information, relocations, and dispositions must be noted. New, relocated, or abandoned Utilities must be noted as follows: Station, owner, size, material, installation, plan reference and permit number. See sample notes below:
 - A. Station XXXX+XX New 30-inch RGRCP SRP Irrigation Line Installed by Others - See SRP Project No. XYZ; ADOT Permit No. 123.
 - B. Station XXXX+XX New 24-inch DIP City of Phoenix Waterline Installed by Design-Builder – See RFC Package ABC; ADOT Permit No. 123.
 - C. Station XXXX+XX to Station XXXX+XX Existing six-inch Steel SWG Gas Line – Abandoned In Place; ADOT Permit No. 123.

Design-Builders shall submit the Utility Disposition Plans to ADOT in accordance with Table 119-4. Design-Builders shall update the Utility Disposition Plans per the Design Change requirements per Section 113.06(C), as Utility and other design elements change.

(2) Utility Adjustment Work by Utility Companies

Design-Builders shall coordinate and review the Utility Company's development of their Utility Adjustment Plans for all Utility Adjustment Work that the Utility Company is responsible for designing. Design-Builders shall review these plans during development for compliance with the Contract Documents and provide comments to the Utility Company as appropriate. The plan information must meet the standard of care necessary for the Utility Company to construct the Utility Adjustment in accordance with the Contract Documents.

(H) Utility Encasement

Design-Builders shall encase Utilities in accordance with the ADOT *Guideline for Accommodating Utilities on Highway Rights-of-Way*, unless otherwise specified in the Contract Documents. Encasements must extend a minimum of three feet beyond edge of pavement where no shoulder treatment exists or a minimum of one foot beyond back of curb, barrier, or wall footing. Where ramps are present, the encasements must be continuous and extend beyond the ramp(s).

Existing Utility crossings that are to remain must:

- (1) Comply with ADOT encasement requirements;
- (2) Be three feet below sub-grade of widened pavement; and
- (3) Comply with Utility Company minimum clearance requirements.

Utilities requiring encasement include sanitary sewer, non-ADOT irrigation, and other crossings as required by Utility Company requirements.

(I) GRICUA Casings

As part of the GRICUA JPA Work, Design-Builders shall design and construct casing pipes, conduit spacers and electrical conduit for future electrical crossings at the locations listed and in accordance with the Technical Provisions. The casing pipe material and installation procedures shall be in accordance with Standard 6-16-1 of the Salt River Project (SRP) *Underground Distribution Construction Standards* (2023 edition) (UCDS), unless otherwise specified in the Technical Provisions for this item. The design will be subject to review and comment by GRICUA. The casing shall be 36 inches in diameter. The casings shall be installed perpendicular to I-10 unless otherwise specified below and can be installed by trench and backfill, boring, or a combination of both. Design-Builders shall construct casings at the following I-10 stations and offsets:

- (1) 924+12 (Bk), 278 feet Lt to 553 feet Rt
- (2) 967+34, 365 feet Lt to 388 feet Rt
- (3) 1019+06, 525 feet Lt to 510 feet Rt
- (4) 1179+56: 1174+27, 813.6 feet Rt to 1184+27, 724.8 feet Lt (1835 feet, parallel to Riggs Rd Section Line)

Design-Builders shall design and construct the casing pipes utilizing one continuous slope and at a depth that provides a minimum of three feet separation below the bottom of roadway subgrade and the top of the casing. The depth must also provide a minimum of 54 inches to the top of the casing below the lowest point of final grade through the length of the casing installation. Within the casings, Design-Builders shall provide and install conduit spacers, Type UKBS for nine 3-inch Schedule 40 PVC electrical conduits in accordance with Standard 4-14-1 of SRP UCDS and Specification 11-47 of the SRP *Electric Service Specifications* (2017 Edition) (ESS). All reviews and approvals will be by

GRICUA. Design-Builder shall provide and install nine 3-inch Schedule 40 PVC electrical conduits through the casings and spacers, and these conduits must extend a minimum of ten feet beyond the limit of the ends of the casings specified above. Conduits beyond the end of the casing shall be constructed to provide a minimum of six feet of clearance from the edge of water pipes to the edge of conduit/duct bank and a minimum of 54 inches from final grade to the top of conduit. Design-Builder shall pressure grout the casings in accordance with Standard 6-16-1 and 6-9-2 of the SRP *UCDS*. Design-Builder shall install 15-inch electronic markers at each end of the casings in accordance with Specification 11-22 of the SRP *ESS*. Design-Builder shall mandrel the conduits, install 2500-pound pullstrap and cap the conduits in accordance with specification 6-9 of the SRP *ESS*.

(J) GRIC DPW Casings

As part of the GRIC DPW JPA Work, Design-Builder shall design and construct casing pipes for future water lines at the locations listed and in accordance with the Technical Provisions. All reviews and approvals will be subject to GRIC DPW. Design-Builder shall provide and install steel casings 36 inches in diameter in accordance with ADOT *Standard Specifications* and Section 602 of the MAG *Specifications for Public Works Construction*. Design-Builder shall be responsible for determining the wall thickness of the casing pipe. The wall thickness determination shall be in accordance with AWWA M11; however, the minimum wall thickness shall be ½ inch. The casings shall be installed perpendicular to I-10 unless otherwise specified below and can be installed by trench and backfill, horizontal earth auger boring, or a combination of both. Design-Builder shall install the casing in accordance with the following I-10 stations and offsets:

(1) 967+54: 365 feet Lt to 388 feet Rt

(2) 1179+44: 1174+18.6, 808.1 feet Rt to 1184+18.7, 730.2 feet Lt (1835 feet parallel to Riggs Rd section line)

Design-Builder shall design and construct the casings pipes utilizing one continuous slope and at a depth that provides a minimum of three feet separation below the bottom of roadway subgrade and the top of the casing. The depth must also provide a minimum of 48 inches to the top of the casing below the lowest point of final grade through the length of the casing installation. Design-Builder shall tack-weld temporary steel bulkheads on each end of the casings before backfilling.

119.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all Construction Work related to Utilities in accordance with the standards, manuals, and guidelines listed in Table 119-3.

Table 119-3: Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Guideline for Accommodating Utilities on Highway Rights-of-Way
2.	ADOT	Encroachment Permit (http://azdot.gov/business/permits/encroachment-permits)
3.	Varies	Utility Company Standards
4.	ADOT	ADOT Utility Coordination Guide for Design Consultants
5.	ADOT	Standard Specifications for Road and Bridge Construction
6.	MAG	MAG Specifications for Public Works Construction.

No.	Organization	Name
7.	SRP	Salt River Project Electric Service Specifications (2017 Edition).
8.	SRP	Salt River Project Underground Distribution Construction Standards (2023 edition)

Design-Builder shall perform Utility Adjustments in accordance with the applicable Utility Company's and Governmental Entity's standards, manuals, and guidelines, 23 CFR 645 for Utilities, and the Contract Documents.

(B) General Construction Requirements

(1) Maintaining Utility Service

Design-Builder shall take all appropriate measures to make certain that all Utilities remain fully operational during all phases of Construction Work, except as specifically allowed and approved in writing by the Utility Company, including coordinating with Utility Companies to develop a plan so Utility Companies may access their facilities for maintenance and repair. Design-Builder shall construct any temporary access roads prior to disruption of the existing access roads. Design-Builder shall schedule Utility Adjustment Work in order to minimize any interruption of service, while at the same time meeting the Project Schedule.

Design-Builder shall not perform any Work around fire hydrants until provisions for continued service have been approved by the local fire authority.

(2) Protection of Existing Utility Lines

At points where Design-Builder's operations are adjacent to right-of-way properties or easements for the Community, Utility Companies and Governmental Entities, or are adjacent to other facilities and property, damage to which might result in considerable expense, loss, inconvenience, injury, or death, Design-Builder shall not commence with Construction Work until all arrangements necessary for the protection thereof have been made.

The exact locations and depths of all Utilities that are underground or the location of those on or near the surface of the ground which are not readily visible shall be determined. Such locations shall be marked in such a manner so that all workmen or equipment operators will be thoroughly apprised of their existence and location. It will be Design-Builder's responsibility to see that every effort possible has been made to acquaint those actually involved in working near Utilities not only with the type, size, location and depth, but with the consequences that might follow any disturbance.

Design-Builder shall protect existing Utilities not requiring relocation, removal, or abandonment in accordance with the Utility Company and ADOT requirements. Design-Builder shall actively protect all Utilities to remain in place and communicate its status to Subcontractors and Utility Companies. Design-Builder shall coordinate with others working near new or existing sewer lines or other Utilities on the procedures to be followed to prevent damaging of these Utilities.

(3) Repairing Damaged Lines

When the operations of Design-Builder result in damage to any Utility or service connection, the location of which has been brought to Design-Builder's attention, Design-Builder shall assume full responsibility for such damage and shall immediately notify ADOT and the proper authority and shall cooperate with the said authority in the restoration of service. When service is interrupted, repair work shall be continuous until the service is restored. Design-Builder shall be responsible for Work performed for such repairs at no cost to ADOT or the Utility Company. All costs, including costs of the facility being out of service as a result of the damage, shall be the responsibility of Design-Builder.

Should an unplanned breakage occur in an active sewer line as a result of Design-Builder's operations, Design-Builder shall immediately notify ADOT, and begin repairs to halt any flows and restore normal service, in accordance with

the procedures described in the approved SDPP. Design-Builder shall also immediately notify the affected Utility Company and the appropriate regulatory agencies. Design-Builder shall be responsible for repairing the damaged pipe, restoring any interruptions in service, and cleaning up the affected areas within 24 hours of the beginning of the spill. Sewage discharge damage assessments will be charged to Design-Builder for any unplanned breakage which results in a discharge.

Design-Builder shall be responsible to repair any breakage, in accordance with requirements of the broken line's owner/operator, and clean up the site per applicable codes and regulations of the Environmental Protection Agency, OSHA, ADEQ, and all other agencies' standards, manuals, guidelines, and specifications, at no additional cost to ADOT.

(4) Utility Abandonment

Utility abandonment will be allowed in accordance with Chapter 5 of ADOT's *Guideline for Accommodating Utilities on Highway Rights-of-Way*. Design-Builder shall document Utility abandonments as follows:

- (a) Letter from the Utility Company to ADOT (or ROW owner) stating intent to abandon facilities within ROW;
- (b) Design-Builder letter stating that the abandonment is in accordance with the governing agency's policy for abandoning utilities within public ROW;
- (c) Utility plan showing the location, limits, method of abandonment and ROW ownership; and
- (d) ROW owner and Utility signature block for approval.

(5) Utility Removals

Design-Builder shall be responsible for mitigating abandoned Utilities under existing and proposed pavement. For Utilities under existing pavement which are abandoned during the duration of the Project, Design-Builder shall slurry-fill pipes greater than 12 inches in diameter. Design-Builder shall remove all abandoned Utilities under proposed pavement. Design-Builder shall remove all other abandoned Utilities less than 12 inches in diameter not under existing or proposed pavement. Abandoned Utilities 12 inches or greater not under existing or proposed pavement shall be identified by Design-Builder and may be directed to be removed as an ADOT-Directed Change. Design-Builder shall clearly identify limits of Utilities which were either slurry filled, abandoned, or removed on the Utility Disposition Plans.

(C) Utility Adjustment Work by Design-Builder and Utility JPA Work

(1) Inspection

Each Utility Company, through its representative, has the right to inspect any Work performed by Design-Builder on its Utilities to ensure the location, alignment, and grade are in accordance with the approved Utility Plans and the Utility Company's requirements. Design-Builder shall coordinate the schedule and scope of such inspections with the Utility Company. Design-Builder shall provide access to the Site to allow for the Utility Company's inspection. Design-Builder shall leave the installation exposed for inspection by the Utility Company or expose the Utility or Utilities for inspection by the Utility Company if the installation is covered prior to the Utility Company's inspection and approval. Design-Builder shall contact the respective Utility Company in advance to request an inspection of installed facilities.

If any Utility Adjustment Work is performed by Design-Builder, inspection and acceptance by the Utility Company does not relieve Design-Builder from the obligation to perform all Utility Adjustment Work in compliance with the Utility Company's requirements and the Contract Documents. Inspection and acceptance by the Utility Company does not relieve Design-Builder from the obligation to perform all Utility JPA Work in compliance with the Utility Company's requirements and the Contract Documents.

(2) Utility Record Drawings

Design-Builder shall prepare Utility Record Drawings for each Utility Adjustment performed by Design-Builder. Design-Builder shall prepare Utility Record Drawings for each Utility JPA Work. Utility Record Drawings must:

- (a) Be in the format required by ADOT and each Utility Company;
- (b) Show the location of, and label as such, all abandoned Utilities; and
- (c) Indicate the horizontal and vertical control of all facilities installed, with size and materials noted.

Whether or not the Utility Company has accepted the Utility Adjustment or Utility JPA Work, Design-Builder shall submit Utility Record Drawings to ADOT and the associated Utility Company in accordance with Table 119-4. Design-Builder shall incorporate the Utility Record Drawings into the Project Record Drawings. If Design-Builder makes any adjustments or changes to the Utility between submitting the Utility Record Drawings and acceptance of the Utility Adjustment or the Utility JPA Work by the Utility Company, Design-Builder shall update the Utility Record Drawings and resubmit to ADOT and the Utility Company.

(3) Acceptance

Design-Builder shall obtain a Utility Adjustment Acceptance Letter from the Utility Company directed to ADOT that states that the Utility Company has accepted the Utility Adjustment Work and the Utility Record Drawings. Design-Builder shall obtain a Utility Adjustment Acceptance Letter from the Utility Company directed to ADOT that states that the Utility Company has accepted the Utility JPA Work and the Utility Record Drawings. Design-Builder shall request a Utility Adjustment Acceptance Letter from the Utility Company after submittal of the Utility Record Drawings to the Utility Company. Design-Builder shall submit original Utility Adjustment Acceptance Letters to ADOT in accordance with Table 119-4.

If the Utility Company is unwilling to provide a Utility Adjustment Acceptance Letter, Design-Builder shall prepare a Utility Work Acceptance Request that describes the Utility Adjustment Work or Utility JPA Work, and the request to the Utility Company to accept the Utility Adjustment Work or Utility JPA Work, and the associated Utility Record Drawings. As a notification that the Utility Adjustment Work or Utility JPA Work, and the associated Utility Record Drawings have been completed, but that the Utility Company is unwilling to provide a written acceptance, Design-Builder shall submit a copy of the Utility Work Acceptance Request to ADOT in accordance with Table 119-4. Design-Builder shall schedule a meeting with the Utility Company and ADOT to resolve the matter. Notwithstanding Design-Builder's submittal of a Utility Work Acceptance Request, if the Utility Company does not provide acceptance due to Design-Builder's non-compliance with the Utility Company's requirements or the Contract Documents, Design-Builder shall be responsible for correcting its Work to obtain compliance, including the cost of performing additional design and construction Work, without the right to an increase in the Contract Price, adjustment of a Contractual Deadline, or any other Claim.

(D) Utility Adjustment Work by Utility Companies**(1) General**

Design-Builder shall coordinate with Utility Companies to develop a plan so Utility Companies may access the Site to perform Utility Adjustments. Design-Builder shall inspect all Utility Adjustment Work performed by the Utility Companies and/or their contractors and subcontractors within the Site to verify compliance with the Contract Documents. Design-Builder shall coordinate, monitor, and otherwise undertake the necessary efforts to verify that Utility Companies are performing Utility Adjustment Work in accordance with the Project Schedule, in coordination with the Work, and in compliance with the standards of design and construction and other applicable requirements specified in the Contract Documents. ADOT will inspect and approve the construction performed by each Utility Company. Design-Builder shall immediately notify ADOT in writing upon discovering or learning that a Utility Company has performed Utility Adjustment Work that does not comply with the Contract Documents.

(2) Utility Company Record Drawings

Design-Builder shall request and receive Utility Company record drawings. Should the Utility Company become nonresponsive Design-Builder shall escalate the issue to ADOT for assistance. Utility Company record drawings must include horizontal and vertical control with size and materials noted for the Utility Adjustments performed by the Utility Companies, including all service work. Design-Builder shall provide a written Design-Builder construction inspection verification letter to the Utility Company after Utility record drawings have been received from the Utility Company. Design-Builder shall prepare a Utility Adjustment Package that includes Design-Builder's construction inspection verification letter and Utility Company record drawings. Design-Builder shall submit a Utility Adjustment Package to ADOT in accordance with Table 119-4. Design-Builder shall incorporate the Utility Company record drawings into the Project Record Drawings.

119.05 Submittals

Table 119-4 reflects a list of Submittals identified in this Section 119 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 119-4: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>SDPP</u>	2	Not less than 15 Business Days prior to any Work involving an active sanitary sewer line	119.02(B)(2)
2.	<u>SDPP Update</u>	2	Not later than 5 Business Day after new or revised information relevant to the elements of the <u>SDPP</u> are available	119.02(B)(2)
3.	<u>Utility Coordination Plan</u>	2	Prior to issuance of NTP 2	119.02(C)(1)
4.	<u>Utility Coordination Plan Update</u>	2	Every 6 months from the initial submittal or as mutually agreed upon by Design-Builder and ADOT	119.02(C)(1)
5.	<u>Utility Conflict Matrix</u>	2	Every 2 weeks from the initial submittal of the <u>Utility Coordination Plan</u>	119.02(C)(2)
6.	<u>Utility Company Correspondence</u>	4	Not later than 10 Business Days of receiving or sending such correspondence	119.02(C)(3)
7.	<u>Initial Prior Rights Determination</u>	3	Not later than 5 Business Days after preparing the draft and final determination	119.02(E)(1)
8.	<u>Utility Agreements for Design-Builder performed Utility Adjustments</u>	3	Not later than 5 Business Days after preparing draft or executing final Utility Agreement	119.02(E)(2)
9.	<u>Draft Community Owned Utilities Utility Agreements</u>	2	Not later than 5 Business Days after preparing draft Utility Agreements	119.02(E)(2)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
10.	<u>Design-Builder Utility Clearance Letters</u>	2	At the same time as the <u>RFC Submittal</u> for each discipline	119.02(E)(3)
11.	<u>Final Utility Clearance Closeout Letters</u>	2	Not less than 10 Business Days prior to the completion of all Utility Adjustments within the Project Segment	119.02(E)(3)
12.	<u>Project Final Utility Clearance Closeout Letter</u>	2	Not later than 30 Days after completion of the Punch List	119.02(E)(3)
13.	<u>Pothole Reports</u>	4	Not later than 30 Days after performing a pothole	119.03(C)
14.	<u>Utility Reports</u>	3	Quarterly or as directed by ADOT.	119.03(D)
15.	<u>Final Utility Report</u>	3	Not later than 30 Days after completion of the Punch List	119.03(D)
16.	<u>Utility Service Request Letters</u>	3	Not less than 10 Business Days prior to submitting the <u>Utility Service Request Letter</u> to the associated Utility Company	119.03(F)
17.	<u>Utility Disposition Plans</u>	3	Concurrent with the roadway <u>Preliminary Design Submittal</u> , <u>Final Design Submittal</u> , and <u>RFC Submittal</u>	119.03(G)(1)
18.	<u>Utility Record Drawings</u>	2	Not less than 60 Days prior to when the associated Utility Adjustment is substantially complete	119.04(C)(2)
19.	<u>Utility Adjustment Acceptance Letters</u>	4	Not later than 10 Business Days of receipt	119.04(C)(3)
20.	<u>Utility Work Acceptance Request</u>	4	If the Utility Company is unwilling to provide a written approval	119.04(C)(3)
21.	<u>Utility Adjustment Package</u>	4	Not later than 10 Business Days of receipt Utility Company record drawings	119.04(D)(2)

Notes:**A. Levels of Review**

1. Sole discretion or absolute discretion approval (DBA Section 3.01(B)(1))
2. Good faith discretion approval (DBA Section 3.01(B)(2))
3. Review and comment (DBA Section 3.01(B)(3))
4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))

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DIVISION II GRADING

200 Roadway**200.01 General Requirements**

Design-Builder shall perform all roadway Work in compliance with the requirements in this Section 200.

200.02 Intentionally Left Blank**200.03 Design Requirements****(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all roadway Design Work in accordance with the standards, manuals, and guidelines listed in Table 200-1.

Table 200-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Roadway Design Guidelines
2.	ADOT	Design Decision Guide
3.	ADOT	Traffic Signing & Marking Standard Drawing
4.	ADOT	Construction Standard Drawings
5.	ADOT	ADOT Standard Specifications
6.	ADOT	Approved Product List
7.	ADOT	Dictionary of Standardized Work Tasks
8.	ADOT	Drafting Guides for Use in Office and Field
9.	AASHTO	A Policy on Geometric Design of Highways and Streets
10.	AASHTO	Roadside Design Guide
11.	AASHTO	A Policy on Design Standards – Interstate System
12.	AASHTO	Manual for Assessing Safety Hardware (MASH)
13.	MAG	Uniform Standard Specifications for Public Works Construction
14.	MAG	Uniform Standard Details for Public Works Construction
15.	MCDOT	Roadway Design Manual
16.	MCDOT	Maricopa County 2024 Supplement to the MAG Standard Specifications and Details
17.	US Access Board	ADA Accessibility Guidelines (ADAAG)
18.	AASHTO	Guide for the Development of Bicycle Facilities

(B) Access Control

Access control is defined for the existing and Schematic Design conditions in the Project ROW plans. Based on the Schematic Design of the TIs, variances to the minimum access control requirements in the ADOT *Roadway Design Guidelines* are required. These variances are included in TPA 200-3 (Design Decision Documentation) and are subject to the provisions of DBA Section 7.02(B) (Design-Builder Responsibility for Design). Access control limits must be depicted graphically on the roadway and fencing Plans.

(C) Design Criteria

Design-Builder shall design the roadway in accordance with the design criteria shown in TPA 200-1 (Roadway Design Criteria). All Design Work on the interstate system shall comply with the requirements in the AASHTO *A Policy on Design Standards – Interstate System*, unless otherwise noted in TPA 200-6 (ADOT Roadway Design Guidelines Access Control Variances).

Design-Builder shall provide RFC plans for and perform repairs to existing elements as detailed in TPA 200-8 (Repairs and Modifications to Existing Roadways).

(1) Sight Distance

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

Design-Builder shall provide two times the stopping sight distance given in Figure 201.2 of the ADOT *Roadway Design Guidelines* on the mainline at lane drops. The sight distance is measured from the center of the continuous approach lane to the center of the lane being dropped.

Design-Builder 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*.

(2) Superelevation

Maximum superelevation rates for roadways are shown in TPA 200-1 (Roadway Design Criteria). The superelevation axis of rotation for new roadways shall coincide with the horizontal alignment control line and the profile grade line per Section 202.2 of the ADOT *Roadway Design Guidelines*. Proposed superelevation breakovers in the roadway shall not occur at a proposed Wheel Path.

For widening existing roadways with superelevation that will drain in the same direction as the existing superelevation, Design-Builder shall roughly match the superelevation transitions of the existing roadways using a Best-Fit Analysis of the existing roadway. This Best-Fit Analysis shall demonstrate the breakover between the existing and proposed superelevation at any given location does not exceed 1%. The Best-Fit Analysis shall be conducted every 50 feet and at the beginning and ending of any superelevation transitions. Design-Builder shall submit the Best-Fit Analysis to ADOT in accordance with Table 200-3.

For new roadways and widening existing roadways with a superelevation that will not drain in the same direction as existing superelevation, proposed superelevation rates and transitions shall comply with the requirements in Section 202.3 and Section 202.4, including the *Superelevation Rates and Transition Lengths* tables, of the ADOT *Roadway Design Guidelines*.

AASHTO Method 5 shall be used to distribute superelevation and side friction, except on crossroads and turning roadways at ramp terminals with design speeds equal to or less than 45 MPH, in which case AASHTO Method 2 superelevation rates may be used.

(3) Horizontal Alignment

Horizontal alignment for all new roadways shall comply with the requirements in Section 203 of the *ADOT Roadway Design Guidelines*.

(4) Vertical Alignment

Within the limits of roadway widening, the profile grade must match existing. For the I-10 widening, Design-Builder shall develop a geometric profile grade that must be included in the Design Documents and must approximately match the existing profile grade. Design-Builder shall develop the profile grade using the Best-Fit Analysis described in Section 200.03(C)(2).

New mainline vertical alignments shall comply with the requirements in Section 204 of the *ADOT Roadway Design Guidelines*. Maximum allowable roadway grades shall be as shown in TPA 200-1 (Roadway Design Criteria). Broken back curves shall not be used. Broken back curves are defined as consecutive crest or consecutive sag curves that have a tangent length less than 150 feet between them.

(5) Mainline Transitions and Tapers

When adding a lane, the approach transition shall have a taper rate of 25:1. When dropping a lane, the transition shall have a taper rate of design speed to one unless otherwise specified in the Technical Provisions. Except for HOV lanes, add lanes and drop lanes on I-10 shall occur on the right.

When tapering shoulder widths from narrow to wider in the direction of traffic the taper rate shall be 15:1 or flatter. When tapering from wider to narrower shoulder widths in the direction of traffic, the taper rate shall be design speed to one except as described for concrete barrier width changes in Section 200.03(C)(7).

Lane width transitions shall be at a rate of design speed to one or flatter.

(6) Cross Section Elements

The standard cross slope for all new roadways shall be 2% in normal tangent section except as modified in the Technical Provisions. The standard cross slope for all new I-10 widenings shall be 1.5% in normal tangent section, sloped to the outside of the roadway. The entire width of a roadway shall have a uniform cross slope except as allowed in the Technical Provisions. In the event that the existing inside lane(s) of I-10 have a cross-slope that is not uniform with the other existing lanes, Design-Builder shall modify the existing lane(s) so that they are uniform. The cross slope of shoulders to be constructed by Design-Builder shall match the cross slope of the adjacent lane, except as needed at ramp gores. Design-Builder is not required to correct any existing breaks in the cross slope of the outside lanes or outside shoulder.

Unless otherwise specified in the Technical Provisions, when widening I-10, the cross slope shall approximately match the cross slope of the adjacent roadway as described in Section 200.03(C)(2).

Within the areas of I-10 that are comprised of existing asphalt roadways that are to be removed, Design-Builder shall develop new profiles for I-10 EB and WB. The new profiles must not incorporate vertical crest curves solely to provide clearance to culverts and must not be of a rolling nature. The proposed profiles must provide the required vertical clearance at bridges. The reconstructed roadways under Goodyear Rd shall be paved to new 42-inch median barriers centered on the I-10 centerline and to 42-inch or Test Level (TL) 5 concrete half barriers around piers. The roadways must consist of a three-lane roadway in each direction consisting of the following: a 12-foot outside shoulder, three 12-foot lanes, and the remaining width paved to the median concrete barrier with the same pavement structural section as the adjacent shoulder. All lanes and shoulders shall drain to the outside at 2%.

The minimum vertical clearance for all bridges shall be in accordance with TPA 200-1.1 (Mainline and Ramp Design Criteria). The minimum vertical clearance shall be provided over the entire roadway width under the bridge, including shoulders.

Shoulder widths provided in TPA 200-1 (Roadway Design Criteria) must be the minimum continuous usable width of paved shoulder, except that reductions of up to three feet of the 15-foot inside shoulder of I-10 are allowed at median piers and sign foundations. Shoulders shall consist of the adjacent pavement section, except as needed to accommodate concrete gutter for ADOT standard curbs or concrete barriers.

All concrete barrier width transitions must be in conformance with Section 305.9 of the ADOT *Roadway Design Guidelines*.

For Portland Cement Concrete Pavement (PCCP) mainline and PCCP and Asphaltic Concrete (AC) ramps with curb, shoulder wedges, including the location and type of aggregate base (AB), shall be placed in conformance with Figure 302.1 of the ADOT *Roadway Design Guidelines*. For all roadways, the same type of AB for curb shall be placed under all concrete barrier to the back of concrete barrier. For AC and PCCP ramps without curb, the shoulder wedges shall be in conformance with Std C-02.10 of the ADOT *Construction Standard Drawings* and Figure 303.1 of the ADOT *Roadway Design Guidelines*.

Curbs, where used, shall be in conformance with Section 302.2 of the ADOT *Roadway Design Guidelines*.

All new or modified mainline and ramp outside slopes shall be in accordance with Std C-02.10 of the ADOT *Construction Standard Drawings*. All slopes shall match existing ground a minimum of 10 feet from a ROW line or provide a wall whose face is a minimum of 12 feet from the ROW line, provided that a larger area is not required for the maintenance access path.

For new or reconstructed ramps without curb or barrier and for mainline unpaved medians, the mainline hinge shall be per Std C-02.10 of the ADOT *Construction Standard Drawings*, and median slopes must be 8:1 or flatter. Where the I-10 median is protected by barrier on both I-10 EB and WB, median slopes may be 4:1 or flatter, with the hinge located two feet behind the back of barrier, sloped at 20:1 away from the barrier.

Roadside recovery areas must comply with the requirements in Section 303.2 of the ADOT *Roadway Design Guidelines*. The largest recovery area width as shown in the ranges given in Table 303.2A of the ADOT *Roadway Design Guidelines* shall be used for the roadway design speed. A barn-roof roadway embankment approach shall not be used.

(7) Roadside Safety Devices

All new barriers and end treatments shall comply with the requirements AASHTO *Manual for Assessing Safety Hardware (MASH)* unless otherwise specified in the Technical Provisions. Approach ends of barrier within the clear zone shall be shielded with MASH compliant devices and meet minimum TL-3. Design-Builder shall not bury the end of the barrier as an end treatment at the approach end. Design-Builder shall not solely taper the height of the barrier at the approach end with the exception of concrete barriers located at ramp termini at crossroads. New end terminals that are extruded guardrail end terminals shall be MSKT as detailed in Std C-10.21 of the ADOT *Construction Standard Drawing*. New concrete barrier attenuators on I-10 mainline and ramps shall be Smart Cushion SCI100GM, TL3.

Existing end treatments and attenuators within the Project that do not comply with MASH criteria, whether impacted by Design-Builder's design or not, shall be replaced with the new MASH compliant devices specified in the Technical Provisions in accordance with DBA Section 4.05 (Substantial Completion). All existing guardrails within the Project limits shall be removed, and new concrete barrier and new end treatments installed where required in accordance with the Technical Provisions.

Design-Builder shall remove all existing cable barrier systems. Each cable barrier run shall be removed in its entirety at one time. No partial removals of a run nor temporary anchors will be allowed.

Where gutters are used with concrete half barriers, the gutters shall be limited to 2.5 feet in width; gutters that are 4.5 feet in width shall only be used where approved by ADOT. Concrete barriers on the median sides of I-10 EB and I-10 WB between the south end of the bridge over the SR 202L Santan/South Mountain Freeway and the point where I-10 EB and I-10 WB converge shall be 42-inch Type 'F' concrete half barriers in accordance with ADOT *Construction*

1 *Standard Drawings*. Design-Builder shall remove all existing median concrete half barriers along I-10 EB and I-10 WB
2 south of the south end of the bridge over SR 202L Santan/South Mountain Freeway that are less than 42-inch in
3 height and replace with 42-inch Type 'F' concrete half barrier.

4 Barriers on I-10 with paved shoulders on each side must be 42-inch Type 'F' concrete median barrier, including the
5 use of variable height sides where needed, in accordance with the ADOT *Construction Standard Drawings*. When
6 approaching and departing bridge piers, the median concrete barrier shall transition into separate concrete half
7 barriers, which barriers shall be installed in accordance with Std C-10.55 of the ADOT *Construction Standard*
8 *Drawings* except where TL-5 barriers are required. Where barriers are within ten feet of bridge piers and abutments
9 that are not designed to withstand impact loading as specified in Section 600, the barriers shall be TL-5 in accordance
10 with Section 3.6.5 of the AASHTO *LRFD Bridge Design Specifications*. Where TL-5 barrier is required, Design-Builder
11 shall construct it so that it is continuous along both the existing and new piers. Concrete barrier transition taper
12 rates shall be in accordance with Figure 305.9 of the ADOT *Roadway Design Guidelines*.

13 Concrete barriers that must be backfilled and capped must be CIP F-Shape or TL5 barrier. The barriers being
14 constructed to continue the pedestrian areas of the existing bridge at SR 347/Queen Creek Rd and at the bridge at
15 Koli Rd shall be 32-inch Type 'F' concrete barriers.

16 The closed median with a single concrete median barrier shall end at Station 1208+00 and the open median with a
17 graded median ditch must continue south until the paving to the median barrier near Goodyear Road is required.
18 The median grading around the end of the concrete median barrier at Station 1208+00, and between the concrete
19 median barrier and the concrete half barrier on I-10 Westbound, must be traversable to allow a light-duty truck
20 (pickup) to execute a U-turn, and such area shall be plated with AC millings compacted to a thickness of three inches.

21 South of Station 1208+00, barriers used with non-paved medians must be new 42-inch precast concrete median
22 barrier meeting at least TL-3,, be pinned to the roadway and the mainline pavement section must be extended to
23 provide a minimum of one foot of pavement behind the concrete barrier, including where the concrete barrier is
24 tapering. This 42-inch barrier shall be new or previously utilized during construction of the Project. Previously-utilized
25 barrier shall be subject to the acceptance criteria in accordance with Section 200.04(E) for use in the permanent
26 configuration. The pins for securing the temporary construction barrier (TCB) to the concrete shall be 1.5-inches in
27 diameter, be galvanized A36 steel, and extend 1.5 feet into the pavement at a 40 degree angle to the pavement
28 surface. There shall be a minimum of two pavement pins per 12.5 foot section of barrier, each located 16-inches
29 from each end. The holes in the barrier shall be 1.75-inches in diameter. All holes shall be filled with low-strength,
30 non-shrink concrete grout after pins are placed.

31 Beginning at Station 1208+00 and continuing until the beginning of the paving to the median barriers near Goodyear
32 Rd, concrete barrier shall be provided only on the I-10 WB side along the median shoulder, transitioning in the
33 manner shown on the Schematic Design on the south end to match the concrete median barrier at the point where
34 the paving to the median barriers near Goodyear Rd begins. Throughout the section that is paved to the median
35 barriers near Goodyear Rd, the roadway barrier shall include a single 42-inch cast-in-place concrete median barrier
36 placed on the median centerline, with transitions to TL-5 concrete barriers that are required around the Goodyear
37 Rd bridge piers. At the south end of the paving to the median barriers near Goodyear Rd, the precast 42-inch median
38 barrier shall be placed along the inside shoulder of the I-10 Eastbound after connecting to and transitioning in the
39 manner shown in the Schematic Design from the single 42-inch concrete median barrier. This precast 42-inch
40 concrete barrier shall extend to the emergency turnaround crossover on the south end of the Project prior to the
41 barrier end treatment for the "F0270 – Bridges of Gila River Project", with gaps included for emergency vehicle
42 turnarounds as described below.

43 Design-Builder shall include gaps in the I-10 concrete median barrier, and concrete half barriers on the I-10 median
44 shoulders, to allow for emergency vehicle turnaround opportunities as described below:

- 45 (a) Urban Section: Design-Builder shall provide only one barrier gap in the urban section
46 of the Project and Design-Builder shall center the one barrier gap within 200 feet of
47 the following station:

(i) 1100+50

The barrier gap in the urban section shall be limited to a width of five feet and utilize concrete barrier transitions in accordance with the Technical Provisions to offset the concrete median barriers by one foot into the EB median shoulder on one approach and into the WB median shoulder on the other approach (see example from project H8827 Detail BM in the RIDs).

(b) Rural Section: Design-Builder shall center barrier gaps in the rural section shall within 200 feet of the following stations:

(i) 1253+00

(ii) 1325+50

(iii) 1383+00

(iv) 1456+00

Design-Builder shall design and install median crossovers at the barrier gaps in the rural section. These crossovers must fill in the median to connect eastbound and westbound I-10 without vertical curvature, utilize 10:1 side slopes in the median, be a minimum of 16 feet in width, and be plated with AC millings compacted to a thickness of three inches. These crossovers and barrier gaps must be designed to include the necessary crossover width and size of radius returns of the crossover to allow a SU-33 design vehicle to execute the turnaround without leaving the crossover or being within two feet of barrier and any end treatments. Due to available width and minimum turning radius, the SU-33 vehicle may encroach into adjacent lanes to execute the turn. If a barrier end treatment is necessary in accordance with these Technical Provisions, the approach end of the concrete barrier shall utilize a SmartCushion SCI100GM, TL3 attenuator along with any cast-in-place barrier transitions or anchors that are required by the manufacturer.

Barrier on the outside of the mainline roadway and either side of ramps shall be CIP Type "F" concrete barrier and a minimum of 32 inches in height. Barriers shall meet minimum TL-4 when placed against the top of retaining walls or protecting non-traversable slopes to the top of walls located within the clear zone in accordance with Section 600.

All new roadway barriers shall be F-shape or TL5 concrete barriers, exclusive of end treatments. Existing Jersey-shape concrete barriers may remain in place if unaffected by the Project improvements.

Design-Builder shall not use sand barrels in a permanent configuration. Existing sand barrels within the median of the Project limits shall be removed and replaced with roadside safety devices that are not sand barrels as described in the Technical Provisions. Existing sand barrels on the outside of the Interstate that are not impacted by the Work shall be removed and replaced with new sand barrel arrays in accordance with ADOT *Signing and Marking Standard Drawings*.

All new barrier placements shall provide the shoulder widths and barrier offsets indicated in TPA 200-1 (*Roadway Design Criteria*).

At the box culvert located near Station 1202+00 south of Riggs Rd, Design-Builder shall extend each end of the box culvert as required to provide the required clear zone in accordance with the TPs.

All new median sign foundations must provide a minimum of 42 inches in height above the adjacent roadway elevation. Existing median overhead sign foundations to be removed shall be removed to a depth at or below the lowest pavement finished subgrade of the structural section adjacent to the foundation.

When concrete barrier is in a backfill condition, a minimum two foot wide by six inches deep section of two-inch to four-inch rock mulch shall be placed immediately behind backfilled concrete barrier.

Design-Builder shall place compacted backfill and 3.5-inch Class B concrete cap with 0.5 inch expansion joint filler in areas between the back of concrete barrier and other concrete barriers, piers, walls, abutments, etc. that are five feet or less in width, and graded to drain. If Design-Builder elects to place bridge piers in front of walls as a function of the structures design, the area between piers and walls shall be capped as noted above. Capped backfill shall be treated with pre-emergent.

Design-builder shall not place signs and light poles on concrete barriers except for concrete median barriers with paved shoulders on both sides. Signs and 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 concrete 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.

(8) Traffic Interchanges and Crossroads

All TIs shall be of the type described in the Technical Provisions and shown in the Schematic Design (the Design-Builder's Proposal Design at the SR 347/Queen Creek Rd TI), including the arrangement and number of lanes for all movements.

Ramp-crossroad intersections shall comply with the requirements in Sections 403 and 505 of the ADOT *Roadway Design Guidelines* and shall meet the desirable criteria. All crossroad lanes shall be 12 feet in width unless wider lanes are required to accommodate turning movements. All crossroads must include right shoulders of minimum five foot in width, which may consist of pavement and up to two feet of gutter, except for where right turn lanes are present. Where right turn lanes are present, the right shoulder shall be a minimum of two feet in width, which may consist of pavement and up to two feet of gutter, with the five-foot bike lane buffer between the through lane and the right turn lane. When adding a right turn lane to a crossroad, the approach transition shall be a minimum of 90 feet in length. When adding left turn lanes, reverse curves of 150-foot radii shall be utilized. No left shoulder is necessary along left turn lanes. All turn lanes shall be a minimum of 12 feet in width.

When dropping a lane on the crossroad, the transition shall have a taper rate of design speed to one. Lane width transitions shall be at a rate of design speed to one or flatter, except where associated with DDI crossovers. For DDI crossovers, lane width changes can be accomplished through the curves leading into and out of the crossovers.

When tapering shoulder widths not associated with the addition of turn lanes, from narrow to wider in the direction of traffic, the taper rate shall be 15:1 or flatter. When tapering shoulder widths, not associated with the addition of turn lanes, from wider to narrower in the direction of traffic, the taper rate shall be design speed to one. Shoulder width transitions associated with the addition of turn lanes shall be accomplished within the same transition length as that of the turn lane.

Sight distances at new or reconstructed ramp-crossroad intersections shall comply with the requirements in Section 408 of the ADOT *Roadway Design Guidelines* and permit for right turns on red signals. The maximum grade for a ramp shall be 3% for 400 feet in advance of traffic signals.

Ramps shall comply with the requirements in Section 504 of the ADOT *Roadway Design Guidelines*. Turning roadways at ramp terminals shall utilize the minimum shoulder widths required for ramps, determined according to the number of lanes on those turning roadways. When Design-Builder proves to ADOT that the ramp vertical curves cannot be designed as provided in Section 504 of the ADOT *Roadway Design Guidelines*, it may be designed using the 'K' value in accordance with the AASHTO *A Policy on Geometric Design of Highways and Streets*.

All existing entrance and exit ramps shall be reconstructed as parallel type in accordance with Section 504 of the ADOT *Roadway Design Guidelines*, with the following exception:

- (a) At the SR 347/Queen Creek Rd TI, Design-Builder shall reconstruct the entrance ramp to I-10 WB as a tapered entrance ramp in accordance with Section 504.8 of the ADOT

Roadway Design Guidelines and connect to the EB SR 347 to I-10 WB direct-connect ramp, which shall be a parallel type.

Except for the Koli Rd TI I-10 EB entrance ramp and the I-10 WB exit ramp, the ramps for Koli Rd TI shall be tapered-type in accordance with Sections 504.7 and 504.8 of the *ADOT Roadway Design Guidelines*. These tapered ramps shall connect to the continuous auxiliary lanes between Wild Horse Pass Blvd/Sundust Rd TI and SR 347/Queen Creek Rd TI. The Koli Rd TI I-10 WB exit ramp shall be constructed as a two-lane parallel type in accordance with Section 504 of the *ADOT Roadway Design Guidelines* and connect to a new auxiliary lane to be constructed on the east side of the existing auxiliary lane. The Koli Rd TI I-10 EB entrance ramp shall be constructed as parallel type in accordance with Section 504 of the *ADOT Roadway Design Guidelines* and connect to a new auxiliary lane to be constructed on the west side of the existing auxiliary lane. The SR 347/Queen Creek Rd TI I-10 EB exit ramp alignment and gore shall be modified as needed to comply with the *ADOT Roadway Design Guidelines* and the layout described in the Technical Provisions. All entrance ramps shall consist of a minimum of two lanes unless additional lanes are specified in the Technical Provisions and provide a dual-lane metered ramp configuration which tapers to a single lane beginning at the back of gore in accordance with Figure 504.8B of the *ADOT Roadway Design Guidelines*.

The auxiliary lane for I-10 EB shall be continuous between the ramps of SR 202L System TI and Wild Horse Pass Blvd/Sundust Rd TI, and between Wild Horse Pass Blvd/Sundust Rd TI and SR 347/Queen Creek Rd TI. Design-Builder shall extend the existing I-10 EB auxiliary lane to the south past the new SR 347/Queen Creek Rd TI I-10 EB exit ramp gore, including mainline shoulder, and modify the exit from this auxiliary lane from a mandatory exit to an optional exit at the SR 347/Queen Creek Rd TI Ramp 'D'. This auxiliary lane and shoulder shall extend a minimum of 300 feet past the modified ramp gore and the lane must be closed at a rate of design speed to one. The new auxiliary lane added to the west of the existing auxiliary lane from the Koli Rd TI shall be the mandatory exit to the two-lane exit at SR 347/Queen Creek Rd TI Ramp 'D'. The I-10 Eastbound exits for Wild Horse Pass Blvd/Sundust Rd TI and for SR 347/Queen Creek Rd TI shall consist of two lanes, one mandatory and one optional in accordance with Figure 504.7 of the *ADOT Roadway Design Guidelines*. Auxiliary lanes for exit and entrance ramps on the south side of SR 347/Queen Creek Rd TI and those on both sides of Riggs Rd TI shall be deceleration and acceleration lanes per Figures 504.7 and 504.8A, respectively, of the *ADOT Roadway Design Guidelines*. Widening on the outside of the roadway will be required.

Slopes between mainline and the ramps at Koli Rd TI shall comply with Figure 504.4A of the *ADOT Roadway Design Guidelines*. For the ramps at the Koli Rd TI, the side slope on the mainline side shall connect with the existing mainline hinge, defined as 10 feet from the roadway outside edge of shoulder. All other reconstructed and new ramp slopes shall be in accordance with Std C-02.10 of the *ADOT Construction Standard Drawings*, including the shoulder wedge where curbs or barriers are not utilized, and provide for maintenance access paths per Section 200.03(C)(10). All crossroad embankment slopes must be 4:1 or flatter unless concrete barrier is implemented in which case slopes shall be no steeper than 3:1 unless otherwise specified in the Technical Provisions. For crossroads without curb, shoulder wedges shall be in accordance with Std C-02.10 of the *ADOT Construction Standard Drawings*. Within the limits of all Work on crossroads and service interchange ramps, slopes that are not in accordance with the Technical Provisions shall be flattened by Design-Builder in accordance with the Technical Provisions. This does not apply to the Wild Horse Pass TI ramp slopes which connect to the mainline, nor to the outside slope of Wild Horse Pass TI Ramp C, which slopes can remain.

Curbs, where used on ramps or mainline, shall be in conformance with Section 302.2 of the *ADOT Roadway Design Guidelines*.

On crossroads with curb, curb with sidewalk, or curb with embankment for future sidewalk, the outside hinge shall be located a minimum of two feet from the back of curb, sidewalk or future sidewalk, sloped 20H:1V away from the roadway in fill, towards the roadway in cut.

Design-Builder shall provide and install safety railings along pedestrian facilities where side slopes are steeper than 4:1 or a retaining wall is present at the bottom of the slope in accordance with Section 600.03(E)(3).

Design-Builder shall provide and install barriers along crossroads where side slopes are steeper than 4:1 or a retaining wall is present at the bottom of the slope.

Wild Horse Pass Blvd/Sundust Rd TI

The Wild Horse Pass Blvd/Sundust Rd TI and crossroad shall incorporate the improvements shown in the Schematic Design, modified as necessary in accordance with the Technical Provisions. Design-Builder shall modify the design of Sundust Rd as needed to match the planned improvements of the project that is to be constructed by the Community's Lone Butte Development, Sundust Rd and Nelson Drive Intersection (AZMUN2410).

The dual right turn for the I-10 EB exit ramp at Wild Horse Pass Blvd shall be designed and constructed to accommodate a WB-67 design vehicle in the leftmost right turn lane, and a WB-50 in the rightmost right turn lane without encroaching into adjacent lanes, bike lanes or curbs. The storage for the right turn lanes shall be extended to the length shown in the Schematic Design.

The entrance ramps shall include acceleration lanes to provide free right turns from the crossroad. The acceleration lanes shall be a minimum of 100 feet in length, measured from the radius return on the ramp to the beginning of the lane closure taper.

The number of through and turn lanes, extent of curbs, and limits of paving shall be in accordance with the Schematic Design except as modified herein.

Turnouts and driveways shall be reconstructed as required by Design-Builder's design, including the addition of ADA facilities required.

Fill slopes on the northwest quadrant west of the retaining wall limits can utilize 3:1 embankment slopes with 32-inch F-shape concrete barrier to ensure the toe of fill is a minimum of 10 feet from the ROW line.

There shall be no impacts to the following existing features, and Design-Builder shall employ mitigation measures compliant with the Technical Provisions to ensure fill slopes are a minimum of five feet away from:

- (a) Existing fire hydrant, valves and electrical cabinets on the south side of Wild Horse Pass Blvd near EB Station 228+50;
- (b) Existing landscape controller enclosure on the south side of Wild Horse Pass Blvd near EB Station 227+50; and
- (c) Existing Lone Butte electronic marquee signs located on the north and south sides of Sundust Rd near EB Station 207+50.

Koli Rd TI

The interchange type, number of through and turn lanes, extent of curbs, and limits of paving shall be in accordance with the Schematic Design, modified as necessary in accordance with the Technical Provisions. Design-Builder shall continue coordination with the Community, through ADOT, and shall further refine the design of the approach roadways and TI accordingly. The roadway design of Koli Rd must include an equipment underpass at the location shown in the Schematic Design and in accordance with Section 600.03(G).

Concrete barriers shall be constructed to continue the pedestrian areas off the bridge on the east and west approaches and shall provide a multi-use sidewalk of eight feet minimum width. The ADA ramp opening for this multi-use sidewalk shall be eight feet in width. Concrete barriers shall also be designed and constructed as required for the approaches to the equipment underpass.

Interim grading at the east and west ends of the Koli Rd paving shall construct embankment for a distance of 30 feet beyond the ends of the PCCP and utilize 3:1 maximum embankment slopes at the ends of the embankments.

As there will be no Koli Rd connection to the east of the TI as part of this Project, Design-Builder shall install approximately 150 linear feet of TCB to remain across the four roadways that traverse east of the eastern ramp termini as directed by ADOT to block access to those roadways. This TCB must be in accordance with Standard C-3 of the ADOT *Traffic Signing & Marking Standard Drawing*, with no pinning to the pavement.

SR 347/Queen Creek Rd TI

The SR 347/Queen Creek Rd TI and crossroads shall incorporate the improvements shown in the Design-Builder's Proposal Design, modified as necessary in accordance with the Technical Provisions. SR 347/Queen Creek Rd TI ramps shall be fully reconstructed to at least the back of gore. Design-Builder shall design and construct a direct-connect ramp from EB SR 347 to WB I-10. This direct-connect ramp shall consist of two lanes, be designed in accordance with the criteria in TPA 200-1 (Roadway Design Criteria), and the back of gore must connect to I-10 WB within 150 feet of the existing ramp back of gore. The existing outside lane of EB SR 347 shall be an exit-only to the direct-connect ramp and the existing inside lane of EB SR 347 shall be an optional exit-through lane. Design-Builder shall add one lane to the median of existing SR 347 in each direction, with the beginning/ending tapers located at the west end of the Work.

In the WB direction of the Queen Creek Rd approach to the TI, the striped bike lane/shoulder shall begin at the beginning point of the opening taper for the right turn lane to I-10 WB, and continue west through the length of the proposed SR 347/Queen Creek Rd Work. In the EB direction of the SR 347 approach to the TI, the striped bike lane/shoulder shall begin on the east side of the I-10 EB entrance ramp terminal, and continue east to the limits of the WB bike lane.

A paved path shall be provided to allow EB SR 347 bike traffic to exit the roadway shoulder prior to the direct-connect ramp exit. The path shall consist of a paved surface 10 feet in width, plus graded shoulders two feet in width on both sides. The path shall be designed in accordance with the *AASHTO Guide for the Development of Bicycle Facilities* and be constructed in accordance with ADOT *Std C-05.20*. The path shall be adjacent to and parallel the south side of the direct-connect ramp barrier, or the retaining wall where present, and maintain an elevation that approximates that of SR 347. The path shall continue along the ramp to a point where the direct-connect bridge begins, then pass under the bridge and connect back to the EB SR 347 roadway, continuing to the proposed pedestrian ramp at the I-10 EB entrance ramp.

On the crossroad between ramp terminals, the lanes shall be arranged to ensure the existing bridge crown is not located within a Wheel Path. East of the eastern ramp terminals, Design-Builder shall create a median island within the existing PCCP pavement. Design-Builder shall sawcut and remove PCCP, install vertical curb and fill in the island with embankment and Desert Pavement as specified in Section 800, and construct pedestrian ramps and sidewalk.

The number of through and turn lanes, extent of curbs, and limits of paving shall be in accordance with the Design-Builder's Proposal Design, notwithstanding those elements that may need to be modified to be in accordance with the Technical Provisions.

Riggs Rd TI

The Riggs Rd TI and crossroad shall incorporate the improvements shown in the Schematic Design, modified as necessary in accordance with the Technical Provisions. Riggs Rd TI Ramps shall be fully reconstructed to at least the back of gore. Level grades can be utilized where there is no curb or barrier installed on the low side of the ramps.

The number of through and turn lanes, extent of curbs, and limits of paving shall be in accordance with the Schematic Design.

A cattle guard shall be provided on each end of the Riggs Rd PCCP and its adjacent fence shall be connected to the right of way fencing.

Goodyear Rd Crossroad

The Goodyear Rd crossroad shall incorporate the improvements shown in the Schematic Design, modified as necessary in accordance with the Technical Provisions. The number of through lanes, extent of curbs, and limits of paving shall be in accordance with the Schematic Design.

Between the anchor slab of the bridge and the cattle guard, the roadway lanes and eight-foot roadway shoulders shall be PCCP, with the exception of the two-foot concrete gutters associated with the concrete half barrier. The

barriers shall be 32" F-shape with two-foot gutters in accordance with Std C-10.52 of the ADOT *Construction Standard Drawings*, modified to include gutters two-feet in width. For the length of required barrier on the north and south sides of each approach, the cross section shall include asphaltic pavement that is five feet in width and located behind the concrete barrier and includes a pavement edge detail in accordance with Standard Detail 201, Type A of the MAG *Uniform Standard Details for Public Works Construction*. This AC pavement structural section shall be in accordance with Section 400.03(B). The AC pavement shall taper from the end of the barrier end treatment in accordance with ADOT *Construction Standard Drawings* at guardrail extruder terminals.

In areas of Goodyear Rd with PCCP only, the hinge shall be located nine feet from the edge of roadway, sloped at 6H:1V. In areas with AC shoulder, the hinge shall be located two feet from the edge of pavement, sloped away from the roadway at 20H:1V. Slopes shall be 3H:1V for embankment heights over five feet, and 4H:1V for embankment heights five feet or less. Retaining walls must be provided to avoid the need for acquiring New ROW along Goodyear Rd.

A cattle guard shall be provided on each end of the Goodyear Rd PCCP, installed near the Schematic ROW limit but in a location which allows the work to take place within the Schematic ROW, and its adjacent fence shall be connected to the right of way fencing.

DDI Criteria

(a) Crossroad Criteria

(i) The design speed for the crossover curves shall not be less than 10 mph below the design speed of the crossroad.

(ii) Minimum angle of intersection: 35 degrees.

(iii) The geometry of the brow must be sufficient to indicate to vehicles on the left most lane on the tangent prior to the curve immediately preceding the crossover, that the vehicle is not permitted to continue on that tangent into the wrong direction of travel within the core of the interchange.

(iv) Minimum tangent lengths through the crossing, measured along the median curb line.

A. Minimum tangent length prior to crossing: 20 feet

B. Minimum tangent length after crossing: 10 feet

(v) Path overlap

A. Arc and tangent lengths shall be designed to allow a WB-67 design vehicle to navigate through the interchange influence area at the posted speed without tires or vehicle body encroaching into the adjacent travel lane.

(b) Turning Roadway Design

(i) Minimum design speed of turning roadways from the ramps shall not be less than 10 mph less than the crossover design speed.

(ii) Lane width: travel lanes shall include widening needed at turns to accommodate a WB-67 design vehicle; multi-lane turning roadways shall include widening needed to allow WB-67 design vehicles to travel side by side without encroachment into the adjacent lanes. Turning templates must demonstrate at least one foot clearance from the edge of swept path to the edge of an adjacent lane, bike lane, curb or barrier.

(c) General Typical Section

(i) Minimum lane width through the crossovers shall be fourteen feet, but shall be larger where required based on design vehicle paths. Lane widths shall be wide enough to accommodate WB-67 design vehicles to travel side by side through the crossover without encroachment into the adjacent lanes. Turning templates must demonstrate at least one foot clearance from the edge of swept path to the edge of adjacent lane, curb or barrier.

(ii) Other travel modes

A. Pedestrians between the crossover intersections must be accommodated on a single pathway between the two directions of travel.

B. Bicycle and pedestrians shall not conflict with the left turn movements at the entrance ramps.

C. Pedestrians have access to all quadrants of the TI.

(9) Sidewalks

Unless otherwise specified in the Technical Provisions, new sidewalk shall be in accordance with Std C-05.20 of the ADOT *Construction Standard Drawings*, a minimum of five feet in width and located adjacent to the back of curb or barrier unless within an island. The sidewalks within the islands of the DDI shall be eight feet in width and have independent alignments. All curb ramps must provide the same width as the adjoining sidewalk. Sidewalks with independent alignments within islands shall utilize a minimum radius of 15 feet.

When replacing or connecting to an existing sidewalk that is greater than five feet in width, the new width shall match the existing width.

For Wild Horse Pass Blvd/Sundust Rd TI, Koli Rd TI and SR 347/Queen Creek Rd TI, sidewalks shall be provided in accordance with the limits shown in the Schematic Design (the Design-Builder's Proposal Design at SR 347/Queen Creek Rd TI).

For Riggs Rd TI, sidewalks west of the western ramp intersection and east of the eastern ramp intersection shall be installed only to the outermost radius returns; however, embankment shall be constructed for future sidewalk by others, five feet in width to the new cattle guards on both sides.

For Goodyear Rd beyond the bridge and approach limits, the pedestrian facilities on Goodyear Rd must consist of an asphalt sidewalk through the limits of the barrier and end treatment paving. Beyond that AC paving, the PCCP roadway shoulder shall serve as the pedestrian facility in accordance with the Schematic Design.

(10) Maintenance Access Path

Design-Builder shall provide 100 scale Plans detailing all the maintenance access paths required. Maintenance access paths must be 12 feet wide minimum and must be continuous at the locations specified except as listed in TPA 200-4 (Maintenance Access (Exceptions to Continuous Access)). The maintenance access path must be generally located adjacent to the ROW fence except where obstacles are encountered, where another path is logical based on irregular ROW lines and where the path connects to roadways. The maintenance access paths must be traversable by a light-duty truck (pickup) with a 12 foot long flat-bed trailer. Except where the paths traverse roadway cut/fill slopes to connect back to crossroads, the maximum cross slope is 6:1 and the maximum longitudinal grade is 10%. Design-Builder must demonstrate as part of their design, that the maintenance vehicle can leave and enter a paved road in the direction of travel of the lane to which it connects. Where no connection to a roadway is available, a turnaround area utilizing a minimum radius of 25 feet shall be provided at the end of the access paths. Retaining walls shall be provided where necessary. Where there is existing or proposed decomposed granite, the maintenance access path

shall be covered with two inches of decomposed granite of a similar color and size; otherwise, no surface treatment is required for the path.

Maintenance access paths are required in the following locations:

- (a) I-10 mainline and ramps, along the east and west ROW lines of the freeway
- (b) Along both sides of the crossroads to the outer extents of the ADOT PCCP or the limit of ADOT ROW, whichever is furthest away from mainline, with the following exceptions:
 - (i) The maintenance access path along Westbound Wild Horse Pass Blvd shall extend to the approximate limits shown in the Schematic Design exhibit.
 - (ii) The maintenance access paths along SR 347 shall extend to the limits of Work.
- (c) Around the perimeter of all proposed drainage basins, in accordance with Section 500.

Design-Builder shall coordinate with ADOT, Governmental Entities, the Community, and Utility Companies to determine locations of roll curb to be installed at crossroads and specify those locations in the Plans.

(11) Right of Way and Access Control Fencing

Within the limits of construction, Design-Builder shall provide fencing at the Project ROW boundaries that are adjusted from existing boundaries (except at the southeast quadrant of the Wild Horse Pass Blvd/Sundust Rd TI), along existing boundaries that are not currently fenced with ADOT fencing and along extensions of drainage features that have existing fencing. In the southeast quadrant of the Wild Horse Pass Blvd/Sundust Rd TI, the new ROW will not be fenced; fencing in this quadrant must remain at the existing locations, and the existing basin must be protected in place. Design-Builder shall replace the damaged ROW fencing at the eastern Project ROW from approximate Sta 933+00 to 938+00. Additional ROW fencing that ADOT deems to not be in satisfactory condition and must be replaced will be considered ADOT-Directed Maintenance. Along the north and south sides of Wild Horse Pass Blvd/Sundust Rd TI, areas without fencing require new fencing only to the extent of the ADOT PCCP limits.

At the Koli Rd TI, access control fencing shall be installed along the north and south sides of Koli Rd to the extent of access control shown in the Schematic Design. An opening in the access control fencing shall be provided at each end of the proposed Koli Rd undercrossing alignment, and Design-Builder shall install access control fence from the ROW to the wing walls of the proposed equipment underpass. Gates shall be provided in each of these fences to allow ADOT maintenance vehicles through the fence. The gates shall be double gates 24 feet in total width in accordance with Std C-12.10 of the ADOT *Construction Standard Drawings*.

Existing fencing that is deemed to be in satisfactory condition may remain. The determination of satisfactory shall be as established in the Existing Conditions Site Documentation inventory assessment, Section 100.19(B).

At areas along mainline I-10 where there is currently no ADOT fence along the ROW, even if there is fence in place by adjacent development, Design-Builder shall install new fence adjacent to the existing fence.

Design-Builder shall install any gates needed in coordination with ADOT, the Community, and other Governmental Entities.

New access control fencing must comply with Std C-12.10 Type 2 Barbed Wire of the ADOT *Construction Standard Drawings*, unless it abuts to existing chain link fence, in which case the new fence shall comply with Std C-12.20 of the ADOT *Construction Standard Drawings* and match the height of the existing fence.

At each end of the existing three 120"x84" box culvert near Station 915+00, the existing ROW fence shall be adjusted as needed to provide a level five-foot space between the new ROW fence and the end of the box culvert.

At TIs, access control fence consisting of four feet high Std C-12.20 chain link fence in accordance with the ADOT *Construction Standard Drawings* shall be provided along the crossroad from the end of the bridge fencing to the ramp radius return if no concrete barrier is present. If no concrete barrier is present along the inside of the ramp, the fence shall extend down the ramp for a distance of 250 feet from the radius return of the ramp. This fence shall be located at the roadway slope hinge. Fence along the inside of the ramp is not required where concrete barrier is installed along the inside of the ramp. At Wild Horse Pass Blvd/Sundust Rd TI, Design-Builder shall remove the existing fence behind barrier along the inside of the ramps, with the exception of those reaches between the bridge barrier and the ramp barrier. Such reaches shall remain and be extended to connect with the full-height barrier on the ramp.

Where new bridges are proposed adjacent to existing bridges to remain, four feet high Std C-12.20 chain link fence of the ADOT *Construction Standard Drawing* shall be provided between the barriers at the end of the proposed bridges and the end of the adjacent existing bridge to remain at all TIs where such a configuration is part of Design-Builder design.

(12) Temporary Roadways

Temporary roadways must comply with the requirements in Section 316 of the ADOT *Roadway Design Guidelines*, as well as the requirements in Section 700. Prior to Substantial Completion, Design-Builder shall remove all temporary roadways in accordance with Section 104.04(A) of the ADOT *Standard Specifications*.

(13) Local Streets

All designs of streets and intersections that are within the design authority of the Community and Governmental Entities, shall be designed in accordance with the Contract Documents and those entity's standards and requirements as applicable and described in the Technical Provisions. The limits of design authority are defined in TPA 200-7 (Crossroad Design Authority Limits). For those portions of Wild Horse Pass Blvd, Sundust Rd and Koli Rd within the GRIC Department of Transportation design authority, the roadway design shall be in accordance with the Technical Provisions for ADOT design authority.

All local street improvements must include outside shoulders of minimum five foot in width, which consists of both pavement and up to two feet of gutter, unless otherwise specified in the Technical Provisions.

(14) ADA Compliance

New pedestrian facilities shall meet ADAAG requirements. Existing pedestrian facilities (excluding pedestrian fence) impacted by the Work shall be reconstructed or retrofit to meet ADAAG requirements.

At the service interchanges all existing pedestrian facilities that are to remain (excluding pedestrian fence on bridges to remain) shall be reconstructed as needed to meet ADAAG requirements.

Existing sidewalk ramps at the Wild Horse Pass Blvd/Maricopa Rd/Winners Way intersection will be impacted by the Work. All sidewalk ramps within the quadrants of the intersection impacted by the Work shall meet ADAAG requirements regardless if directly impacted or not. The quadrant of the interchange shall be defined by the intersection of the centerlines of the existing crossroads. New sidewalk ramp widths shall match adjacent sidewalk widths as described in Section 200.03(C)(9).

Design-Builder shall prepare a ADA Asset Spreadsheet, which identifies all the proposed pedestrian facilities and existing pedestrian facilities to remain within that submittal and confirms that all are ADAAG compliant. This includes ADA ramps, sidewalks, driveways, turnouts, crosswalks, and traffic signal push buttons modified or proposed new and affected by the Project. A sample ADA Asset Spreadsheet is provided in TPA 200-5 (ADA Asset Sample Spreadsheet). Design-Builder shall submit a ADA Asset Spreadsheet to ADOT in accordance with Table 200-3.

(15) Design Decision Documentation

Based on the Schematic Design and the Design-Builder's Proposal Design for the SR 347/Queen Creek TI, there is one FHWA AASHTO *Controlling Design Criteria* variance required in addition to but some ADOT *Roadway Design Guidelines* variances. These are all listed in TPA 200-3 (Design Decision Documentation).

ADOT has reviewed the ADOT *Roadway Design Guidelines* variances listed in the TPA 200-3 (Design Decision Documentation), based on the preliminary nature of the Schematic Design and potential for design changes by Design-Builder. Design-Builder shall prepare the formal Design Decision Document for all FHWA and ADOT design elements based on Design-Builder's design in accordance with the ADOT *Design Decision Guide*. Interpretation and use of the Schematic Design is subject to DBA Section 7.02(B) (Design-Builder Responsibility for Design).

Design-Builder is discouraged from creating additional design variances. If Design-Builder's design creates additional design variances, Design-Builder shall demonstrate on a case-by-case basis that substantial benefits to the Project would result from the request in accordance with the ADOT *Design Decision Guide*.

For all requests for design variances, Design-Builder shall prepare all documentation in accordance with the ADOT *Design Decision Guide*. Design-Builder shall submit the Design Decision Document to ADOT in accordance with Table 200-3. Design-Builder is advised that ADOT may withhold approval of any such request(s) at its sole discretion and Design-Builder shall schedule sufficient time for evaluation of all requests. Following review and acceptance of any Design Decision Document, ADOT will submit the ADOT approved Design Decision Document to FHWA for review and approval as required for variances requested to the AASHTO *Controlling Design Criteria*. All AASHTO *Controlling Design Criteria* variances must be reviewed by ADOT and reviewed and approved by ADOT and FHWA before Design-Builder may incorporate them into the Project's RFC design. Any delay caused by pursuing or obtaining design variances shall not entitle Design-Builder to an increase in the Contract Price, adjustment of a Contractual Deadline or any other Claim, or otherwise constitute a Relief Event.

Design-Builder shall prepare a Design Decision Document Final Report that consolidates all approved Design Decision Documents, all supporting documentation, and copies of the ADOT (and FHWA if required) approval letters. Design-Builder shall submit the Design Decision Document Final Report to ADOT in accordance with Table 200-3.

(D) Plans and Design Calculations**(1) Plans**

Design-Builder shall prepare Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks* and the ADOT *Drafting Guides for Use in Office and Field*. The Plans, at a minimum, shall include the following:

- (a) Face Sheet;
- (b) Lists of Standard Drawings;
- (c) Index of Sheets;
- (d) Design Sheet(s) (including all applicable General Notes, Earthwork Tables and other information shown in the ADOT *Drafting Guides for Use in Office and Field*);
- (e) Typical Roadway and Temporary Roadway Sections;
- (f) Pavement Structural Sections;
- (g) Summary Sheets (Barrier, Pipe, Pipe Extension and Reinforced Concrete Box Culvert [RCBC] at a minimum);
- (h) Special Details;
- (i) Survey Control;

- (j) Geometric Layout;
- (k) Geometric Data;
- (l) Existing Conditions Removal;
- (m) Roadway Plan and Profile;
- (n) Gore Staking Sheets;
- (o) Intersection Staking Sheets;
- (p) Sidewalk Ramp Staking Sheets;
- (q) Pavement Joint Layout Sheets;
- (r) Temporary Roadway Plan Sheets and Profile;
- (s) Fence Layout Plans and Summaries;
- (t) Retaining Wall and Noise Barrier Plans and Elevations; and
- (u) Annotated Cross Sections.

(2) Design Calculations

Design-Builder shall prepare all necessary calculations to justify design elements. Electronic versions (in PDF/A format) of calculations shall be included with each Preliminary Design Submittal, Final Design Submittal, and RFC Submittal. The calculations, at a minimum, shall include the following:

- (a) Horizontal Stopping Sight Distance;
- (b) 1.5 times Sight Distance Approaching Ramp Gores;
- (c) 2.0 times Sight Distance Approaching Lane Drops;
- (d) Intersection Sight Distance;
- (e) Vertical Stopping Sight Distance;
- (f) Vertical Clearance;
- (g) Superelevation and Breakovers; and
- (h) Barrier Length of Need.

200.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all roadway Construction Work in accordance with the standards, manuals, and guidelines listed in Table 200-2.

Table 200-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Construction Standard Drawings
2.	ADOT	ADOT Standard Specifications for Road and Bridge Construction

No.	Organization	Name
3.	ADOT	ADOT Construction Manual
4.	MAG	Uniform Standard Specifications for Public Works Construction
5.	MAG	Uniform Standard Details for Public Works Construction
6.	MCDOT	Maricopa County Supplement to the MAG Standard Specifications and Details
7.	MCDOT	Approved Materials List
8.	MCDOT	Sampling And Testing Guidelines

(B) Certifications

Design-Builders shall obtain Barrier, End Treatment, and Crash Cushion Certifications that certifies that the proposed barriers, barrier end treatments, and crash cushions comply with the requirements of MASH, as required by the RFC Submittal Plans. The IQF must approve the Barrier, End Treatment, and Crash Cushion Certifications prior to submission to ADOT. Design-Builders shall not install barriers, barrier end treatments, or crash cushions prior to IQF approval of the certifications. Design-Builders shall submit Barrier, End Treatment, and Crash Cushion Certifications to ADOT in accordance with Table 200-3.

(C) ROW Fence

Design-Builders shall not remove existing fencing in conflict with construction until temporary or new permanent fencing is in place. If a conflict exists, Design-Builders shall notify an ADOT-Authorized Representative via e-mail of such conflict not later than 10 Business Days prior to modifying existing fencing. Temporary fence must match the type and height of the removed fence.

(D) ADA Certifications

The IQF and CIQM shall certify that all constructed pedestrian facilities identified on the ADA Asset Spreadsheet were constructed per plan and are in conformance with ADAAG. Design-Builders shall submit Certified ADA Asset Spreadsheet to ADOT in accordance with Table 200-3.

(E) Acceptance Criteria for Re-use of 42-inch Precast Median Barrier

42-inch precast median barrier previously utilized for MOT on the Project and being proposed for installation in a permanent configuration shall be subject to the following acceptance criteria:

Temporary Concrete Barrier exhibiting the following conditions will be considered acceptable if:

- (1) The barrier is completely intact and has only minor blemishes or imperfections, which may include superficial gouges or minor cracks. The barrier has no structural cracks or cracks that exist through the entire cross-section;
- (2) There are only minor spalls with a depth of 2 inches or less, and no exposed rebar (excluding anchor slots);
- (3) The unit-to-unit connection assemblies are functional with no damage, are all intact, and fixed in their positions; and
- (4) All spalled or cracked areas smaller than 1' x 1' x 2" are repaired and patched utilizing approved patching materials;

Temporary Concrete Barrier exhibiting the following conditions will be considered unacceptable if:

- (1) The barrier has multiple cracks throughout, structural cracks or cracks through the entire cross-section;
- (2) The barrier has spalled or cracked areas larger than 1' x 1' x 2" or any location with exposed rebar or rebar protruding from the barrier (excluding anchor slots); or bolts protruding from the barrier face;
- (3) The barrier has cracked or broken concrete that could easily be dislodged if hit; resulting in either of the two conditions above;
- (4) The barrier has broken concrete or shear cracking around the anchor slots; and/or
- (5) The unit-to-unit connection assemblies are deformed, bent, broken, or no longer in a fixed position.

200.05 Submittals

Table 200-3 reflects a list of Submittals identified in this Section 200 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 200-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Best-Fit Analysis</u>	3	No later than the <u>Final Design Submittal</u>	200.03(C)(2)
2.	<u>ADA Asset Spreadsheet</u> ^B	3	With each <u>Preliminary Design Submittal</u> , <u>Final Design Submittal</u> , and <u>RFC Submittal</u> for roadway and traffic signal Submittals	200.03(C)(14)
3.	<u>Design Decision Document</u>	1	At the same time as <u>Preliminary Design Submittal</u> for the associated Work.	200.03(C)(15)
4.	<u>Design Decision Document Final Report</u>	3	At the same time as <u>Final Design Submittal</u> for the associated Work.	200.03(C)(15)
5.	<u>Barrier, End Treatment, and Crash Cushion Certifications</u>	3	Prior to installation.	200.04(B)
6.	<u>Certified ADA Asset Spreadsheet</u> ^B	3	Not later than 30 days after completion of the Punch List	200.04(D)
Notes: A. Levels of Review 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) B. Community review required, ADOT will coordinate review.				

End Section

DIVISION III

SUBGRADE, SUBBASES, AND BASES

300 Geotechnical**300.01 General Requirements**

Design-Builder shall perform all geotechnical Work in compliance with the requirements in this Section 300.

300.02 Administrative Requirements**(A) Existing Geotechnical Information**

ADOT has performed a recent geotechnical investigation for the Project and prepared geotechnical reports consisting of the *I-10 Gila River Indian Community Design Build Project Geotechnical Engineering Data Report* and a *Preliminary Geotechnical Foundation Report for Project No F0721 from SR202L to Gila River Bridge* which are included in the RIDs. ADOT has also performed a geotechnical investigation for the Koli Rd TI and has prepared an *I-10 Gila River Indian Community Design-Build Project I-10 Koli Road Traffic Interchange Geotechnical Engineering Data Report*, which is provided in the RIDs. Design-Builder may utilize the geotechnical data in these reports for geotechnical design. The recent geotechnical reports prepared by ADOT and additional geotechnical information available from ADOT and other sources are provided in the RIDs.

The geotechnical information provided in the RIDs, including the *I-10 Gila River Indian Community Design Build Project Geotechnical Engineering Data Report*, the *I-10 Gila River Indian Community Design-Build Project Koli Road Geotechnical Engineering Data Report* and the *Preliminary Geotechnical Foundation Report for Project No F0721 from SR202L to Gila River Bridge* described above, is provided by ADOT at ADOT's good-faith discretion to meet the level of final geotechnical investigations in accordance with the minimum requirements for investigations as contained in the ADOT *Geotechnical Project Development Manual* (GPDM) and AASHTO *LRFD Bridge Design Specifications*, 6th Edition (2012). However, geotechnical investigations for prospective retaining walls and for a bridge widening at Wild Horse Pass Blvd/Sundust Rd TI were not performed. Design-Builder shall provide the technical basis and confirmation that supplemental geotechnical investigations are required for the Project in accordance with the ADOT GPDM, AASHTO *LRFD Bridge Design Specifications*, 6th Edition (2012) and the Contract Documents. If supplemental geotechnical investigation by Design-Builder is deemed required, such as for proposed bridge configurations or retaining walls, Design-Builder shall perform such geotechnical investigations to obtain the required data and shall perform tests, analyses, and calculations to develop independent geotechnical recommendations for the Project to support Design-Builder's design.

(B) Software Requirements

Design-Builder may use the software programs set forth below for geotechnical Work. If Design-Builder proposes to use any software other than that listed and included as part of the *Basis of Design Report* in accordance with Section 100.17, including Design-Builder's in-house spreadsheets and computer programs, Design-Builder shall submit proposed *Geotechnical Software* (including input and output files for verification data) to ADOT in accordance with Table 300-4.

Acceptable geotechnical software for Design Work includes the following programs:

- (1) AllPile;
- (2) APILE;
- (3) CBEAR;
- (4) CRSP Version 4.0 or 5.0 (CRSP 3D Version shall not be used);
- (5) Dips;
- (6) EMBANK;
- (7) DRIVEN;
- (8) FieldMove Clino;
- (9) FoSSA;
- (10) gINT;
- (11) GSTABL7;

1	(12)	Geoslope;
2	(13)	GOLDNAIL;
3	(14)	GRLWEAP;
4	(15)	GROUP;
5	(16)	LPILE;
6	(17)	MSEW 3.0;
7	(18)	PCSTABL;
8	(19)	Pickwin;
9	(20)	Plotrefa;
10	(21)	ReSSA;
11	(22)	RetainPro;
12	(23)	RockPack;
13	(24)	RocScience slope stability and excavation design suite of programs;
14	(25)	Settle3;
15	(26)	Shaft v2017;
16	(27)	Shoring Suite;
17	(28)	Snail;
18	(29)	SNAILZ;
19	(30)	Strain Wedge Model;
20	(31)	Surface Plus;
21	(32)	Surfer;
22	(33)	TZPILE;
23	(34)	UniSettle; and
24	(35)	XSTABL.

(C) Equipment Requirements

Design-Builder shall ensure that standard penetration testing drive hammers to be used for the geotechnical investigation have been tested for energy efficiency within the 12 months prior to use. The energy efficiency ratio for the drive hammers shall be reported in the boring logs, drilling records and geotechnical reports. Design-Builder shall submit Standard Penetration Testing Drive Hammer Calibration Records to ADOT in accordance with Table 300-4. Geotechnical data obtained using uncalibrated drive hammers shall be considered informational and shall not be used for final design.

(D) Excavation and Backfill of Cultural Investigation Areas

In areas where cultural investigation excavations have occurred, the backfill was not placed and compacted in accordance with Section 203 of the ADOT *Standard Specifications*. Where Design-Builder will be constructing new roadway prisms in those cultural investigation areas, Design-Builder shall excavate to a depth of five feet, place and compact this embankment (notwithstanding the requirements for removal of any identified unsuitable material). These embankments shall be placed and compacted in accordance with Section 203 of the ADOT *Standard Specifications*. An exhibit showing the areas of cultural investigation is included as TPA 117-2 (*Cultural Investigation Areas*).

300.03 Design Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all geotechnical Design Work, including field explorations and subgrade sampling and testing, in accordance with the standards, manuals, and guidelines listed in Table 300-1.

The design standards, manuals, and guidelines in Table 300-1 are intended to assist Design-Builder in identifying the relevant references (design standards, manuals and guidelines). Design-Builder is responsible for determining if other relevant references also are applicable.

1

Table 300-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	AASHTO	LRFD (Load and Resistance Factor Design) Bridge Design Specifications, 6th Edition, 2012
2.	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 6th Edition, 2022 Interim Revisions, 2022
3.	FHWA	Geotechnical Engineering Circular No. 11, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Publication No. FHWA-NHI-10-024/025, Volumes I and II, 2009
4.	FHWA	Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods, Publication No. FHWA-NHI-18-024, 2018
5.	FHWA	Geotechnical Engineering Circular No. 7, Soil Nail Walls, Publication No. FHWA-IF-03-017, 2003
6.	FHWA	Geotechnical Engineering Circular No.5, Geotechnical Site Characterization, Publication No. FHWA-NHI-16-072, 2017
7.	FHWA	Geotechnical Engineering Circular No. 4, Ground Anchors and Anchored Systems, Publication No. FHWA-IF-99-015, 1999
8.	FHWA	Geotechnical Engineering Circular No. 3, LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations. Publication No. FHWA-NHI-11-032, 2011
9.	FHWA	Soil Slope and Embankment Design Reference Manual, Publication No. FHWA-NHI-05-123, 2005
10.	ADOT	Geotechnical Project Development Manual (GPDM), V2.0, September 2022
11.	ADOT	ADOT DS-1: Development of Drilled Shaft Axial Resistance Charts for Use by Bridge Engineers Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
12.	ADOT	ADOT DS-2: Interim Guidance – Design of Drilled Shafts in Gravels and Gravelly Soils Exhibiting Drained Behavior, Memorandum, 2010
13.	ADOT	ADOT DS-3: Analysis of Drilled Shafts Subjected to Lateral Loads Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
14.	ADOT	ADOT SF-1: Development of Factored Bearing Resistance Chart by a Geotechnical Engineer for Use by a Bridge Engineer to Size Spread Footings on Soils Based on Service and Strength Limit States Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2008 (Revision 1)
15.	ADOT	ADOT SF-2: Limiting Eccentricity Criteria for Spread Footings Based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
16.	ADOT	ADOT SF-3: Resistance Factors for the Estimation of Factored Sliding and Bearing Resistance for Spread Footings of Gravity and Semi-gravity Walls based on Load and Resistance Factor Design (LRFD) Methodology, Memorandum, 2010
17.	ADOT	Pavement Design Manual (PDM), September 2017

No.	Organization	Name
18.	Naval Facilities Engineering Command (NAVFAC)	Soil Mechanics Design Manual (DM) 7.01, 1986
19.	Naval Facilities Engineering Command (NAVFAC)	Foundations & Earth Structures Design Manual (DM) 7.02, 1986

(B) Subsurface Geotechnical Investigation by Design-Builder

Design-Builder shall perform subsurface geotechnical investigations, testing, research, and analysis as necessary to design the roadways, crossroad pavements, temporary pavement, structures, foundations, retaining walls, embankments and fill slopes, excavations and cut slopes, and other facilities for the Project. Minimum exploration requirements are listed in Table 300-2.

Table 300-2: Minimum Exploration Requirements

No.	Feature	Applicable Requirement
1.	Bridges	Per AASHTO (2012) and ADOT GPDM
2.	Retaining Walls including MSE and Soil-Nail Walls	Per AASHTO (2012) and ADOT GPDM
3.	Culverts	Per AASHTO (2012) and ADOT GPDM
4.	Light Poles and Sign Structures	Per AASHTO (2012) and ADOT GPDM
5.	Crossroad Pavements	Per ADOT GPDM, ADOT PDM or Governmental Entity
6.	Temporary Pavements	Per ADOT GPDM and ADOT Pavement Design Manual
7.	Cut Slopes and Fill Slopes	Per ADOT GPDM
8.	Stormwater Storage Facilities (Retention Basins)	Per <u>Section 500.03</u> and ADOT GPDM
9.	Drainage facilities	As required by Drainage Design Engineer of Record
10.	Temporary Shoring	Per AASHTO (2012), ADOT GPDM, FHWA Geotechnical Engineering Circular No. 4 and NAVFAC DM 7.01 and 7.02

Design-Builder shall prepare a Boring and Access Plan that outlines the geotechnical investigation program. The Boring and Access Plan shall include a listing of exploration points with planned depths, exploration methods and equipment, sampling methods and frequency, and planned laboratory testing, and shall include a site plan showing exploratory locations and planned routes to access the locations. Basic field exploration, sample recovery and handling, and laboratory testing methods shall be outlined in the Boring and Access Plan. Design-Builder shall submit a Boring and Access Plan to ADOT in accordance with Table 300-4. Design-Builder shall obtain a Utility Clearance Certification from each Utility Company that states that the proposed subsurface exploration locations are cleared. The Design Manager, Construction Manager, and Utility Adjustment Coordinator must certify each Utility Clearance Certification. Design-Builder shall submit a Utility Clearance Certification to ADOT in accordance with Table 300-4.

The geotechnical investigation program shall be conducted under either a separate geotechnical SWPPP for design or under the Project SWPPP in accordance with Section 104.09(B), and under ADOT encroachment permit(s),

Community Encroachment Permit, BIA Encroachment Permit, and/or other Local Jurisdiction (Governmental Entity) encroachment permits or entry agreements, as required in accordance with the Contract Documents. Design-Builder shall submit Copies of Encroachment Permits to ADOT in accordance with Table 300-4. The geotechnical investigation program shall not be performed until all environmental clearances for the exploratory locations are obtained as required in accordance with the Contract Documents. Design-Builder shall submit Copies of Environmental Clearances to ADOT in accordance with Table 300-4. Design-Builder shall contact Arizona 811 to obtain Utility clearances prior to any subsurface excavation activities. Design-Builder shall submit Copies of Utility Clearances to ADOT in accordance with Table 300-4.

Design-Builder shall notify ADOT at least 20 Business Days in advance of all field work associated with the geotechnical investigation for informational purposes, to coordinate clearances, and to allow review and approval of any traffic control activities and traffic control plans required to safely complete the field work as described in Section 701.04.

All geotechnical field investigation shall comply with Arizona Department of Water Resources drilling regulations regarding groundwater. Design-Builder shall employ field investigation measures that avoid groundwater contamination and pollutant discharge and shall perform all geotechnical investigation and associated mitigation and/or restoration in accordance with Section 119.02(B).

(C) Geotechnical Engineering Report

Design-Builder shall prepare Preliminary and Final Geotechnical Engineering Reports documenting the subsurface geotechnical conditions and results of the geotechnical investigations and analyses for the Project study area including assumptions. Design-Builder shall address potential impacts to existing bridge structures as required in Section 600. Design-Builder's Preliminary and Final Geotechnical Engineering Reports shall include a description of the subsurface geologic profile and geotechnical properties of the materials that will control performance of for each of the Project features and shall include the following:

- (1) Cover page, signed and sealed by the geotechnical EOR;
- (2) Description of the physical characteristics of the site;
- (3) Description of the geologic profile, units and sequence beneath the site, including soil and rock types;
- (4) Description of the groundwater conditions beneath the site;
- (5) Description of the field investigations methods and laboratory tests used to characterize subsurface conditions. Field investigations descriptions shall include field logging techniques and personnel, sampler penetration test results, hammer efficiency for each drilling rig and boring, soil sample and rock core sample recovery, in situ test results, and rock recovery, rock quality designation and discontinuity orientation and spacing for all rock core, where applicable. Laboratory test results shall include classification and engineering properties for all major soil and rock strata in the Project study area;
- (6) A discussion of the geological profile and geotechnical conditions and results with reference to specific locations on the Project. Discussion of applicable geologic hazards shall be included;
- (7) Geotechnical recommendations for the following Project elements:
 - (a) Structures, including foundation type studies and capacities, lateral earth pressures, and related design parameters for bridges, retaining walls, sound and screen walls, culverts, sign structures and light poles;
 - (b) Roadway subgrade and embankments, including material types and suitability, foundation and subgrade conditions and improvement, settlement impacts and remediation, and evaluation of prospective borrow source areas;

- (c) Roadway excavations, including material types and suitability of excavated materials for use in embankments;
- (d) Temporary and permanent cut and fill slopes, including slope stability analyses for embankment fill slopes and cut slopes, slope stabilization designs, rock cut slope designs, and rockfall containment facilities;
- (e) Impacts of compressible, hydro-collapsible, and/or expansive soils if present, and proposed improvements and mitigations;
- (f) Stability analyses for temporary excavations and/or structures as applicable to demonstrate acceptable stability. Global and/or external stability analyses for walls shall be performed including coordination with wall designers/manufacturers as needed;
- (g) Scour and bank erosion protection for natural and engineered drainage channels;
- (h) Results of percolation/infiltration tests and recommendations for design of stormwater storage facilities;
- (i) Erosion abatement design for permanent cut and fill slopes;
- (j) Corrosion potential of soils on construction materials and buried elements;
- (k) Groundwater considerations and impacts including necessary remedial actions;
- (l) Construction and inspection considerations;
- (m) Specification requirements and special provisions related to geotechnical recommendations;
- (n) Details and objectives of any instrumentation and monitoring plan, including for structures and roadway embankments;
- (o) Suitability of materials (borrow, aggregates, riprap, etc.) that can be obtained from Project excavations, including source, quality, and availability;
- (p) Recommendations for subgrade improvements for those locations not meeting the subgrade acceptance chart contained in TPA 400-1.2 (Materials Design Report) and TPA 400-1.4 (Materials Design Report – Koli Road TI);
- (q) Recommendations for instrumentation and monitoring of existing and proposed structures, embankments and facilities; and
- (r) Recommendations for design of temporary shoring including design earth pressure diagrams and design parameters considering Design-Builder's anticipated shoring wall types;
- (8) Appendices, including the following:
- (a) Plan view locations of field geotechnical sampling/testing (e.g., borings, backhoe test pits, test trenches, surface samples, surface geologic maps, and geophysical surveys);
- (b) Final boring logs and field/laboratory test data used for the analysis and design;
- (c) Other field test data (e.g., geophysical surveys, pressure meter tests, and percolation/infiltration tests);
- (d) Laboratory testing methods and summary tables of test results;

- (e) Topsoil testing results;
- (f) 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;
- (g) Copies of the standard penetration testing drive hammer(s) energy calibrations; and
- (h) Photographs of all rock core samples with identification labels.

Design-Builder shall submit a Preliminary Geotechnical Engineering Report to ADOT in accordance with Table 300-4. Additionally, Design-Builder shall submit a Final Geotechnical Engineering Report to ADOT in accordance with Table 300-4. The Final Geotechnical Engineering Report shall be signed and sealed by the geotechnical Engineer of Record.

After approval of the Final Geotechnical Engineering Report(s), Design-Builder 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). Design-Builder shall submit Geotechnical Supplements to ADOT in accordance with Table 300-4.

Work required based on the geotechnical engineering report(s), including over-excavation requirements, structure foundation geotechnical designs, permanent casing for drilled shaft foundations, and subgrade improvement methods and limits, shall be included in the Plans and submitted as details for ADOT review at the same time as the associated roadway or structures Submittal or as a standalone Submittal.

Design-Builder shall prepare an As-Built Geotechnical Engineering Report inclusive of all Final Geotechnical Engineering Reports and Geotechnical Supplements combined into one file/document. Design-Builder shall submit the As-Built Geotechnical Engineering Report to ADOT in accordance with Table 300-4.

(D) Geotechnical Analyses and Design

(1) Shallow Foundations

Shallow foundations shall be designed and constructed in accordance with the AASHTO *LRFD Bridge Design Specifications*, 6th Edition (2012), ADOT *GPDM* and applicable ADOT memoranda.

(2) Deep Foundations

Deep foundations shall be designed and constructed in accordance with the AASHTO *LRFD Bridge Design Specifications*, 6th Edition (2012), ADOT *GPDM* and applicable ADOT memoranda, and applicable FHWA *Geotechnical Engineering Circulars*.

(3) Retaining Walls

Retaining walls shall be designed and constructed in accordance with the AASHTO *LRFD Bridge Design Specifications*, 6th Edition (2012), ADOT *GPDM*, applicable ADOT memoranda, applicable FHWA *Geotechnical Engineering Circulars*, and the requirements of Section 600. Global stability analysis of the retaining wall systems shall be performed to demonstrate acceptable stability in accordance with AASHTO *LRFD Bridge Design Specifications*, 6th Edition (2012) requirements.

(4) Instrumentation

Design-Builder shall prepare an Instrumentation Plan for all retaining walls, Mechanically Stabilized Earth (MSE) walls, soil-nail walls and embankments greater than 20 feet in height, and for all existing structures which will be impacted by proposed new construction, in accordance with the applicable standards listed in Section 300.03(A).

The Instrumentation Plan shall include proposed types of instruments, depths, installation details, manufacturers' information, and reporting. Monitoring points shall be spaced no further than 50 feet apart along the length of each

1 wall with a minimum of two points per each individual wall and embankment. Spacing of monitoring points for
2 embankments and existing structures shall be described in the Instrumentation Plan. For walls, monitoring shall
3 begin once the wall reaches a height of 20 feet and shall continue until the wall settlement and lateral movement
4 have stabilized for a minimum of one month. Monitoring points shall be read at least weekly during the monitoring
5 period. Frequency of readings of monitoring points for embankments and existing structures shall be described in
6 the Instrumentation Plan. Design-Builder shall submit the Instrumentation Plan to ADOT in accordance with
7 Table 300-4.

8 (5) Tolerable Deformations

9 Design-Builder shall design the Work in accordance with the following deformation criteria:

10 (a) Highway bridge substructures:

11 (i) Maximum total settlement of one inch after bridge superstructure has been
12 constructed; and

13 (ii) Maximum differential settlement of 0.75-inch after the bridge
14 superstructure has been constructed;

15 (b) Retaining walls, MSE walls and soil-nail walls, and miscellaneous structures:
16 Maximum total and differential settlements and lateral movements (including
17 settlement and lateral movements attributable to stresses imposed by
18 embankments) shall result in no distress to the structures and visual treatments of
19 walls, including cracking and spalling of concrete, tilting and lateral deformation of
20 wall panels, and separation or crushing at joints; and

21 (c) Embankments and subgrade: Design-Builder shall address settlement of
22 embankments (total and differential settlements) so that the settlement will not
23 negatively impact the functionalities and performance of facilities located
24 immediately on top or adjacent to the embankment, and the service life of these
25 facilities, in accordance with the Contract Documents.

26 (6) Design and Construction Control R-Values

27 For any pavements not specified in in TPA 400-1.2 (Materials Design Report) and TPA 400-1.4 (Materials Design
28 Report – Koli Road TI), Design-Builder shall develop design and construction control R-values for pavement design in
29 accordance with the standards, manuals and guidelines noted herein and in Section 400. The construction control
30 R-value shall not be less than the design R-value.

31 300.04 Construction Requirements

32 (A) Standards, Manuals, and Guidelines

33 Design-Builder shall perform all geotechnical Construction Work in accordance with the standards, manuals, and
34 guidelines listed in Table 300-3.

35 **Table 300-3: Construction Standards, Manuals, and Guidelines**

No.	Organization	Name
1.	FHWA	Geotechnical Engineering Circular No. 11, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Publication No. FHWA-NHI-10-024/025, Volumes I and II, 2009

No.	Organization	Name
2.	FHWA	Geotechnical Engineering Circular No. 10, Drilled Shafts: Construction Procedures and LRFD Design Methods, Publication No. FHWA-NHI-18-024, 2018
3.	FHWA	Geotechnical Engineering Circular No. 7, Soil Nail Walls, Publication No. FHWA-IF-03-017, 2003
4.	FHWA	Geotechnical Engineering Circular No. 4, Ground Anchors and Anchored Systems, Publication No. FHWA-IF-99-015, 1999
5.	FHWA	Soil Slope and Embankment Design Reference Manual, Publication No. FHWA-NHI-05-123, 2005
6.	ADOT	Standard Specifications for Road and Bridge Construction, 2021
7.	AASHTO	LRFD Bridge Design Specifications

(B) Foundations

Design-Builder shall construct all foundations in accordance with the ADOT *Standard Specifications*.

(1) Drilled Shaft Load Testing

If drilled shaft foundation load testing is performed, Design-Builder shall perform such tests in accordance with the recommendations presented in FHWA *Geotechnical Engineering Circular No. 10*. Design-Builder shall perform the static load tests on a sacrificial, non-production drilled shaft(s) and shall design such load tests to measure the nominal axial resistance of the test drilled shaft and load transfer characteristics of the shaft/soil profile. Both conventional (top-down) and bi-directional Osterberg Cell ("O-Cell") drilled shaft static load testing methods are allowed.

Design-Builder 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/depths;
- (b) Details and capacities of the loading frame and reaction drilled shafts or piles, or Osterberg cell (O-cell) assemblies;
- (c) Test drilled shaft instrumentation plan, including locations and depths of all instrumentation, details and calibration certificates of all test instrumentation proposed for monitoring of the test drilled shaft, such as sister bar-mounted strain gauges, linear vibrating wire displacement transducers, compression telltales, vibrating wire pressure transducers, load cells, pressure gauges, data acquisition system and all associated software, and survey points and methods for monitoring the axial displacement of the test drilled shaft;
- (d) Installation plan for the test drilled shaft and reaction drilled shafts or piles prepared in accordance with the Drilled Shaft Installation Plan requirements in Section 300.04(B)(2); and
- (e) Drilled Shaft Load Test Report(s), which shall include the following items:

- (i) Description of the test drilled shaft details, construction, instrumentation, and test procedures;
- (ii) Tables presenting all applied loads, axial displacement, monitoring and Instrumentation Data;
- (iii) Plots of load versus displacement for each stage of the load test;
- (iv) Plots of axial load transfer along the length of the test drilled shaft determined from the strain gauge data for a minimum of 10 applied load increments;
- (v) Summaries of mobilized unit side resistance along the length of the test drilled shaft, and mobilized tip resistance;
- (vi) Plots of creep displacement for each loading direction and load increment; and
- (vii) Plot of equivalent top-down load versus displacement curve for the test drilled shaft, developed from the load test data.

Design-BUILDER shall submit the Drilled Shaft Load Test Program to ADOT in accordance with Table 300-4.

Design-BUILDER shall prepare a Drilled Shaft Load Test Report in accordance with the Drilled Shaft Load Test Program.

Design-BUILDER shall submit the Drilled Shaft Load Test Report to ADOT in accordance with Table 300-4.

Subsequent to completion of the drilled shaft load test(s), Design-BUILDER shall cut-off the test drilled shaft at least five feet below final grade.

(2) Drilled Shaft Installation Plan

Design-BUILDER shall prepare a Drilled Shaft Installation Plan that includes the following information:

- (a) List of proposed equipment to be used including cranes, drills, augers, bailing buckets, final cleaning equipment, drilling slurry de-sanding equipment, drilling slurry tanks and pumps, concrete and slurry sampling equipment, tremie pipes, concrete pumps, temporary and permanent casing, and other proposed equipment;
- (b) Details of overall construction operation sequence and the sequence of drilled shafts construction in bents or groups;
- (c) Details of drilled shaft excavation methods, including equipment and procedures for checking the location, dimensions and vertical alignment of each drilled shaft excavation;
- (d) When slurry is selected for drilled shaft excavation stabilization, slurry mix design and products including manufacturer's data sheets, safety data sheets, quality control procedures, and disposal details;
- (e) Details of the proposed methods to mix, circulate and de-sand drilling slurry;
- (f) Details of methods to clean the drilled shaft excavation and verify cleanliness;
- (g) Details of reinforcing cage placement, including support and centralization methods, reinforcing cage stabilizer bar arrangements, lifting equipment, and staging location for tied steel reinforcing cages prior to placement;

- (h) Details of concrete placement, including concrete volumetric charts and placed concrete quantity tracking methods including measurement of rate of rise of the top of concrete in the drilled shaft;
- (i) Details of casing dimensions, material, and splice details;
- (j) Details of concrete mix designs and mitigation of possible loss of concrete slump during placement;
- (k) List of work experience for previous similar projects;
- (l) Emergency horizontal construction joint method if unforeseen stoppage of Work or interruption in concrete delivery occurs;
- (m) Details of any special access or setup requirements needed to position the drill equipment to advance drilled shaft excavations;
- (n) Proposed method to extend the length of integrity testing tubes in the event the drilled shaft excavation is over-drilled to beyond the design tip elevation including the proposed method to support the extended tubes. Integrity testing tubes shall be extended to within six inches of the as-drilled bottom of the drilled shaft excavation in the following instances:
- (i) For a dry-method drilled shaft that is over-drilled by more than three feet; and
- (ii) For a wet-method drilled shaft that is over-drilled by more than two feet; and
- (o) Other information shown on the Plans or requested by ADOT.

Design-Builder shall develop the Drilled Shaft Installation Plan with input from Subcontractors, material suppliers, and all others with drilled shaft responsibility. The Drilled Shaft Installation Plan shall also identify which portion of the drill shaft construction Design-Builder and each of the Subcontractors will be performing. Design-Builder shall submit the documentation required above to the Geotechnical Manager before Work on shafts is to begin. The Geotechnical Manager must review the initial submittal within, and subsequent submittals, as necessary.

Design-Builder shall schedule and hold a drilled shaft preconstruction meeting following the final approval of the Drilled Shaft Installation Plan and prior to commencement of drilling activity. All parties named in the Drilled Shaft Installation Plan shall be represented at the preconstruction meeting. No drilled shaft work shall be performed until Design-Builder's final Drilled Shaft Installation Plan submittal has been approved by ADOT and the preconstruction meeting concluded. Such approval will not relieve Design-Builder of responsibility for results obtained by use of the installation plan, or any of its other responsibilities under the Contract. Design-Builder shall be responsible to submit a modified Drilled Shaft Installation Plan each time a change is made to facilitate construction.

Foundations of less than four feet in diameter and 20 feet in length utilized in light pole, traffic signal and sign structure foundations shall be exempt from the requirement to submit a Drilled Shaft Installation Plan, perform integrity testing, conduct a drilled shaft preconstruction meeting, and construct a confirmation shaft.

Design-Builder shall submit the Drilled Shaft Installation Plan to ADOT in accordance with Table 300-4.

(3) Drilled Shaft QC/Integrity Testing

Design-Builder shall perform quality control testing and integrity testing of all constructed drilled shaft foundations except for light pole and sign structure drilled shaft foundations as specified in Section 600.04. Quality control testing and integrity testing shall include crosshole sonic logging in accordance with ASTM D6760 and gamma density logging in accordance with ASTM D6274.

Design-Builder shall perform drilled shaft integrity testing no earlier than 48 hours after placement of shaft concrete. Design-Builder shall prepare a Drilled Shaft Quality Control Report that presents the results of quality control and integrity testing of drilled shaft foundations including IQF documentation of the construction. The Drilled Shaft Quality Control Report shall include (but not be limited to) reference to the applicable specifications, IQF documentation of the shaft construction including dimensions, details, and rate of rise of the top of concrete in the drilled shaft, and the report of results of cross-hole sonic logging and gamma density logging tests. Design-Builder shall submit the Drilled Shaft Quality Control Report, which covers that drilled shaft or group of drilled shafts, to ADOT in accordance with Table 300-4.

(C) MSE Walls

Design-Builder shall design and construct MSE walls in accordance with the AASHTO *LRFD Bridge Design Specifications*, FHWA *Geotechnical Engineering Circular No. 11* and TPA 600-2 (Mechanically Stabilized Earth (MSE) Wall Systems).

Design-Builder shall determine placement tolerances for MSE wall facing elements that shall be included in the Project Special Provisions for MSE walls.

(D) Soil Nail Walls

Design-Builder shall design and construct soil-nail walls in accordance with the FHWA *Geotechnical Engineering Circular No. 7* and TPA 600-1 (Soil Nailed Wall Systems). Permanent soil-nail walls with exposed facing shall include a CIP reinforced concrete facing anchored to the soil-nails and with aesthetic treatment which conforms to the requirements of Section 800.03(C)(4)(b).

(E) Anchored Walls

Design-Builder shall design and construct anchored walls in accordance with the AASHTO *LRFD Bridge Design Specifications*, and FHWA *Geotechnical Engineering Circular No. 4*.

(F) Slope Stability and Protection of Slopes

Design-Builder is responsible for slope stability throughout the Project, both within and adjacent to the Project ROW. If any slope instability develops during construction, Design-Builder shall cease all Work in the immediate area within and around the unstable ground until the situation is fully assessed by Design-Builder's Geotechnical Manager. Design-Builder shall implement temporary slope stabilization measures subject to ADOT's approval to ensure the safety of the public and Design-Builder and ADOT personnel prior to returning to Work in the area of unstable ground.

All permanent slope stabilization measures shall meet the aesthetic treatment requirements of Section 800 and comply with minimum global slope stability safety factors in accordance with the AASHTO *LRFD Bridge Design Specifications*, and the FHWA *Soil Slope and Embankment Design Reference Manual*.

(G) Instrumentation Reports

Design-Builder shall prepare an Instrumentation Report(s) containing the data and results of the monitoring of instrumentation of all geotechnical Work that requires monitoring as described in Section 300.03(D)(5). The Instrumentation Report(s) shall include the following:

- (1) The types, locations, and depths of installed instruments;
- (2) Description of the reading procedures and frequencies;
- (3) Updated summary plots of readings;
- (4) A brief commentary that identifies all significant changes in the measured parameters since the previous Instrumentation Report;

(5) Probable causes of these changes; and

(6) Recommended mitigation action(s) as necessary.

Design-Builders procedure for interpretation of monitoring data shall include evaluation of the data to determine reading correctness and to detect changes requiring immediate action. Design-Builders 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(s) shall 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, Design-Builders shall submit Instrumentation Report(s) to ADOT in accordance with Table 300-4. Additionally, Design-Builders shall submit all Instrumentation Data for each recording included in the Instrumentation Report(s) to ADOT in accordance with Table 300-4.

300.05 Submittals

Table 300-4 reflects a list of Submittals identified in this Section 300 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builders shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builders shall submit the following to ADOT in the formats described in Section 113.02:

Table 300-4: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Geotechnical Software</u>	3	As part of the <u>Basis of Design Report</u>	300.02(B)
2.	<u>Standard Penetration Testing Drive Hammer Calibration Records</u>	3	Not less than 10 Business Days prior to beginning drilling	300.02(C)
3.	<u>Boring and Access Plan</u>	3	Prior to execution of the geotechnical investigation	300.03(B)
4.	<u>Utility Clearance Certification(s)</u>	3	Not less than 5 Business Days prior to beginning drilling for each subsurface exploration location	300.03(B)
5.	<u>Copies of Encroachment Permits</u>	3	Prior to execution of the geotechnical investigation	300.03(B)
6.	<u>Copies of Environmental Clearances</u>	3	Prior to execution of the geotechnical investigation	300.03(B)
7.	<u>Copies of Utility Clearances</u>	3	Prior to execution of the geotechnical investigation	300.03(B)
8.	<u>Preliminary Geotechnical Engineering Report</u>	3	At the same time as <u>Preliminary Design Submittal</u> of the associated design	300.03(C)
9.	<u>Final Geotechnical Engineering Report</u>	3	At the same time as <u>Final Design Submittal</u> of the associated design	300.03(C)
10.	<u>Geotechnical Supplements</u>	3	At the same time as subsequent Submittal of the associated design	300.03(C)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
11.	<u>As-Built Geotechnical Engineering Report</u>	3	As part of the Record Drawing Submittal	300.03(C)
12.	<u>Instrumentation Plan</u>	3	At the same time as <u>Preliminary Geotechnical Engineering Report</u>	300.03(D)(4)
13.	<u>Drilled Shaft Load Test Program</u>	3	Not less than 20 Business Days prior to performing the load test(s)	300.04(B)(1)
14.	<u>Drilled Shaft Load Test Report</u>	3	Prior to construction of any production drilled shafts for the structure locations/area(s) represented by the load test(s)	300.04(B)(1)
15.	<u>Drilled Shaft Installation Plan</u>	3	Not less than 20 Business Days prior to drilled shaft construction	300.04(B)(2)
16.	<u>Drilled Shaft Quality Control Reports</u>	3	Not less than 10 Business Days prior to construction of any structure on the associated drilled shaft foundations	300.04(B)(3)
17.	<u>Instrumentation Report(s)</u>	3	In accordance with the requirements the <u>Instrumentation Plan</u>	300.04(G)
18.	<u>Instrumentation Data</u>	4	Not less than 3 Business Days of each recording	300.04(G)
Notes: A. Levels of Review 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

DIVISION IV

SURFACE TREATMENTS AND PAVEMENTS

400 Pavement**400.01 General Requirements**

Design-Builder shall perform all pavement Work in compliance with the requirements in this Section 400.

400.02 Administrative Requirements

Pavement Work for roadways and streets outside ADOT's design authority shall be performed in accordance with the requirements of the Community or Governmental Entity. The limits of design authority for the Community and Governmental Entities are defined in TPA 200-7 (Crossroad Design Authority Limits). For Wild Horse Pass Blvd, Sundust Rd and Koli Rd outside the design authority of ADOT, the design shall be in accordance with the Technical Provisions for ADOT design authority.

Design-Builder shall identify the necessary limits of pavement Work on roadways to meet the requirements of the Project. The localized limits of pavement Work shall conform to the following:

- (A) Widening or reconstruction of any portion of an AC roadway shall require that the entire roadway width be, at a minimum, resurfaced within the longitudinal limits of the widening or reconstruction. Resurfacing shall consist of removal by milling to a depth of 3 inches and replacing with 3 inches of AC of the type required by ADOT or the Government Entity as applicable; an exception shall be Riggs Rd, for which resurfacing shall consist of removal by milling to a depth of 2 inches and replacing with 2 inches of AC of the type required by the Government Entity. Removal and replacement of edge treatment shall not be considered reconstruction of AC roadway.
- (B) Addition of sidewalks outside an existing roadway or curb and gutter replacement shall not require that the existing roadway be resurfaced.
- (C) Design-Builder shall resurface the entire width of a roadway after any portion of the roadway has been subject to obliteration of permanent or temporary pavement markings for a longitudinal distance of 50 feet beyond the last obliterated pavement marking. Resurfacing due solely to obliteration shall consist of removal by milling to a depth of 2 inches and replacing with 2 inches of AC of the type required by ADOT or the Government Entity. Where the full width of the roadway is separated by raised curb or barrier, the resurfacing by Design-Builder shall be for the full width of the direction of travel affected by pavement marking obliteration. ADOT's and Governmental Entity's specifications and criteria shall be considered where obliteration of permanent or temporary pavement markings and restriping extend to outside the Work limits specified for this Project.
- (D) Not Used.
- (E) Design-Builder shall resurface existing AC crossroads that are to remain within the limits of Work shown on the Schematic Design (the Design-Builder's Proposal Design at SR 347/Queen Creek Rd TI) by milling and replacing the existing AC as specified in TPA 400-1.1 (Pavement Design Summary) and TPA 400-1.2 (Materials Design Report).
- (F) Design-Builder shall remove by milling all existing AR-ACFC on the following PCCP roadways, including all bridge decks within the limits described below. Limits of removal of the existing AR-ACFC are shown on the Schematic Design exhibit and described below:
 - (1) I-10 mainline lanes and shoulders;
 - (2) All portions of existing traffic interchange ramps which are not to be reconstructed; and
 - (3) The full widths of the N-E and W-S ramps of the I-10/SR 202L System Interchange, including those areas where the ramps combine with Ramps S-E and W-N respectively and continue to SR 202L (Santan) and I-10. The Work shall extend east on the N-E/S-E and W-S/W-N ramps and SR 202L (Santan) to the point where the existing AR-ACFC ends approximately 275 feet east

of 56th Street. At the ends of all existing AR-ACFC that are to remain, Design-Builder shall mill transitions 20 feet in length from the 1-inch thickness to a 0.5-inch thickness.

(G) After removal of existing AR-ACFC on existing PCCP and bridge decks, Design-Builder shall diamond grind the exposed PCCP and bridge deck surfaces. Design-Builder shall apply methacrylate to all bridge decks from which AR-ACFC was milled.

(H) Design-Builder shall prepare a Pavement Inventory and Recommended Repair Report documenting the identified existing PCCP condition and repair recommendations, including PCCP spall repairs, full depth slab repairs, and PCCP joint and crack repair, for all the existing PCCP planned to remain within the Project limits, including crossroads and ramps. Design-Builder shall submit the Pavement Inventory and Recommended Repair Report in accordance with Table 400-7. Costs associated with the PCCP repairs, except for cleaning and sealing joints where diamond grinding is specified, will be paid for as an ADOT-Directed Maintenance.

(I) For portions of the project PCCP receiving diamond grind, Design-Builder shall clean and seal all PCCP joints.

(J) 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.

400.03 Design Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all pavement Design Work in accordance with the design standards, manuals, and guidelines listed in Table 400-1.

Table 400-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	AASHTO	Guide for Design of Pavement Structures, 1993 (I-GDPS-4) and 1998 Supplement
2.	ADOT	Pavement Design Manual, September 2017
3.	ADOT	Roadway Group, Pavement Design Standard Items (refer to: https://azdot.gov/business/engineering-and-construction/roadway-engineering/pavement-design)
4.	ADOT	Construction Standard Drawings
5.	ADOT	Stored Specifications

(B) Pavement Design

Except for the Koli Rd TI Work, a Materials Design Report (MDR) and a Pavement Design Summary (PDS) have been prepared for the ADOT, the Community, and Governmental Entities roadways for this Project and are included in TPA 400-1.1 (Pavement Design Summary) and TPA 400-1.2 (Materials Design Report). The Community and Governmental Entities design authority limits are described in TPA 200-7 (Crossroad Design Authority Limits). A Koli Rd TI MDR and a Koli Rd TI PDS for the ADOT Koli Rd TI roadways for this Project are included in TPA 400-1.3 (Pavement Design Summary – Koli Road TI) and TPA 400-1.4 (Materials Design Report – Koli Road TI) respectively. These documents include minimum pavement structural sections and materials specifications that shall be used on the Project unless modified in the Technical Provisions. Modifications to the TPA 400-1 (ADOT-Provided PDSs and MDRs) reports are as follows:

(1) All references in TPA 400-1 (*ADOT-Provided PDSs and MDRs*) to milling and replacing the existing asphaltic concrete mainline are hereby changed to specify removal of all AC and placement of PCCP (Doweled) constructed on Aggregate Base (Class 2) as specified in Section III, Items 1 and 2 of the TPA 400-1.2 (*Materials Design Report*). The pavement structural sections in those areas shall be as follows:

(a) From the south end of the existing mainline PCCP to Sta 1208+00: 13.5" PCCP (Doweled) constructed on 4" AB Class 2 for all mainline lanes, shoulders and ramps to back of gore; and

(b) From Sta 1208+00 to the end of the Project: 13" PCCP (Doweled) constructed on 4" AB Class 2 for all mainline lanes and shoulders, including shoulder extensions that are required under and behind precast barrier.

(2) All references in TPA 400-1 (*ADOT-Provided PDSs and MDRs*) to SMA (3/8" mix) are hereby changed to End Product (¾") (Special Mix) in accordance with ITEM 7 – ASPHALTIC CONCRETE – END PRODUCT (3/4") (SPECIAL MIX) of the MDRs. Design-BUILDER shall not rely upon report recommendations for ground compaction, water, and shrink in TPA 400-1 (*ADOT-Provided PDSs and MDRs*).

The pavement structural section layer thicknesses provided in TPA 400-1.2 (*Materials Design Report*) and TPA 400-1.4 (*Materials Design Report – Koli Road TI*) shall not be reduced by Design-BUILDER. Design-BUILDER shall improve the existing subgrade when the top three feet of finished subgrade does not meet the *Subgrade Acceptance Chart* in TPA 400-1.2 (*Materials Design Report*) and TPA 400-1.4 (*Materials Design Report – Koli Road TI*). Geogrid-reinforced alternative subgrade treatments may be used by Design-BUILDER as approved by ADOT.

Design-BUILDER shall be responsible for design of detour and temporary pavements that are not included in TPA 400-1 (*ADOT-Provided PDSs and MDRs*). The placement of traffic on a permanent pavement that is not completely built to the total specified pavement structural section will be considered a temporary pavement and subject to the requirements for detour and temporary pavements. Design of detour and temporary pavements shall be in accordance with standards, manuals, and guidelines listed in Table 400-1. Geogrid-reinforced alternative pavement subgrade treatments may be used by Design-BUILDER for detour and temporary pavements, as approved by ADOT.

If Design-BUILDER elects to utilize existing I-10 mainline shoulder pavements for the rerouting of I-10 mainline traffic, Design-BUILDER shall verify the existing pavement structural section(s) that is in place and shall demonstrate that such pavement meets applicable design criteria.

Pavement structural section thicknesses for detour and temporary pavements shall not be less than ADOT minimums as provided in Table 2-10 of the *ADOT Pavement Design Manual*. The design equivalent single-axle loads (ESALs) to be used for design of detour and temporary pavements shall use the 20-year design ESALs provided in TPA 400-1.1 (*Pavement Design Summary*) and TPA 400-1.3 (*Pavement Design Summary – Koli Road TI*), prorated for the anticipated service life of the specific detour and temporary pavement. Design-BUILDER shall be responsible for maintaining detour and temporary pavements in a condition satisfactory to ADOT. Design-BUILDER may use AC conforming to Section 409 of the *ADOT Standard Specifications* for detour and temporary pavements.

Additional pavement requirements are as follows:

(1) Except for the portions of the shoulder occupied by curb or barrier gutters, shoulders shall be constructed with the same material type and pavement structural section layer thicknesses as are required for the adjacent lane (general purpose lane, HOV lane, auxiliary lane, or ramp, as appropriate) by TPA 400-1.1 (*Pavement Design Summary*) and TPA 400-1.2 (*Materials Design Report*).

(2) Gores shall be constructed with the same pavement material type and structural section layer thicknesses as the adjacent ramp. Where AC ramps connect to PCCP mainline, the mainline

pavement structural section shall be utilized for the ramp and gore to a point at the back of gore.

(3) Crossroads shall have a minimum pavement structural section equal to or greater than the existing crossroad pavement structural section, including both pavement and base material types and thicknesses. Crossroad PCCP shall extend, at a minimum, to the lengths along the crossroad shown in the Schematic Design (or the Design-Builder's Schematic Design for SR 347/Queen Creek Rd TI).

(4) On I-10, including auxiliary lanes, existing non-doweled plain PCCP which will be converted to a traffic lane shall be removed and replaced with plain jointed PCCP with dowels ("PCCP with dowels" means load transfer dowel assemblies are required at transverse construction and weakened plane joints).

(5) New PCCP pavement for I-10 mainline and ramp widening in areas where existing PCCP exists, including auxiliary lanes from nose of ramp gore to nose of ramp gore and shoulders shall be plain jointed PCCP with dowels ("PCCP with dowels" means load transfer dowel assemblies are required at transverse construction and weakened plane joints).

(6) On Goodyear Rd, the pavement structural section for the areas outside the PCCP shall consist of 3 inches of AC (3/4") EP (Special Mix) over 6 inches of aggregate base (Class 2). A fog coat shall be applied to the top surface of the AC.

(7) The crossroad pavement structural section shall extend along each connecting ramp as specified below:

(a) For the Wild Horse Pass Blvd/Sundust Rd TI new ramp pavements, to the location of the radius return that is the furthest down the ramp;

(b) At Koli Rd TI, to the location of the PC/PT of the turning roadway that is the furthest down the ramp;

(c) At SR 347/Queen Creek Rd TI and the Riggs Rd TI, to the locations described below:

(i) Entrance Ramps: a minimum of 100 feet beyond the location of the radius return that is the furthest down the ramp; and

(ii) Exit Ramps: a minimum of 300 feet beyond the location of the radius return that is the furthest down the ramp.

(8) All new mainline auxiliary lane and shoulder pavements shall utilize the pavement structural sections specified for the mainline lanes in the same area.

(C) Pavement Design Summary and Materials Design Report

Design-Builder shall use the geotechnical information from its own geotechnical studies plus any supplemental information provided by ADOT to develop a Preliminary and Final PDS and a Preliminary and Final MDR for all detour and temporary pavements. The Final PDS and Final MDR must be approved prior to the RFC Submittal of the Plans that specify the applicable Project elements.

The Preliminary and Final PDS and a Preliminary and Final MDR shall include the appropriate report sections specified in the ADOT *Pavement Design Manual*. The Preliminary and Final PDS and a Preliminary and Final MDR shall also include design and construction recommendations, including calculations and material specifications, for detour and temporary pavements shall be submitted to ADOT for review and approval.

Design-Builder shall submit the Preliminary PDS and Preliminary MDR to ADOT in accordance with Table 400-7. Design-Builder shall submit the Final PDS and Final MDR to ADOT in accordance with Table 400-7. The Final PDS and Final MDR must be signed and sealed by the geotechnical EOR.

(D) Intentionally Left Blank

(E) Recycled Concrete Base

Design-Builder may use aggregate subbase and aggregate base comprised of up to 100% salvaged PCCP materials. Design-Builder shall ensure the salvaged materials are from Portland cement concrete produced by the crushing method, and in conformance to the gradation requirements and plasticity index. Design-Builder shall ensure the gradation requirements and plasticity index are equal to nonrecycled materials. Design-Builder shall not use recycled concrete base on AC pavement sections.

400.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all pavement Construction Work in accordance with the standards, manuals, and guidelines listed in Table 400-2.

Table 400-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Standard Specifications for Road and Bridge Construction, 2021
2.	ADOT	Stored Specifications
3.	ADOT	Construction Standard Drawings (C-Standards)

(B) Paving Plan

(1) AC Pavement

Design-Builder shall prepare construction Paving Plans for the Project. Each Paving Plan shall include the following:

- (a) A detailed sequence and schedule of AC pavement placement operations, including the following:
 - (i) Width of pavement to be placed;
 - (ii) Proposed equipment;
 - (iii) Production rates;
 - (iv) Working hours; and
 - (v) AC hauling;
- (b) Lift thickness(es);
- (c) Total thickness;
- (d) Pavement structural section numbers;
- (e) Placement and compaction methods;

- (f) A detailed staking plan for subgrade controls, including offset requirements; and
- (g) A TCP for pavement construction operations that includes provisions for the placement and maintenance of barriers required to protect the pavement from traffic.

(2) Portland Cement Concrete Pavement

Design-Builder shall prepare construction Paving Plans for the Project. Each Paving Plan shall include the following:

- (a) A detailed sequence and schedule of PCCP placement operations, including the following:
 - (i) Width of pavement to be placed;
 - (ii) Proposed equipment;
 - (iii) Production rates;
 - (iv) Working hours;
 - (v) Concrete hauling;
 - (vi) Placement methods; and
 - (vii) Curing, sawing, and sealing methods;
- (b) A detailed staking plan for subgrade controls, including offset requirements;
- (c) ADOT *Construction Standard Drawings (C-standards)* for all standard longitudinal and transverse construction joints, longitudinal and transverse weakened-plane joints, and expansion joints;
- (d) Associated Pavement Joint Layout Sheets for all non-standard joints which will not be constructed in accordance with the ADOT *Construction Standard Drawings (C-standards)* and Subsection 401-3.05 of the ADOT *Standard Specifications* and shall include:
 - (i) All non-standard longitudinal and transverse construction joints, longitudinal and transverse weakened-plane joints, and expansion joints; and
 - (ii) The locations of dowels and dowel assemblies;
- (e) A TCP for pavement construction operations during PCCP placement; and
- (f) A TCP for maintenance of barriers required to protect the pavement from traffic for a minimum of seven Days after PCCP placement.

Design-Builder shall submit each Paving Plan(s) to ADOT and IQF in accordance with Table 400-7.

(C) Pavement Subgrade Materials Requirements

Design-Builder shall ensure and verify that the top three feet of finished subgrade meet the *Subgrade Acceptance Chart* in TPA 400-1.2 (Materials Design Report) and TPA 400-1.4 (Materials Design Report – Koli Road TI). Design-Builder shall improve the existing subgrade when the top three feet of finished subgrade does not meet the *Subgrade Acceptance Chart* in TPA 400-1.2 (Materials Design Report) and TPA 400-1.4 (Materials Design Report – Koli Road TI). Geogrid-reinforced alternative subgrade treatments may be used as approved by ADOT and detailed in the Preliminary and Final PDS and a Preliminary and Final MDR.

(D) AC Pavement

Within ADOT and Community design authority limits, Design-Builder shall construct AC pavement in accordance with TPA 400-1 (*ADOT-Provided PDSs and MDRs*) unless otherwise specified in the Technical Provisions. Within the Governmental Entity design authority limits, Design-Builder shall construct AC pavement in accordance with TPA 400-1.1 (*Pavement Design Summary*) and TPA 400-1.2 (*Materials Design Report*), and the Governmental Entity's specifications.

Design-Builder shall construct stone matrix asphalt in accordance with TPA 400-2 (*Stone Matrix Asphalt Concrete*).

Design-Builder shall design and construct detour and temporary pavements for the Community and Governmental Entity pavements in accordance with the *Final MDR*.

AC included in any mixture properties lot possessing an individual total percentage of lot within upper limit (UL) and lower limit (LL) (PT) value lower than 50 for gradation, asphalt cement content, or effective voids will be rejected. AC included in any compaction lot possessing a PT value lower than 50 will be rejected.

For the purpose of determining acceptability, each unit of AC will be included in three separate lots: a "spread lot," a "mixture-properties lot," and a "compaction lot."

Design-Builder may request to place the first lot of each mix type as a test strip. Design-Builder shall prepare a written *Test Strip Request* that requests to place a test strip and that is acknowledged by the IQF. Design-Builder shall submit the *Test Strip Request* to ADOT in accordance with Table 400-7. A test strip shall be limited to 1,000 tons and may only be placed on I-10 mainline shoulders or ramps, or other areas approved by ADOT.

The IQF may exclude AC from the spread lot calculations if the IQF determines that the proposed use of the material or the existing surface conditions are not conducive to the use of spread lots. For stone matrix asphalt, IQF sampling and testing shall follow the sampling guide requirements for AC (End Product) *SHRP Volumetric Mix*.

The IQF may exclude certain locations from the mixture-properties lot and/or the compaction lot and from the random sampling used should the IQF determine that the location of the work precludes normal construction operations.

(1) Spread Lot

The spread lot will be determined in accordance with Subsection 416-7.03 of the ADOT *Standard Specifications* and Table 400-3. A lot will be considered to be acceptable if the actual quantity placed is within the percentages shown in Table 400-3.

Table 400-3: Material Spread Lots

No.	Material Spread	Action
1.	+5.0 to -5.0	Accept as is
2.	Between -5.1 and -11.9	Issue Nonconformance Report (NCR)
3.	-12.0 and less	Reject

(2) Mixture-Properties Lot

The mixture-properties lot shall be determined in accordance with the following procedure:

- (a) The individual PT values for gradation, asphalt cement content, and effective voids shall be determined as set forth in Subsection 416-7.04 of the ADOT *Standard Specifications*.

- (b) If any individual PT value is less than 50, the lot is in reject and the provisions in Subsection 416-9(E) of the ADOT *Standard Specifications* shall apply.

(3) Compaction Lot

The compaction lot shall be determined as set forth in accordance with Subsection 416-7.05(B) of the ADOT *Standard Specifications*.

(4) Acceptability

AC included in any mixture-properties lot possessing an individual PT value lower than 50 for Gradation, asphalt cement content, or effective voids will be rejected in accordance with Table 400-4. AC included in any compaction lot possessing a PT value lower than 50 will be rejected in accordance with Table 400-4.

Design-Builder shall suspend the Work should the occurrence of two or more rejected lots within any 10 consecutive production lots occurs.

(a) Statistical Acceptance

The PT shall be determined in accordance with Subsection 109.11 of the ADOT *Standard Specifications*.

Acceptance shall be determined in accordance with Table 400-4.

Table 400-4: Mixture-Properties and Compaction

No.	PT	Acceptance Decision		
		Gradation and Asphalt Cement Content	Effective Voids	Compaction
1.	50 - 100	Accept	Accept	Accept
2.	Less than 50	Reject – See <u>Section 400.04(D)(5)</u>		

(5) Referee Testing

(a) Referee Testing Performed for Mixture-Properties Only

Within 15 Days after a failed test result for a particular mixture-properties lot, Design-Builder may make a written request for referee testing. Design-Builder shall prepare and submit a written Mixture-Properties Referee Test Request to ADOT in accordance with Table 400-7. The referee testing shall be performed by an independent approved laboratory designated by ADOT. The testing of the samples will be performed by the independent testing laboratory without knowledge of the Project conditions, such as the identity of Design-Builder or mix design laboratory, the test results by the IQF, or the mix design targets for gradation and effective voids. The AC samples previously saved will be tested for the following properties in Table 400-5.

Table 400-5: Test Properties and Test Methods

No.	Test Property	Test Method
1.	Asphalt Cement Content	AASHTO T 308
2.	Gradation	
3.	Marshall Density and Stability	AASHTO R 68

No.	Test Property	Test Method
4.	Maximum Theoretical Density	AASHTO T 209
5.	Effective Voids	AASHTO T 269

The results of the referee testing will be binding on both Design-Builder and ADOT. Using the referee testing results, the IQF will determine new PT values for all characteristics.

When referee testing is performed on a mixture properties lot, the referee test result for the average maximum theoretical density will be used to determine a new PT value for compaction.

Design-Builder shall pay for the referee testing of the IQF test results. If the referee test results indicate that the mixture properties lot remains in reject or is placed in reject, then in accordance with DBA Section 7.04(C) (Conformity with Plans and Project Special Provisions), rejected mixture properties lots shall be considered Nonconforming Work.

(b) Referee Testing Performed for Compaction Only

Within 15 Days after a failed test result for a particular compaction lot, Design-Builder may make a written request for referee testing. Design-Builder shall prepare and submit a written Compaction Referee Test Request to ADOT in accordance with Table 400-7. The bulk density of each of the cores previously saved will be determined in accordance with the requirements of AASHTO T 166 by an independent testing laboratory designated by ADOT. The testing of the cores will be performed by the independent testing laboratory without knowledge of the Project conditions, such as the identity of Design-Builder or mix design laboratory, or the test results by the IQF. The percent air voids will be determined in accordance with AASHTO T 269. The maximum theoretical density used in the determination of air voids will be the average of the four maximum theoretical densities determined for the lot in Subsection 416-7.04 of the ADOT *Standard Specifications*.

The results of the referee testing will be binding on both Design-Builder and ADOT.

When referee testing is performed on the compaction lot, the IQF will determine a new PT value for compaction using the referee testing results.

Design-Builder shall pay for the referee testing of the IQF test results. If the referee test results indicate that the compaction lot remains in reject or is placed in reject, then in accordance with DBA Section 7.04(C) (Conformity with Plans and Project Special Provisions), rejected compaction lots shall be considered Nonconforming Work.

(c) Referee Testing Performed for Both Mixture-Properties and Compaction

When referee testing is performed, as described above, for both the mixture-properties lot and the compaction lot, the IQF must use the referee test results to determine new PT values as specified in Sections 400.04(D)(5)(a) and 400.04(D)(5)(b).

Design-Builder shall pay for the referee testing of the IQF test results. If the referee test results indicate that the combined mixture properties and compaction lot remains in reject or is placed in reject, then in accordance with DBA Section 7.04(C) (Conformity with Plans and Project Special Provisions), rejected mixture properties and compaction lots shall be considered Nonconforming Work.

(E) Portland Cement Concrete Pavement

If Design-Builder constructs paving widths that are less than the full main roadway width, Design-Builder shall locate new longitudinal construction joints outside of the Wheel Path. Existing longitudinal construction joints (but not existing edges of pavement that become new longitudinal construction joints) may be located within the Wheel Path or crossing the Wheel Path.

1 IQF shall evaluate PCCP thickness in accordance with Section 401-4.04 of the ADOT *Standard Specifications* and the
2 Contract Documents. Design-Builder shall ensure that the PCCP thickness and compressive strength complies with
3 the material and construction requirements of TPA 400-1 (*ADOT-Provided PDSs and MDRs*) and Design-Builder's
4 pavement designs and the Contract Documents. Accepted quantities of PCCP shall be in accordance with Section
5 401-6 of the ADOT *Standard Specifications*. Penalties shall be in accordance with Section 401-6 of the ADOT *Standard*
6 *Specifications*.

7 All PCCP joints shall be cleaned and sealed after diamond grinding of PCCP. A silicone sealant shall be used for new
8 PCCP joints with no AR-ACFC placement.

9 A hot-applied sealant conforming to the requirements of ASTM D6690 Type IV, shall be used for existing PCCP where
10 diamond grinding is performed. Joint sealing shall be accomplished by first removing old sealant and joint inserts,
11 then refacing and cleaning the joints and installation of new hot-applied sealant. Before sealing, all non-compressible
12 debris shall be removed from the joints to the full depth of the sawed joints. Old sealant shall be removed by using
13 a nominal 1/8 inch wide diamond blade. The joints shall be sawed to the depth of the original sawing. An air
14 compressor utilizing an oil separator shall be used to remove old sealant and any non-compressible materials. Air
15 compressors shall be capable of furnishing a sufficient amount of compressed air to clean the joints properly. Sealant
16 compound shall not be placed unless the joint or crack is dry, clean and free of dust. Heating and application of the
17 sealant shall follow the installation instructions from the sealant manufacturer. The joints shall be sealed so that
18 upon completion of the Work, the surface of the sealant material will be $1/4 \pm 1/8$ inch below the adjacent pavement
19 surface.

20 IQF shall evaluate new PCCP for smoothness in accordance with ADOT *Stored Specification (401PCCPS, 08/17/23)*
21 and the Contract Documents. All mainline traffic lanes, ramp lanes, and cross street through lanes shall have a MRI
22 <80 inches per mile in any 0.1-mile section.

23 IQF shall test the PCCP surface with a 10-foot-long straightedge in accordance with Section 401-4.02 of the ADOT
24 *Standard Specifications* and the Contract Documents. The pavement surface shall not vary in any direction by more
25 than 0.125 inches, except at longitudinal and transverse construction joints. The pavement surface shall not vary by
26 more than 0.25 inches across any longitudinal or transverse construction joint.

27 Design-Builder shall -grind high areas or bumps not meeting the required pavement tolerances.

28 Upon completion of any necessary corrective actions, the IQF shall retest repaired PCCP areas to verify that
29 corrections have produced the required improvements. If surface texture is removed as a result of corrective actions,
30 Design-Builder shall groove PCCP.

31 **(1) Pavement Thickness**

32 Concrete pavement shall be constructed to the specified thickness in TPA 400-1 (*ADOT-Provided PDSs and MDRs*).

33 Pavement will be evaluated for thickness by the lot. A thickness lot shall not contain more than one thickness depth
34 and will normally be one full shift's production. For partial shifts, more than one shift may be included in a thickness
35 lot. In addition, when more than one thickness depth is placed in the same shift, each individual thickness depth
36 placed in that shift may be combined with portions of other shifts that have the same thickness depth to form a
37 thickness lot. When a thickness lot includes more than one shift's production, it shall not exceed 5,000 square yards
38 unless otherwise approved by ADOT. Design-Builder and the IQF shall coordinate on lot layout, utilizing the Paving
39 Plan(s), once production begins.

40 Design-Builder shall obtain 10 cores per lot, in accordance with AASHTO T 24, under the observation of IQF, and at
41 locations which mirror the sampling random number and field location or as designated by IQF. The IQF shall take
42 immediate custody of the cores. All cores will be measured by the IQF in accordance with the provisions of AASHTO
43 T 148 except that individual measurements on each core will be determined to the nearest thousandth of an inch,
44 and the average of such measurements will be determined to the nearest hundredth of an inch. If any core indicates
45 a deficiency of 0.60 inches or more from the specified thickness, that core shall not be used for determining the
46 thickness property of the lot, and additional cores shall be drilled at intervals not exceeding 10 feet in each direction

from the deficient core location, measured parallel to the center line, until one core is obtained in each direction which is not deficient by 0.60 inches or more. Pavement between these two cores shall be considered as rejected. The average of the measurements of the two cores will replace the measurement of the original deficient core in determining the thickness property of the lot.

At all locations where cores have been drilled, the resulting holes shall be filled with concrete within 48 hours as approved by the IQF.

(2) Compressive Strength

Class P concrete shall be sampled and tested for compressive strength by the lot. A lot shall be considered to be one shift's production; however, a new lot shall begin when the mix design is changed. For partial shifts due to weather or other reasons, more than one Day's production may be included in a lot. When such partial shifts occur, Design-BUILDER and ADOT will jointly determine the lot limits. Five samples shall be obtained from each lot at random locations as directed by ADOT. ADOT may exclude certain locations from random sampling if ADOT determines that the location of the Work precludes normal construction operations. Three test cylinders shall be fabricated from each sample and tested for 28-Day compressive strength in accordance with Subsection 1006-7.02 of the ADOT *Standard Specifications*.

Class P concrete shall be sampled and tested for temperature, slump, and air content (if applicable) a minimum of five times per lot. The frequency may be reduced for partial shifts with the approval of ADOT. Additional samples for any of the required tests may be taken at the discretion of ADOT.

The accepted quantities of Portland cement concrete pavement will be accepted as hereinafter provided. Acceptance for thickness and compressive strength will be by the lot. Lot limits are described in Subsection 400.0(E)(1) and 400.0(E)(2) of the ADOT *Standard Specifications*. Acceptance for thickness and compressive strength shall be determined by entering Table 400-6 with the percent of lot within limits (PWL) value.

Table 400-6: Acceptance for Thickness and Compressive Strength

No.	PWL	Acceptance Decision
1.	100 - 60	Accept
2.	Below 60	Reject

For pavement that is rejected in accordance with this Subsection or Section 1006 of the ADOT *Standard Specifications*, Design-BUILDER shall remove and replace such pavement with pavement meeting the requirements of both sections.

(3) Dowel Bar Inserter

For PCCP that requires dowels, Design-BUILDER may elect to utilize an automatic dowel bar inserter in lieu of load transfer dowel assemblies. In such case, Design-BUILDER shall provide a Special Provision as part of the Project Special Provisions Submittal, that includes the details of the testing method(s) and acceptance criteria that will be required to verify proper bar alignment.

(F) Pavement Mix Designs

Design-BUILDER shall prepare Pavement Mix Designs for the Project. Pavement Mix Designs are considered Shop Drawings and Working Drawings. Design-BUILDER shall submit each Pavement Mix Designs to ADOT and IQF in accordance with Table 400-7. Design-BUILDER shall provide the Pavement Mix Designs for pavement within Governmental Entities design authority limits to the Governmental Entity for their review and approval.

400.05 Submittals

Table 400-7 reflects a list of Submittals identified in this Section 400 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 400-7: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Pavement Inventory and Recommended Repair Report</u>	3	Not later than 90 Days after AR-ACFC removal	400.02
2.	<u>Preliminary PDS</u>	3	At the same time as <u>Preliminary Design Submittal</u> of the pavement structural section Plans	400.03(C)
3.	<u>Final PDS</u>	3	At the same time as <u>Final Design Submittal</u> of the pavement structural section Plans	400.03(C)
4.	<u>Preliminary MDR</u>	3	At the same time as <u>Preliminary Design Submittal</u> of the pavement structural section Plans	400.03(C)
5.	<u>Final MDR</u>	3	At the same time as <u>Final Design Submittal</u> of the pavement structural section Plans	400.03(C)
6.	<u>Paving Plans</u>	3	Not less than 20 Business Days prior to paving	400.04(B)
7.	<u>Test Strip Request</u>	3	Prior to start of AC production	400.04(D)
8.	<u>Mixture-Properties Referee Test Request</u>	3	Not later than 15 Days after a failed test result for a particular mixture-properties lot	400.04(D)(5)(a)
9.	<u>Compaction Referee Test Request</u>	3	Not later than 15 Days after a failed test result for a particular compaction lot	400.04(D)(5)(b)
10.	<u>Pavement Mix Designs</u>	3	Not less than 20 Business Days prior to paving	400.04(F)
Notes: A. Levels of Review <ol style="list-style-type: none"> 1. Sole discretion approval (DBA Section 3.01(B)(1)) 2. Good faith discretion approval (DBA Section 3.01(B)(2)) 3. Review and comment (DBA Section 3.01(B)(3)) 4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4)) 				

End Section

DIVISION V DRAINAGE FACILITIES

500 Drainage

500.01 General Requirements

Design-Builder shall perform drainage Work in compliance with the requirements of this Section 500. Design-Builder shall develop a highway drainage design that minimizes off-site impacts while maintaining a frequency of protection for the highway in accordance with this Section 500.

500.02 Administrative Requirements

(A) Data Collection and Culvert Inspection

(1) Data Collection/Inventory

Design-Builder shall collect all pertinent data associated with the Project including any historical analyses/studies, as-built plans, and drainage reports. Collection and documentation of data shall conform to the guidelines in accordance with Section 5.2 of the ADOT *Highway Drainage Design Manual, Hydraulics*.

Design-Builder shall create a drainage inventory of all existing drainage facilities that are planned to remain based on the Existing Conditions Site Documentation per Section 100.19(B), within the Project limits, including structures, culverts, ditches, and storm drains.

(2) Culvert Inspection and Repair

All drainage facilities, including box culverts, that are to remain within the Project limits shall be thoroughly cleaned prior to inspection and the existing condition assessment. Information required for the assessment shall include the condition, size, material, location, recommendation of cleaning or repair, videos/photographs, and other pertinent information.

Drainage facility inspections and recommended repairs shall be in accordance with the corresponding Standards identified in Table 500-1. Design-Builder shall prepare a Pre-Project Drainage Facility Condition Memorandum that includes digital copies of the inspection videos and photographs, and summarizes the initial inspections of storm drain facilities. Design-Builder shall submit a Pre-Project Drainage Facility Condition Memorandum to ADOT in accordance with Table 500-6.

Design-Builder shall incorporate such repairs if approved by ADOT into the drainage Plans. The repairs approved by ADOT will be considered additional work and will be compensated as an ADOT-Directed Change. In addition, if the Community or Governmental Entities request modifications to existing drainage elements not impacted by construction, ADOT will determine whether to make the requested modification and any decision to do so will be treated as an ADOT-Directed Change.

Repairs to existing drainage element shall be compensated as an ADOT-Directed Change as long as the repaired element is used in the final configuration of the Project.

Design-Builder shall video record the condition of all drainage pipes, culvert and inlets after the Project's construction of such facilities and prepare a Post-Project Drainage Facility Condition Memorandum that includes a digital copy of the post project videos and photographs. Design-Builder shall submit the Post-Project Drainage Facility Condition Memorandum to ADOT in accordance with Table 500-6.

ADOT will not accept the drainage improvements if the post-project condition reveals that Design-Builder adversely impacted the drainage facilities. All costs associated with reconditioning or replacement for the post-project condition shall be borne by Design-Builder.

(B) Coordination with Authorities Having Jurisdiction

Design-Builder shall coordinate all drainage designs with all affected interests, the Community through ADOT and Governmental Entities, as applicable in accordance with Section 113.03(B). Documentation of this coordination shall be included in Drainage Report(s).

Drainage facilities within the limits of the Community and Governmental Entities shall be designed in accordance with the Contract Documents and those entity's requirements.

(C) Software

Design-Builder shall use drainage software that is fully transferable with the software in use by ADOT. All software shall comply with the manuals listed in Table 500-1. Software includes FLO-2D, StormCAD, Bentley Software, HY8, and FHWA Hydraulic Toolbox. Other proposed software shall be listed in the Basis of Design Report for consideration by ADOT.

500.03 Design Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all drainage Design Work in accordance with the standards, manuals, and guidelines listed in Table 500-1.

Table 500-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	AASHTO	LRFD Bridge Design Specifications
2.	ADOT	Roadway Design Guidelines
3.	ADOT	Highway Drainage Design Manual, Hydrology
4.	ADOT	Highway Drainage Design Manual, Hydraulics
5.	ADOT	Drainage Memorandum, Drainage Design, n-Values for Pavement Drainage Analysis
6.	ADOT	Channel Lining Design Guidelines
7.	ADOT	Pipe Selection Guidelines and Procedures
8.	ADOT	Bridge Hydraulics Guidelines
9.	ADOT	Construction Standard Drawings
10.	ADOT	Structure Detail Drawings, SD 6 series
11.	ADOT	Material Testing Manual
12.	ADOT	Dictionary of Standardized Work Tasks
13.	FCDMC	Flood Control District of Maricopa County, Drainage Policies and Standards
14.	FHWA	Hydraulic Engineering Circular, Design of Riprap Revetment
15.	FHWA	Hydraulic Design of Highway Culverts, Hydraulic Design Series No. 5

No.	Organization	Name
16.	FHWA	Drainage of Roadside Channels with Flexible Linings, Hydraulic Engineering Circular No. 15
17.	FHWA	Design of Bridge Deck Drainage, Hydraulic Engineering Circular No. 21
18.	FHWA	Urban Drainage Design Manual, Hydraulic Engineering Circular No. 22
19.	USACE	Hydraulic Engineering Center-Hydraulic Modeling System
20.	GRIC	Gila River Indian Community Flood Control and Drainage Design Guidance Manual

(B) General

Design-Builder shall design all Elements of the drainage system(s) for the Project to provide a complete and fully functional drainage system that complies with the requirements in the Contract Documents. Design-Builder shall design all drainage improvements in a manner that accounts for all existing and proposed tributary areas within or outside the Project ROW. Tributary areas must incorporate future land-use plans and/or potential land uses from the Community and Governmental Entities with drainage areas discharging to Project ROW. Design-Builder shall coordinate with the Community and Governmental Entities to determine future land use. When design discharges originate or terminate outside of the Project ROW, the more stringent of the Contract Documents or the Governmental Entity's drainage criteria shall be used.

Design-Builder shall design the drainage improvements based on the future land use as determined by the Community and Governmental Entities. Design-Builder shall not cause backwater and/or excessive velocities as specified in the standards listed in Table 500-1, which may negatively affect traffic safety, embankment stability, adjacent property, natural drainage courses, drainage facilities, upstream drainage systems, and the use of downstream receiving waters.

Existing conditions (discharge, velocity, or water surface elevation) at the outfalls to existing drainage conveyance features shall not significantly increase from the existing conditions. Mitigation measures to offset any significant increase to the existing conditions shall be provided within Project ROW. Design-Builder shall demonstrate through the Drainage Report(s) that the proposed design meets the above requirements. Design-Builder shall use FLO-2D to evaluate the impacts on the drainage system along I-10, both upstream and downstream of the Project ROW.

Runoff from roadway ditches shall not cause additional erosion, scour, or undermining of bridge abutments.

(C) Drainage Report

Design-Builder 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. Design-Builder may prepare the Preliminary Drainage Report(s) per drainage system, Project Segment, or for the entire Project. Design-Builder shall submit Preliminary Drainage Report(s) to ADOT in accordance with Table 500-6.

Design-Builder shall prepare Final Drainage Report(s) based on the final drainage design. The Final Drainage Report(s) must address ADOT comments from the Preliminary Drainage Report(s) and must be signed and sealed by a registered Professional Engineer. Design-Builder shall submit Final Drainage Report(s) to ADOT in accordance with Table 500-6.

Design-Builder shall prepare an As-Built Drainage Report that combines the Final Drainage Report(s) and post RFC changes/memos/drainage calculations. Design-Builder shall submit the As-Built Drainage Report to ADOT in accordance with Table 500-6.

(D) Storm Frequency and Design Discharge**(1) Design Frequencies**

Design-Builder shall use the design frequencies as specified in ADOT *Roadway Design Guidelines*.

(2) Stormwater Storage Basins within ADOT Right of Way

Detention and retention basins within the Project ROW shall be sized for the recurrence interval as stated in Section 500.03(D)(1). Design-Builder must provide computed results showing no significant runoff increase in discharge rate or velocity off the Project ROW.

(3) Allowable Spread

Design-Builder shall design drainage systems to limit ponding from existing or proposed gutters to the widths for the design frequency event in accordance with the requirements in Table 603.2A and Table 603.2C of the ADOT *Roadway Design Guidelines*.

(E) Hydrology

Design-Builder shall determine design flows based on the following sources, provided in the order of relative importance:

(1) Existing hydrologic studies:

- (a) Design-Builder shall evaluate runoff rates from drainage studies by other Governmental Entities for use in establishing a design flood frequency curve.
- (b) Design-Builder shall review such studies for appropriateness regarding the needs of the facility that Design-Builder designs.
- (c) There may be instances where Design-Builder shall use two hydrologic values:
 - (i) Other Governmental Entity's value, to evaluate the impacts of the ADOT system; and
 - (ii) An ADOT value, to size the drainage facilities.

(2) Rainfall-runoff models:

- (a) Design-Builder shall use rainfall-runoff models where stream runoff data are not available.
- (b) For drainage areas of 160 acres or less, Design-Builder may use the rational method.
- (c) For drainage areas greater than 160 acres, Design-Builder shall use FLO-2D as specified in Section 500.03(B).
- (d) Design-Builder shall comply with the approved procedures and recommended parameter values for the rational method based on ADOT and Flood Control District of Maricopa County requirements.
- (e) Design-Builder shall use the Green and Ampt method to estimate rainfall losses.

(F) Drainage Improvements

Design-Builder shall provide the drainage improvements in accordance with the subsections outlined below. All drainage elements must include rock mulch protection in accordance with the erosion control details in TPA 810-1

(*Rock Mulch Protection*). Drainage improvement aesthetic features shall comply with the requirements in Section 800.

(1) Inlets

Design-Builder shall design inlets in accordance with Section 606.2 of the ADOT *Roadway Design Guidelines* and the inlet capture ratios shall be in accordance with Table 606.2 of the ADOT *Roadway Design Guidelines*.

Design-Builder shall provide stormwater drainage improvements behind proposed retaining walls and barriers to prevent stormwater from ponding or draining over the walls.

Design-Builder shall design all off-roadway inlets within the roadway recovery area with three inches or less local depression. All inlets shall comply with the standards and references in Table 500-1. Inlets on roadways that allow bicycle travel shall be bicycle-safe grates. When standard inlets must be modified due to other design constraints, Design-Builder shall design such modified inlets with standard grates and Project loading criteria as approved by ADOT.

Design-Builder shall place rock mulch around inlet apron in accordance with the erosion control details in TPA 810-1 (*Rock Mulch Protection*).

Design-Builder shall replace all crossroad inlets or curb openings to fit Design-Builder's design. For inlets at crossroad locations with new sidewalks, the inlets shall include curb opening inlets with scuppers/spillways. At no time shall water be allowed to flow over the sidewalk during the design event per Section 500.03(D).

(2) Storm Drain System

Where physical constraints preclude a storm drain system from handling runoff with open channels, or as directed in Section 500, Design-Builder shall design enclosed storm drain systems to collect and convey runoff to discharge points.

Design-Builder 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.

Design-Builder shall include the storm drain documentation as part of the Drainage Report(s).

For existing storm drain system(s) that are to remain, Design-Builder shall analyze the existing system(s) to determine the hydraulic impact from the proposed roadway configuration and document the analyses in the Drainage Report(s). All results that violate the hydraulic criteria contained within the Technical Provisions shall be mitigated.

The maximum allowable hydraulic grade line elevation for the design frequency shall be in accordance with Table 603.2B of the ADOT *Roadway Design Guidelines*. Hydraulic grade lines shall be shown on pipe profiles included in the Drainage Report(s).

Manhole spacing shall be in accordance with Table 607.2 of the ADOT *Roadway Design Guidelines*. All manholes shall be located off the roadway and in a maintainable position as determined by ADOT. Design-Builder shall identify manhole covers as shown on Std C-18.10 of the ADOT *Construction Standard Drawings*.

(3) Pipes

Design-Builder shall design storm drain pipes with a minimum velocity of three feet per second when flowing full. Design-Builder shall design all storm drains to sustain all loads using fill heights and D-loads for determining pipe classifications.

Design-Builder shall design pipes in accordance with the following requirements:

- (a) Lifespan for new and reconditioned pipes shall be in accordance with the ADOT *Pipe Selection Guidelines and Procedures*;
- (b) If there is an increase in loading on an existing pipe, Design-Builder shall evaluate the impact and mitigate the additional loading;
- (c) Pipe inspections and repair recommendations shall be in accordance with manuals identified in Table 500-1 and Section 500.02(A);
- (d) Pipe diameter:
 - (i) Minimum pipe diameter shall be 24-inches except where pipes connecting an inlet to a trunk line shall be 18-inch;
 - (ii) New pipe extensions of existing pipe may match the existing pipe dimensions provided hydraulics criteria is met; and
 - (iii) Pipe diameter shall not decrease in the downstream direction;
- (e) Pipe material:
 - (i) The material type for new storm drain pipe used as an extension of an existing pipe shall match the material type of the existing pipe;
 - (ii) New pipe material shall be in accordance with the ADOT *Pipe Selection Guidelines and Procedures*;
 - (iii) Use of HDPE shall be in accordance with Section 500.04(C)(2); and
 - (iv) Design-Builder shall include new pipe and pipe extension summary sheets in the Plans;
- (f) Design-Builder shall use the Manning's "n" values in accordance with Table 607.4 of the ADOT *Roadway Design Guidelines*;
- (g) Pipe depth of cover:
 - (i) Depth of cover shall be 12 inches minimum (top of pipe to top of finished subgrade) in accordance with Section 611.3 of the ADOT *Roadway Design Guidelines*. In no case shall pipes have less than the specified depth of cover within the pavement width (edge to edge) without special protective measures;
 - (ii) Depth of cover for HDPE pipe shall be in accordance with Section 500.04(C);

(h) Design-Builder shall provide outlet protection in accordance with Chapter 600 of the ADOT *Roadway Design Guidelines* and the ADOT *Highway Drainage Design Manual, Hydraulics*; and

(i) When outfall protection is required, Design-Builder shall provide calculations to document the design in the *Drainage Report(s)*.

(4) Channels and Ditches

Design-Builder shall include all necessary erosion control measures, in accordance with Section 612 of the ADOT *Roadway Design Guidelines*, for the drainage channels and ditches, including flexible or rigid channel linings, to prevent scour and sedimentation.

Aggregate lined and unlined channels shall have a maximum side slope of 3:1 (H:V). Concrete-lined channels shall have a maximum side slope of 2:1 (H:V).

Freeboard for drainage channels shall be in accordance with Section 608.4 of the ADOT *Roadway Design Guidelines*.

(5) Stormwater Storage Facilities

Design-Builder shall design stormwater storage facilities in accordance with ADOT design criteria or the requirements of the Community and Governmental Entity, whichever is more stringent. The following areas are not subject to storage requirements:

(a) Existing inlets and pipes in the vicinity of the Wild Horse Pass Blvd/Sundust Rd TI that currently outlet directly to a channel;

(b) Culverts crossing the mainline between the ramp gores of successive TI's; and

(c) Culverts crossing the mainline in the Rural section of the Project.

All stormwater storage facilities calculations shall be included in the *Drainage Report(s)*.

Within the Community boundaries, there is no requirement for first flush water quality features on the Project, in accordance with the correspondence contained in the DCR Appendix I.

Underground storage (tanks or other facilities) shall not be used to mitigate increases in flow rate. Stormwater storage facilities shall comply with the following requirements:

(a) Outflow discharges from the stormwater storage facilities shall not significantly increase peak discharge rates downstream of the Project;

(b) When required per Section 800.03 stormwater storage facilities shall be designed to accommodate vegetation on the upper third of the basin banks without impacting the available storage capacity required to meet the design requirements;

(c) Stormwater storage facilities shall not retain standing water longer than 36 hours after inflow ceases;

(d) Stormwater storage facilities shall have an emergency spillway in accordance with the ADOT *Roadway Design Guidelines* unless indicated in TPA 200-3 (*Design Decision Documentation*);

(e) Proposed stormwater storage facilities with bottom width less than 40 feet wide shall be stabilized with minimum 1.25-inch minus granite mulch 2 inches deep to facilitate drive through capabilities. Design-Builder shall provide justification for sizing of the stabilization material;

- (f) Proposed stormwater storage facilities with bottom width greater than 40 feet wide shall be seeded per Section 800.03(D)(2). Maintenance access ramps into and out of the stormwater storage facilities shall be stabilized with minimum 1.25-inch minus granite mulch 2 inches deep;
- (g) A minimum of two *Falling Head Percolation Tests* are required per retention basin. The required testing frequency, based on the basin bottom area proposed for percolation, is listed in Table 500-2; and
- (h) *Falling Head Percolation Test Method* shall be in accordance with Standard 6.10.12 and Table 6.15 of the Maricopa County Flood Control District, *Drainage Policies and Standards*.

Table 500-2: Minimum Quantity of Falling Head Percolation Tests Required

No.	Retention Basin Bottom Area, A (sf)	Minimum Number of Tests Required
1.	$A < 10,000$	2
2.	$10,000 < A < 20,000$	3
3.	$20,000 < A < 30,000$	4
4.	$30,000 < A < 43,560$	5
5.	$A > 43,560$	A minimum of 5. Additional percolation tests may be required if the geotechnical borings and/or backhoe test pits indicate variation in the subsurface soil profile and texture within the proposed percolation area.
The tests shall be distributed evenly throughout the retention basin using engineering judgment. For example, when 5 tests are required, the typical distribution assuming a square basin would be a test in each corner and one in the middle.		

(6) Culverts

Design-Builder shall analyze existing and proposed culverts, drainageways, and associated elements affected, replaced, or created by the Project design for any localized flooding impacts.

Where upstream storage owned by the Community and Governmental Entity for the purpose of stormwater storage influences culvert design, Design-Builder shall incorporate the analysis of the storage into the design of the culvert. Design-Builder shall analyze all water levels for backwater and design all culverts, so backwater does not increase above existing conditions that extend onto adjacent properties.

Design-Builder shall ensure that culverts comply with the following requirements:

- (a) The minimum height for new box culvert inside dimension must be four feet;
- (b) Extension of existing box culverts must match existing dimensions and maintain existing open area (square feet); no reduction in conveyance capacity is allowed;
- (c) Extensions to existing culverts must not have individual angle changes greater than 25 degrees;
- (d) For the design flood, the headwater level must be no higher than three inches below the pavement;
- (e) The headwater depth to culvert height ratio must not exceed one and one-half;

- (f) The 100-year floodwater levels must not increase the flood damage potential on areas outside of Project ROW;
- (g) Investigate flow capacity of any culvert whenever the invert of the culvert is embedded below the natural streambed invert;
- (h) Embedded area shall not be included in the effective culvert waterway opening where the embedded area is backfilled with erosion-resistant material or where one can anticipate siltation to the original grade;
- (i) All new culverts and culvert extensions must have end sections or headwalls;
- (j) Culverts with a span or diameter greater than or equal to 48 inches must have concrete headwalls;
- (k) Concrete box culverts must have inlet cut-off walls;
- (l) Concrete box culverts must have an outlet cut-off wall with a minimum four-foot depth;
- (m) Culverts with a span or diameter 48 inches or greater must have an apron with cut-off wall;
- (n) Concrete cut-off walls, headwalls, and partial headwalls must extend at least two feet below the ultimate bed elevation and a minimum of four feet below culvert inverts;
- (o) Cut-off walls, headwalls, partial headwalls, and aprons must be attached to the culvert;
- (p) Outlets must have riprap whenever the outlet velocity is between four and 15 feet per second and comply with the requirements of Section 117;
- (q) Outlets with velocity greater than 15 feet per second must have an energy dissipator;
- (r) Design bridge culverts subject to traffic loading in accordance with this Section 500; and
- (s) The maximum spacing of new culverts along the I-10 mainline shall be no more than 1,500 feet, unless approved by ADOT. The spacing of new culverts shall be determined based on the requirements of the Technical Provisions, including hydraulic requirements, existing and future runoff patterns, and uniform drainage distribution along the Project corridor.

(G) Additional Requirements

The additional requirements contained in this Section 500.03(G) are specific items pertaining to this Project and shall incorporate the standard criteria with the manuals listed in Table 500-1.

(1) Onsite Drainage

Design-Builder shall not increase flow rates leaving the Project limits. The use of retention/detention facilities may be necessary to mitigate increases in runoff discharge resulting from the increase in pavement area. When retention basins are planned to be used, Design-Builder shall use *Falling Head Percolation Tests* to estimate infiltration rates at the designed bottom elevation of the basin.

(2) Existing Box Culverts

Box culverts identified to have sections with a reduced top of box thickness through a portion of their length are included in Table 500-3. For other culverts within the Project limits, it is Design-Builder's responsibility to confirm box culvert designs and their resulting load capacity as it relates to the proposed changes to the roadway configurations. If Design-Builder's design increases loading on the existing box culvert, Design-Builder's shall prepare a Box Culvert Loading Report that includes calculations to document whether or not the additional loading exceeds the capacity of the box culvert. If increased loading exceeds the capacity of the box culvert, the Box Culvert Loading Report must include details to mitigate excess loading. The Box Culvert Loading Report must be signed and sealed by a registered Professional Engineer. Design-Builder shall submit the Box Culvert Loading Report to ADOT in accordance with Table 500-6. If additional box culverts are found to have a reduced top of box thickness through a portion of their length and are shown to be subject to loading that is beyond the box culvert capacity, Design-Builder shall be eligible for relief in accordance with DBA Section 8 (Changes to the Contract Documents).

Table 500-3: Box Culverts with Portions of Reduced Top Thickness

No.	Station	Size	Notes
1.	915+21	3-10' x 7'	Gila Drain under I-10

(3) Culvert Replacement**(a) Concrete Pavement Section**

All culvert types under PCCP shall be inspected and addressed in accordance with Section 500.02(A)(2). Replacement culverts under PCCP shall be installed using jack-and-bore. Design-Builder shall obtain approval from ADOT for any pipes that are to be abandoned in place. If pipes are approved by ADOT to be abandoned in place, pipes must be filled with slurry or grout as approved by ADOT.

(b) Asphalt Pavement Section

Corrugated metal culverts under asphalt pavement shall be removed. No abandonment of pipes will be allowed.

All other culvert types under asphalt pavement shall be inspected and addressed in accordance with Section 500.02(A)(2).

(H) Temporary Drainage Facilities

Design-Builder shall design temporary drainage systems to:

- (1) Provide safe operation during construction;
- (2) Accommodate both existing and construction area runoff water;
- (3) Maintain pre-Project drainage patterns;
- (4) Comply with good industry practice; and
- (5) Temporary drainage structures, including pipe, shall be removed and not abandoned in place.

Design-Builder shall provide drainage design details for each stage of construction to be included in the project MOT Plans. Design-Builder shall design temporary stormwater conveyance systems such that the systems confine stormwater to the shoulders and no water encroaches into the travel lanes.

(I) Bridges**(1) General**

Design-Builder shall perform all bridge hydraulic and drainage Design Work in compliance with the manuals listed in Table 500-1 and this Section 500.03(I).

Design-Builder shall determine if hydraulic structures and appurtenances are defined as a bridge in accordance with *ADOT Bridge Hydraulics Guidelines*, and if so, shall follow such guidelines.

(2) Bridge Deck Drainage

Runoff from bridge decks shall be conveyed off the bridge, unless otherwise specified in the Contract Documents and shall comply with this Section 500. The roadway drainage system shall intercept 100% of the pavement runoff prior to entering onto the bridge deck. Design-Builder 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 this Section 500.03(I)(2). Deck drainage outfalls shall be designed and constructed so as to avoid corrosion of bridge structural members, erosion of embankments, and splashing of moving traffic and sidewalk areas below the bridge. The drainage system shall intercept pavement drainage at both ends of bridges.

Design-Builder shall ensure that deck drains conform to the following requirements:

- (a) Bridge deck drainage downspouts at piers shall have outfall erosion protection; and
- (b) Bridge deck drains shall be in conformance with the guidelines included in FHWA's HEC-21.

Design-Builder shall incorporate deck drainage appurtenances in the structural design of the bridge. "Through-drains" (holes in the deck) or slot openings in the structural barrier are not allowed. Any deck drains or inlets must discharge into pipes and/or downspouts. ADOT Standard B-19.10, six inch pipe drains, shall not be used and slot opening parapet drains shall not be used. Bridge deck drainage inlets shall be installed along the gutter line of the low side bridge concrete barrier.

The bridge deck drainage inlet type and size shall be consistent with catch basin inlets used previously on other ADOT bridges. Bridge deck drainage inlets shall have removable grating for maintenance. The bridge deck drainage pipe shall have clean-outs or alternative access for maintenance. Pipe material shall be galvanized steel pipe with welded joints. Drainage pipe shall be concealed and/or encased to the maximum extent practicable. All pipes shall be concealed and encased within the substructure; except the actual discharge outlet, which shall have a six inch projection to prevent drip staining.

Longitudinal pipe shall not be exposed on the exterior "outboard" side of exterior elements of the bridge and shall be hidden from view inboard of the exterior web of CIP concrete structures or inboard of the exterior girder of precast concrete structures. Transverse pipe at the deck cantilever overhang shall be encased in reinforced concrete using deck thickening (haunches), or an exterior feature (blister/rib), or both. Flexible joints and air gaps, if necessary, shall be designed for movement compatibility and consistency with bridge contraction, deflection, and expansion – in the longitudinal, transverse, and vertical directions. A summary of requirements is as follows:

- (a) Superstructure – Longitudinal pipe shall not be exposed on the exterior "outboard" side of exterior elements of the bridge framing plan. i.e., longitudinal pipe shall be hidden from view inboard of the exterior web of CIP concrete structures or inboard of the exterior girder of precast concrete structures;

- (b) Superstructure – Transverse pipe at the deck cantilever overhang shall be encased in reinforced concrete via deck thickening (haunches), or an exterior feature (blister/rib), or both;
- (c) Substructure – All pipes shall be concealed and encased within the substructure; except the actual discharge outlet, which shall have six inch projection to prevent drip staining; and
- (d) Superstructure (Steel Box Girders) – For steel box girders, deck drainage shall not be exposed on the exterior “outboard” side of exterior elements of the bridge. The deck drainage pipes shall exit the box girders through the interior box girder webs between adjacent girders. Longitudinal runs and downspouts at piers shall be located between adjacent girders. Locations and sizes of holes in the girder webs shall be considered in the structural design of the box girders. Drainage details sheets and structural steel details sheets showing the locations and sizes of holes in the girder webs, shall be included in the Preliminary Design Submittal, Final Design Submittal, and RFC Submittal. Final locations and sizes of holes in girder webs shall be coordinated with the structural steel Shop Drawings and Working Drawings by Design-Builder. The RIDs contain conceptual sample drainage details.

Bridge drainage calculations shall be included in the Drainage Report(s).

(J) Construction Plans and Design Calculations

(1) Plans

Design-Builder shall prepare Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks*. The Plans, at a minimum, shall include the following:

- (a) New Pipe Summary;
- (b) Pipe Extension Summary;
- (c) New Reinforced Concrete Box Culvert Summary;
- (d) Reinforced Concrete Box Culvert Extension Summary;
- (e) Drainage Special Details;
- (f) Drainage Plan;
- (g) Drainage Grading Plan;
- (h) Channel Detail (Plan & Profile);
- (i) Culvert Detail (Plan & Profile); and
- (j) Storm Drain Profile.

(2) Design Calculations

Design-Builder shall prepare all necessary calculations to justify design elements in accordance with the ADOT design manuals contained in Table 500-1. Electronic versions of calculations shall be included with each Submittal.

500.04 Construction Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all drainage Construction Work in accordance with the standards, manuals, and guidelines listed in Table 500-4.

Table 500-4: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	AASHTO	LRFD Bridge Design Specifications
2.	ADOT	Standard Specifications for Road and Bridge Construction
3.	ADOT	Plastic Pipe Selection Guidelines
4.	ADOT	Materials Testing Manual

(B) Intentionally Left Blank**(C) Corrugated High-Density Polyethylene Plastic Pipe****(1) Description**

Design-Builder shall furnish Corrugated High-Density Polyethylene Plastic Pipe (CHDPEPP) and all other materials required for the installation, excavation, furnishing, placing, and compacting of backfill material, all in accordance with the requirements of these Technical Provisions.

All contiguous pipe shall be of the same kind and material. Special sections, fittings, elbows, branch connections, tapered inlets, connectors, coupling, and other such items shall be of the same material and coating as the pipe to which they are attached unless otherwise stated in the Technical Provisions. The only exception is that the use of metal/galvanized end sections is allowed if high-density polyethylene (HDPE) pipe is used at the outlet.

(2) Materials

CHDPEPP (18-inch to 60-inch diameter) shall meet AASHTO M294-15 Type S (full circular cross section, with an outer corrugated pipe wall and a smooth inner liner) including rubber gaskets at joints. CHDPEPP shall have a 75-year design service life with Manning n value of 0.012 and have a minimum cell classification of 435400 C in accordance with ASTM 3350. Resin shall not contain less than 2% carbon black UV stabilizer.

(3) Construction Requirements**(a) Preparation of Foundations, Trenches and Embankments**

Where rock, hardpan, or other unyielding material is encountered, such material shall be removed below the vertical limits. The depth to be removed shall be at least six inches below outside of pipe. The over-excavated area shall be backfilled with pipe zone material and compacted in layers not exceeding six inches in depth.

When a firm foundation is not encountered at the bottom of the vertical limits due to soft, spongy, or other unstable soil, such unstable soil shall be removed for a width of at least the horizontal outside dimension of the pipe on each side of the pipe and to a depth of 12 inches below outside of pipe. The unstable soil removed shall be replaced with pipe zone material and compacted in six inch lifts.

A trench condition is defined as a trench that has vertical slopes to a point at least one foot above the top of the pipe. Install CHDPEPP in trench condition in natural ground or in embankment.

Minimum trench width for CHDPEPP, in accordance with AASHTO *LRFD Bridge Design Specifications* Section 30, shall not be less than 1.5 times the pipe outside diameter plus 12 inches.

Parallel pipes installed in the same trench shall have a minimum spacing of 12 inches for diameters 24-inch and less; and for pipe 30-inch diameter and over, the minimum spacing is one half the ID (of the largest diameter pipe).

In no case shall pipes have less than the depth of cover specified below within the pavement width (edge to edge) without special protective measures. Depth of cover for CHDPEPP shall meet the following requirements:

(i) CHDPEPP 18-inch diameter: (for use only as approved by ADOT) shall have a minimum cover depth of one foot (between top of finished subgrade elevation and top of pipe) and a maximum cover depth of 24 feet (between finished subgrade elevation and top of pipe).

(ii) CHDPEPP 24-inch to 48-inch diameter shall have a minimum cover depth of one foot (between top of finished subgrade elevation and top of pipe) and a maximum cover depth of 18 feet (between finished subgrade elevation and top of pipe).

(iii) CHDPEPP 54-inch to 60-inch diameter shall have a minimum cover depth of two feet (between top of finished subgrade elevation and top of pipe) and a maximum cover depth of 18 feet (between finished subgrade elevation and top of pipe).

Minimum temporary cover of all CHDPEPP increases to three feet (from top of pipe to subgrade surface elevation) for construction traffic over 30 tons of gross vehicle weight crossing the pipe.

(b) Bedding and Backfill Material

Bedding and backfill material used within the pipe zone (material placed six inches below pipe to 12 inches above pipe) shall be aggregate pipe zone material, (per ASTM D2321) Class II (Clean, coarse grained soils, SW, SP, GW, or GP at six inch depth minimum); or Class I (Crushed angular rock at four inch depth minimum) or one sack cement slurry.

Bedding and backfill material shall have the aggregate gradation set forth in [Table 500-5](#).

Table 500-5: Backfill Material Specifications

No.	Sieve Size	Percent Passing
1.	1-1/2 inch	100
2.	No. 4	25-70
3.	No. 200	0-12
Plasticity index < 8 (AASHTO T 90)		

Aggregate for cement-treated slurry pipe zone material, prior to the addition of cement and water, shall conform to the requirements for aggregate pipe zone material. One sack of cement shall be added to each cubic yard of aggregate. Cement-treated slurry shall be thoroughly mixed and shall have a slump of eight to 11 inches.

All trash, forms, sheeting, bracing, and loose rock or loose earth shall be removed from the area into which pipe zone material is to be placed.

1 A minimum six inch layer of aggregate pipe zone material shall be placed between the bottom of the trench and the
2 bottom of the pipe. The remaining pipe zone from the bottom of the pipe to 12 inches above the pipe shall be
3 backfilled with aggregate pipe zone material or cement-treated slurry.

4 Bedding and backfill material shall be placed in a manner which will prevent distortion, damage to, or displacement
5 of the pipe from its intended location, and provide adequate support to prevent floating. Voids or loose soils that
6 are found to occur due to improper placement or compaction of pipe zone materials will result in rejection of that
7 portion of the pipe installation.

8 Pipe zone material shall be placed in uniform horizontal layers not exceeding eight inches in depth before
9 compaction. Aggregate pipe zone material cannot be compacted by jetting or placed as an aggregate slurry. Ponding
10 for compaction of pipe zone material shall not be permitted in any case.

11 Cement-treated slurry material shall be placed in a uniform manner that will prevent voids in, or segregation of the
12 bedding material, and will not float or shift the culvert or pipe. Cement-treated slurry pipe backfill placement above
13 spring-line shall not commence within 8 hours of the placement of the underlying cement-treated bedding material
14 below spring-line. Cement-treated pipe backfill shall be placed in a uniform manner that will prevent voids in or
15 segregation of the backfill to an elevation one foot above the top of the pipe. No backfilling above the cement-
16 treated slurry pipe backfill shall commence until 8 hours after the cement-treated slurry has been placed.

17 Compaction of pipe zone material shall be performed without damage to the pipe and surrounding in-place material.
18 Special care shall be taken in placing, shaping, and compacting all bedding material under haunches of pipe to
19 prevent moving the pipe or raising it from its bedding.

20 Aggregate pipe zone material shall be compacted to at least 95% of the maximum density determined in accordance
21 with the requirements of the applicable test methods of the ADOT *Materials Testing Manual*. No density tests will
22 be required in the cement-treated slurry pipe zone material.

23 (c) Installation

24 Pipe shall be handled carefully. Proper facilities shall be provided for handling and lowering the sections of pipe. Pipe
25 shall be installed in close conformity with the lines, grades and dimensions shown on the Plans. Tracer wire for all
26 underground facilities shall be installed in conformance with Section 104.15.

27 Corrugated HDPE plastic pipe shall be assembled and installed in accordance with the manufacturer's instructions.

28 Water resistant joints are required for storm drains, culverts, or other drainage pipes. Watertight joints shall be
29 provided for irrigation pipe installations. Watertight and water-resistant joints shall be joined together using an
30 integral bell and spigot joint that meets the 10.8 pounds per square inch watertight requirement of ASTM D3212.
31 Vertical installations of CHDPEPP are not permitted.

32 Bell or groove ends, and outside circumferential laps shall be placed facing upstream. To prevent damage and to
33 ensure that proper line and pipe grade are maintained throughout the backfilling operation, special care shall be
34 taken in the handling and installation of corrugated high-density polyethylene plastic pipe and fittings.

35 When a shoring/trench box is necessary for installation of CHDPEPP, the bottom of shoring/trench box shall not be
36 lower than the top of pipe or more than 24 inches above the bottom of trench; if shoring/trench box is below the
37 top of pipe, a sub-trench is required.

38 When end sections are called for on the Plans, metal safety end sections shall be used. The embankment slope shall
39 be warped to match the end sections. For a skewed pipe installation, the toe of the embankment slope shall be
40 warped to match the toe of the skewed metal safety end section to provide effective drainage.

41 CHDPEPP pipe installed within an MSE wall reinforcement zone will be detailed in MSE Shop Drawings and Working
42 Drawings by Design-Builder. CHDPEPP may not be placed within the foundation zone of walls or structural
43 foundations.

(d) Trench Backfilling and Compacting

Trench backfill material shall be placed above pipe zone bedding and backfill material to top of trench shall meet embankment specified in Section 300 of the ADOT *Standard Specifications*.

Trench backfill material shall not contain organic material, rubbish, debris, and other deleterious material and shall not contain solid material that exceeds eight inches in greatest dimension and shall be soil selected from excavation or from a source selected by Design-Builder.

As an alternate, trench backfill may conform to the material requirements listed for bedding material for aggregate pipe zone material or cement-treated slurry material.

All trash, forms, sheeting, bracing, and loose rock or loose earth shall be removed from the areas to be backfilled before backfill material is placed.

Trench backfill shall be placed from one foot above the top of the pipe to the elevation at which base or surfacing materials are to be placed or to the top of the trench.

Trench backfill mixed as a cement-treated slurry shall be placed in uniform horizontal layers not exceeding four feet in depth.

Backfill material shall be compacted to at least 95% of the maximum density determined in accordance with the requirements of the ADOT *Materials Testing Manual*.

Cement-treated slurry bedding material used for trench backfill shall meet the requirements listed above for pipe backfill up to the elevation that it is placed.

(e) Inspection and Testing

Visual inspection shall be performed by the IQF on all CHDPEPP for line and grade, joint gaps and misalignments, cracks, deformation, damage, and debris. Visual inspection shall be 30 Days after placement of all pipe zone material or prior to placement of pavement section (whichever is first); but no sooner than seven Days after pipe zone material installation.

The maximum allowable vertical deflection is 5%, in accordance with AASHTO *M294*, using the certified mean diameter (CMD) provided by the pipe manufacturer. If any deflection is noted during the visual inspection, the pipe shall be secondarily tested by mandrel. A minimum of 10% of CHDPEPP less than 10 feet depth to subgrade shall be inspected with a mandrel, and all CHDPEPP with fill depths greater than 10 feet to subgrade shall be inspected with a mandrel. The IQF shall notify ADOT of any deflection during the visual and mandrel inspection.

Based on the results of secondary testing, IQF or ADOT may request a remedy for pipes with deflections between 5% of CMD and 7% of CMD or may direct Design-Builder to remove and replace the pipe. Remedy options may include excavating the affected portion of the pipe run and reconstructing the pipe or removing and replacing the affected portion to the nearest pipe joint or drainage structure. For pipe deflections greater than 7% of CMD, Design-Builder shall remove and replace the affected length of pipe to the nearest pipe joint or drainage structure. Use of mechanical re-rounding technology on installed pipe shall not be accepted as a remediation technique under any circumstance.

(f) Pipe Culvert Construction

Within the asphalt roadways, lane closures will be allowed for pipe installations under existing travel lanes subject to the following:

- (i) Design-Builder shall prepare a Pipe Removal and Installation Plan. The Pipe Removal and Installation Plan must include at a minimum the following information:

- A. The proposed sequence of excavation, removal of the existing pipe, placement of pipe bedding, new pipe, pipe backfill, trench backfill, bedding and backfill preparation, placement of aggregate base and asphaltic concrete. The sequence shall include an hourly schedule;
- B. Description of equipment to be used;
- C. A Traffic Control Plan conforming to the requirements of Section 701.04(J);
- D. A contingency plan to ensure that the roadway is opened to traffic by the end of the nightly lane closure period. The contingency plan shall include information related to a backup asphaltic concrete plant; and
- E. A description of the paving activities, including proposed equipment, production rates, hauling, placement methods, sawing and sealing methods;
- (ii) All paving shall be performed in accordance with Section 400;
- (iii) Design-Builder shall not place the final lift of asphaltic concrete until all pipes under the roadway have been installed; and
- (iv) Pipe trenches shall be backfilled and paved prior to opening to traffic. Steel plates shall not be used to cover trenches in lieu of pavement.

Design-Builder shall submit the Pipe Removal and Installation Plan to ADOT in accordance with Table 500-6.

500.05 Submittals

Table 500-6 reflects a list of Submittals identified in this Section 500 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 500-6: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Pre-Project Drainage Facility Condition Memorandum</u>	4	Prior to and as a condition of issuance of NTP 2	500.02(A)(2)
2.	<u>Post-Project Drainage Facility Condition Memorandum</u>	3	Prior to and as a condition of Substantial Completion.	500.02(A)(2)
3.	<u>Preliminary Drainage Report(s)</u> ^B	4	At the same time as <u>Preliminary Design Submittal</u> for the associated drainage improvements	500.03(C)
4.	<u>Final Drainage Report(s)</u> ^B	3	At the same time as <u>Final Design Submittal</u> for the associated drainage improvements	500.03(C)
5.	<u>As-Built Drainage Report</u> ^B	3	As part of the <u>Record Drawings</u> Submittal	500.03(C)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
6.	<u>Box Culvert Loading Report</u>	3	At the same time as the <u>Existing Structural Modification Reports</u> requirements in <u>Table 600-7</u> .	500.03(G)(2)
7.	<u>Pipe Removal and Installation Plan</u>	3	Not less than 21 Days prior to any lane closures for pipe Construction Work	500.04(C)(3)(f)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none"> 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required, ADOT will coordinate review.</p>				

1

End Section

DIVISION VI STRUCTURES

600 Structural**600.01 General Requirements**

Design-Builder shall perform all structures Work in compliance with the requirements in this Section 600.

600.02 Intentionally Left Blank**600.03 Design Requirements****(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all structures Design Work in accordance with the standards, manuals, and guidelines listed in Table 600-1.

Table 600-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	AASHTO	LRFD Bridge Design Specifications, 6th (foundation geotechnical design) and 8th Editions
2.	NCHRP	Report 276 – Thermal Effects in Concrete Bridge Superstructures
3.	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 6th Edition
4.	AASHTO/AWS	D1.5 Bridge Welding Code
5.	AASHTO	Guide Design Specifications for Bridge Temporary Works, 2nd Edition
6.	AASHTO	Manual for Bridge Evaluation, 3rd Edition
7.	AASHTO	Guide Specifications for Design and Construction of Segmental Concrete Bridges, 2nd Edition
8.	AASHTO	LRFD Guide Specifications for the Design of Pedestrian Bridges, 2nd Edition
9.	AASHTO	Manual for Assessing Safety Hardware (MASH), 2nd Edition
10.	AWS	American Welding Society (AWS) 1.1 Welding Code
11.	ADOT	Bridge Load Rating Guidelines
12.	ADOT	Bridge Group Structure Details SD series
13.	ADOT	Bridge Design Guidelines
14.	FHWA	Post-Tensioned Box Girder Design Manual
15.	NCHRP	Report 496 - Prestress Losses in Pretensioned High-Strength Concrete Bridge Girders
16.	ADOT	Bridge Design Bulletins
17.	ADOT	Dictionary of Standardized Work Tasks
18.	ADOT	Stored Specifications

No.	Organization	Name
19.	AASHTO	LRFD Bridge Design Specifications, 10th Edition (for Structural Steel Box Girders)
20.	AASHTO/NSBA	Guidelines for Design Details G1.4 - 2006
21.	NSBA	Uncoated Weathering Steel Reference Guide, 2022
22.	NSBA	Practical Steel Tub Girder Design, 2004
23.	FHWA/TxDOT	Design Guidelines for Steel Trapezoidal Box Girder Systems, Report 0-4307-1

(B) Intentionally Left Blank

(C) Roadway Bridges

Design-Builder shall design all new roadway bridges for a 75-year design life and in accordance with the AASHTO *LRFD Bridge Design Specifications*.

(1) Geometry

All fill and cut slopes along the longitudinal axis of bridges shall not be steeper than 2:1 (H:V). Slopes steeper than 3:1 shall have concrete slope paving with exposed aggregate surface or as specified in Section 800. Details of slope paving shall be in accordance with ADOT *Bridge Group Structure Details SD 2.04* and modified in accordance with Section 800. Slope paving shall not be used as roadway cross sectional elements except for along the longitudinal axis of the bridges.

The existing slope paving at Wild Horse Pass Blvd/Sundust Rd TI will remain and be widened to the north with new slope paving matching the existing finish. The existing slope paving at SR 347/Queen Creek Rd TI, Riggs Rd TI and Goodyear Rd shall be removed and replaced with new slope paving. At locations where a new bridge will be placed adjacent to an existing bridge and slopes will exist in front of both the new and existing bridge, the slope paving shall be continuous under the new and existing structures.

The front face of the abutments for the Koli Rd bridge shall be placed 31 feet from the final I-10 outside edge of travel lane of the Project to maximize construction within the existing ROW. For the bridge at Riggs Rd, the span lengths shall be a minimum of 129'-6". For the new bridge at Goodyear Road, the span lengths shall be a minimum of 114'-0".

Vertical clearances shall be in accordance with TPA 200-1.1 (Mainline and Ramp Design Criteria). Vertical clearance is defined as the least vertical distance between the soffit and load carrying member of the bridge and the roadway below including shoulders. The lane and shoulder widths shall be in accordance with Section 200 and TPA 200-1.2 (Crossroad and Local Street Design Criteria).

(2) Foundations

Foundations for bridges shall be shallow (spread) foundations, driven piles, or drilled shafts. Transitions from drilled shafts to columns shall occur below finished grade. Shallow (spread) footings shall not be used in locations where potential for scour is present. The geotechnical design of foundations shall be in accordance with the AASHTO *LRFD Bridge Design Specifications, 6th Edition (2012)* and the applicable references in Table 300-1. The structural design of foundations shall be in accordance with the AASHTO *LRFD Bridge Design Specifications, 8th Edition*.

Existing structures and Utilities shall be protected during installation of driven piles if used. Design-Builder shall prepare a Vibration Monitoring Plan that identifies:

- (a) What features will be monitored;

- (b) How the vibrations will be monitored including location and type of instrumentation;
- (c) The anticipated vibration criteria and thresholds;
- (d) The proposed methods of controlling and adjusting vibrations if the thresholds are exceeded; and
- (e) The proposed method to record vibrations and related activities during construction.

Design-BUILDER shall prepare a Vibration Monitoring Plan and submit to ADOT in accordance with Table 600-7.

(3) Loads

Design-BUILDER shall design bridges for the following loading:

- (a) Dead load: A reserve superimposed dead load of 25 pounds per square foot shall be included in the design of all bridge elements to provide for a future deck overlay; and
- (b) Live load: All new vehicular structures shall be designed for AASHTO HL-93 vehicular live loading:
 - (i) Bridges proposed to carry construction overload vehicles shall be designed per Section 16 of the *ADOT Bridge Group Design Guidelines*; and
 - (ii) Overload vehicles are defined as any vehicle that exceeds the legal truck loads as specified in the *AASHTO Manual for Bridge Evaluation*.

Existing piers, including existing piers at widenings, shall be checked by Design-BUILDER for the 600-kip vehicular collision force in accordance with Section 3.6.5 of the *AASHTO LRFD Bridge Design Specifications*. Design-BUILDER shall include these calculations with all bridge design submittals. Existing piers that do not meet this requirement shall be protected by barrier in accordance with Section 3.6.5 of the *AASHTO LRFD Bridge Design Specifications* and Section 200.03(C)(7).

(4) Uplift

Design-BUILDER shall proportion bridge spans to prevent uplift at supports for all *AASHTO LRFD Bridge Design Specifications* limit states, except for the extreme event limit state.

(5) Compressive Strength and Stress Limits for Concrete

Normal weight non-prestressed concrete shall have a minimum 28-Day compressive strength (f'_c), at 28 Days, as shown in Table 600-2.

Table 600-2: Minimum Concrete Strength for Non-Prestressed Concrete

No.	Components	f'_c (ksi)
1.	Decks (except barriers)	4.5
2.	Bridge concrete barriers, approach slabs, and protective pavement systems	4.0
3.	Substructures (abutments, piers, foundation, and drilled shafts)	3.5
4.	All other class 'S' concrete	3.0

Normal weight precast, prestressed concrete members shall have a maximum 28-day compressive strength (f'_c) of 9,000 pounds per square inch. Design-BUILDER shall determine the initial compressive strength at release (f'_{ci}).

Normal weight CIP post-tensioned box girder bridges shall have a maximum 28-day compressive strength (f'_c) of 6,000 pounds per square inch. Design-Builder shall determine the initial compressive strength at release (f'_{ci}).

Maximum stress limits for prestressed concrete are as shown in Table 600-3.

Table 600-3: Stress Limits for Prestressed Concrete

No.			Before Time-Dependent Losses	After Losses			
				DC + Prestress	Service Limit I	Service Limit III	0.5(DW + DC + Prestress) + (LL + IM)
1.	Compression (ksi)		$0.6f'_{ci}$	$0.45f'_c$	$0.6\phi_w f'_c$	N/A	$0.4f'_c$
2.	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	$0.0948\sqrt{f'_{ci}}$ $\leq 0.2 \text{ ksi}$	N/A	N/A	N/A	N/A

(6) Structural Concepts and Design

Design-Builder shall satisfy the following criteria for structure types and components:

- (a) Cable stayed bridge types shall not be used;
- (b) External pre-stressing or post-tensioning shall not be used;
- (c) A minimum of three girders shall be used to provide redundant load path structures, except in bridge widenings when the deck is mechanically connected to the existing bridge deck to develop full shear and moment transfer;
- (d) Fracture Critical Members shall not be used. Fracture Critical Members are defined in Articles 4.2.3.4 and 4.3.7.2 of the *AASHTO Manual for Bridge Evaluation*;
- (e) Precast, prestressed beams and girders that do not provide a redundant load path are also considered fracture critical;
- (f) 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 allowed. Curved bridges are defined in Article 4.6.1.2 of the *AASHTO LRFD Bridge Design Specifications*;
- (g) The use of the V-load method for curved steel I-girders or the M/R method for curved steel box girders is not allowed;
- (h) All proposed bridge piers must match the pier shape (circular, square, etc.) but can be a different size than that of the existing adjacent bridge piers that are to remain and must comply with the requirements of Section 3.6.5 of the *AASHTO LRFD Bridge Design Specifications*;

- (i) Non cast-in-place abutments must comply with the requirements of TPA 800-1 (Structures Aesthetics DCR);
- (j) Proposed structure concepts must have been accepted for general use by other transportation authorities. For proposed structure types not commonly used by ADOT, Design-BUILDER shall demonstrate that the proposed structure concepts will not require more inspection and/or maintenance than structure types and components that are traditionally used by ADOT;
- (k) For post-tensioned structures, Design-BUILDER shall adjust the design as necessary to ensure that creep and shrinkage parameters are properly incorporated in the design of the superstructure; deck closure pours shall not be placed until a minimum of 60 Days after post-tensioning activities to allow for the majority of creep and shrinkage to occur unless a shorter duration is demonstrated as acceptable through calculations based on concrete mixes that have undergone creep testing per ASTM C512 for use in calculations;
- (l) Design-BUILDER shall design exterior girders to meet or exceed the load capacity of the interior girders to allow for future widenings;
- (m) Post-tensioning shall be designed and constructed with corrosion protection for the strands, consisting of grout filled galvanized or non-metallic ducts. No experimental ducts shall be used;
- (n) Prestressing steel shall have a minimum center-to-center spacing of two inches; the use of bundled pretensioning strands is not allowed; and
- (o) For structural steel systems using self-weathering steel, Design-BUILDER shall address the potential for staining of adjacent areas. Details of a system for containing or mitigating staining of adjacent areas shall be included in the Plans; the details must first be included with the Preliminary Design Submittal.

(7) Bridge Barriers

All new bridge barriers shall be in conformance with ADOT *Bridge Group Structure Details SD Series*. Rustication shall be incorporated as defined in Section 800. Bridge barriers shall have a minimum one-inch cover over reinforcing steel to rustication.

Except for median barriers cast on a continuous deck across both directions of traffic, bridge barriers shall not be slip formed.

All existing bridge barriers except the south side of Wild Horse Pass Blvd/Sundust Rd TI shall be removed and replaced. The existing bridge barrier, sidewalk, and fencing on the south side of Wild Horse Pass Blvd/Sundust Rd TI can remain. If a section of a barrier is modified, the entire length of barrier on the structure including approach slabs and anchor slabs shall be replaced. Aesthetic elements are to be mounted to the existing fence anchored to the existing barrier on the south side of Wild Horse Pass Blvd/Sundust Rd TI.

New raised medians and bridge barriers attached to existing bridge decks and approach slabs shall be connected by drilling and doweling reinforcing using an approved epoxy adhesive. The hole diameter shall be in accordance with the epoxy adhesive manufacturer recommendations. The depth of the hole shall not exceed the depth of the deck less 2 inches. Due care shall be taken in the drilling/coring process to avoid contact with existing reinforcing. The bridge barrier dowel reinforcing size shall not be less than shown in the ADOT *Bridge Group Structure Details SD 1.10* and *SD 1.12*. The bridge barrier dowel reinforcing spacing shall not be more than shown in the ADOT *Bridge Group Structure Details SD 1.10* and *SD 1.12*. Calculations of the doweled connection and the effects on existing decks and superstructures, which shall be in accordance with Section 13.4 of the *ADOT Bridge Design Guidelines*, shall be

provided by the Design-Builder. If the calculations show that the bridge elements are overstressed, Design-Builder shall reconstruct those elements. Aesthetic elements as specified in Section 800 shall be incorporated.

Pedestrian fencing in accordance with ADOT *Bridge Group Structure Details SD 1.13* shall be installed on new combination pedestrian-traffic bridge railing on the north side of the Wild Horse Pass Blvd/Sundust Rd TI bridge, the south side of the north Koli Rd TI bridge, both sides of the SR 347/Queen Creek Rd TI bridge, both sides of the Riggs Rd TI bridge, and both sides of the Goodyear Rd bridge. Special Bridge Fence in accordance with TPA 600-8 (*Special Bridge Fence*) shall be installed on new 38-inch single slope bridge concrete barrier on the north side of the north Koli Rd TI bridge and both sides of the south Koli Rd TI bridge. Design-Builder is advised that aesthetic elements are to be mounted to certain fences and the spacing of the fence posts and anchors are reduced as specified in Section 800 and as shown in TPA 800-1 (*Structures Aesthetics DCR*).

Fences shall be located and detailed to allow maintenance access to structure mounted signal poles, lighting poles and sign poles and to provide visibility for pole-mounted signal heads. Access shall be removeable or hinged and lockable.

(8) Approach Slabs and Anchor Slabs

Design-Builder shall provide a 15-foot minimum length reinforced concrete approach slab at the ends of each new bridge. The existing approach slabs at Goodyear Rd shall be removed and replaced with new approach and anchor slabs as part of the Goodyear Rd bridge replacement. New approach and anchor slabs shall be in accordance with ADOT *Bridge Group Structure Details SD Series*. The approach slabs shall extend the full width of the roadway including sidewalks.

For PCCP approach roadway 300 feet in length or longer, Design-Builder shall provide an anchor slab with separate joint systems to address bridge movement and pavement movement to prevent inducing loads on new and existing bridges unless otherwise specified in the Technical Provisions. Details of the approach slab and anchor slab system shall conform to ADOT *Bridge Group Structure Details SD Series*.

Barriers on approach slabs and anchor slabs shall have a minimum one-inch cover over reinforcing steel to rustication.

(9) Bridge Deck

All structural deck slabs shall be concrete. Design-Builder shall minimize the number of deck joints wherever possible. Deck joints shall be of a type commonly used in Arizona. Compression seals and strip seals shall conform to the ADOT *Bridge Group Structure Details SD Series* and as directed in ADOT *Bridge Design Bulletin 2020-2*. Asphaltic plugs, aluminum, finger, or sliding plate bridge joints shall not be used. The bridge deck designs shall:

- (a) Be designed using an approximate elastic method;
- (b) Have allowable tensile stress in transverse deck reinforcing steel, f_s , be limited to 24 ksi for the *Service Limit State*;
- (c) Dead load analysis shall be based on a strip method using the following simplified moment equation for both positive and negative moments:

$$w \cdot S^2 / 10 \text{ for deck slabs continuous over three spans or more}$$

$$w \cdot S^2 / 8 \text{ for all other cases}$$

where:

S = the effective span length specified in AASHTO *LRFD Bridge Design Specifications Article 9.7.2.3*

w = the uniformly distributed dead load of the slab system; and

- (d) Have a minimum clear cover for reinforcing steel in new deck slabs of 2.5 inches for the top reinforcement, which includes a 0.5-inch wearing surface as specified in AASHTO *LRFD Bridge Design Specifications*, and one-inch for the bottom reinforcement for corrosion protection.

New bridge deck thicknesses shall be designed in 0.5-inch increments with the minimum thicknesses shown in Table 600-4. Effective span lengths greater than 13 feet are not allowed.

Table 600-4: Minimum Bridge Deck Thickness

No.	Variable	Minimum Bridge Deck Thickness				
1.	S (feet)	≤7	7< and ≤8.5	8.5< and ≤10	10< and ≤11.5	11.5< and ≤13
2.	t (inches)	8.0	8.5	9.0	9.5	10.0
Where: S = the effective span length specified in Article 9.7.2.3 of the AASHTO <i>LRFD Bridge Design Specifications</i> t = the minimum thickness of deck slab; t includes the 0.5-inch wearing surface, which must be excluded from strength and service analysis						

Sidewalks on bridges shall be in accordance with ADAAG requirements. The minimum width of useable sidewalk on bridges shall be in accordance with ADOT *Bridge Group Structure Details SD Series* unless otherwise indicated in Section 200.03(C)(9).

Stay-in-place deck forms are allowed for new structures constructed over I-10.

Partial-depth and full-depth concrete deck panels are acceptable on new bridges. Design-Builder shall prepare Deck Panel Detail Drawings, which are considered Shop Drawings and Working Drawings. The Deck Panel Detail Drawings shall include the following:

- (a) Minimum, typical, and maximum panel widths, and lengths;
- (b) Transverse and longitudinal keyway details;
- (c) Shear pocket and shear connector details;
- (d) Post-tensioning and pre-tensioning details;
- (e) Temporary shim details;
- (f) Proposed method for compensating girder camber;
- (g) Overhang details;
- (h) Sidewalk, barrier, and parapet details;
- (i) Grout specifications for keyways and shear pockets;
- (j) Overlay details and specifications; and
- (k) A description of at least one previous project completed by Design-Builder using the proposed panel details on a structure of similar type, size, and complexity, including contact information for the owner's representative.

Design-Builder shall submit Deck Panel Detail Drawings to ADOT in accordance with Table 600-7.

Refer to Section 500.03(I)(2) for additional requirements for bridge deck drainage.

Design-Builder shall apply a methacrylate penetrating crack seal material to the existing bridge deck at Wild Horse Pass Blvd/Sundust Rd TI, and to all the existing bridge decks which are to have the AR-ACFC removed. The methacrylate penetrating crack seal material shall be in accordance with ADOT *Stored Specifications*. Vehicle traffic shall only be allowed on the treated deck after complying with manufacturer's requirements.

At SR 347/Queen Creek Rd TI, the existing bridge deck that will be located within areas designed for pedestrians shall have the existing deck grooves removed by diamond grinding to obtain a finished surface that is ADA compliant.

(10) Intermediate Diaphragms

Precast-prestressed concrete I-girder and bulb-tee girder bridges with spans over 40 feet shall be constructed with a nine-inch thick CIP concrete diaphragm at the midspan of bridges unless otherwise allowed in Section 600.03(C)(10). Special consideration for additional diaphragms shall be given to bridges with long spans. For bridge skew less than or equal to 20 degrees, the diaphragm shall be placed either parallel to the skew or staggered and normal to the girder. For bridge skew greater than 20 degrees, the diaphragms shall be staggered and placed normal to the girder. Steel intermediate diaphragms are not allowed for precast-prestressed concrete I-girder and bulb-tee girder bridges unless Design-Builder designs them in accordance with Section 4.6.3.3.4 of the AASHTO *LRFD Bridge Design Specifications* and other applicable sections of AASHTO, and meets other requirements noted in Section 600.03(C)(10).

Post-tensioned box girder bridges shall be constructed with a nine-inch thick CIP concrete diaphragm at the midspan of the bridge. Special consideration for additional diaphragms shall be given to box girders with large skews, curved boxes, and boxes over seven feet in depth. For bridge skew less than or equal to 20 degrees, the diaphragm shall be placed either parallel to the skew or staggered and normal to the girder. For bridge skew greater than 20 degrees, the diaphragms shall be staggered and placed normal to the girder. All diaphragms shall be cast integral with the girder webs to add lateral stability to the forming system.

Rolled beam and plate girder bridges shall be constructed with cross-frames or diaphragms at each support and with intermediate cross-frames or diaphragms placed in all bays at intervals not to exceed 25 feet. Design criteria and provisions for cross-frames or diaphragms shall conform to the AASHTO *LRFD Bridge Design Specifications*. For bridge skew less than or equal to 20 degrees, the stiffener plates that also serve as connection plates may be placed parallel to the skew or staggered and normal to the girder. For bridge skew greater than 20 degrees, the stiffener plates that also serve as connection plates shall be staggered and placed normal to the girder. Transverse intermediate stiffeners that are not connection plates shall be placed normal to the web.

Other structure types shall utilize intermediate diaphragms in accordance with the applicable design code.

Due to the absence of requirements within AASHTO *LRFD Bridge Design Specifications* for the design of intermediate diaphragms for precast-prestressed concrete I-girder and bulb-tee girder bridges, the basis of design shall include:

- (a) Analyze the ability of precast-prestressed concrete I-girders and bulb-tee girders to resist wind loads using AASHTO *LRFD Bridge Design Specifications* Article 4.6.2.7 – Lateral Wind Load Distribution in Girder Bridge Systems using Load Path 3, which assumes no wind bracing (i.e., no intermediate diaphragms).
- (b) If stresses are acceptable, proceed with installation of proposed diaphragm details without further analysis or modification.
- (c) If steel intermediate diaphragms are used, the precast girders shall be fabricated with threaded inserts on fascia girders and sleeves on interior girders to accommodate attachment of the steel intermediate diaphragms. The steel intermediate diaphragms shall consist of a steel wide flange section of varying size depending on girder height. Precast concrete and concrete-encased steel diaphragms are not permitted.

(11) Utilities

No Utilities will be allowed on bridge structures except as allowed in this section. Conduits shall be limited to those needed for ITS, traffic signals, and overhead/underdeck lighting. Shared or separate conduits for Governmental Entities may be provided with approval from ADOT. Conduits shall be encased in bridge barrier or sidewalk or shall otherwise be placed between girders such that conduit and support elements, including hanger, are not exposed from the exterior "outboard" side of exterior elements of the bridge framing. Conduits encased in new bridge barrier shall meet the requirements of ADOT *Bridge Group Structure Details SD 1.30*.

(12) Expansion Joints

For two-span structures with a pier in the median, an expansion joint is permitted at the pier if a negative moment deck pour would otherwise require lane closures on I-10.

Design-Builder shall remove and replace the existing expansion joint compression seals at the abutments of the Wild Horse Pass Blvd/Sundust Rd and SR 347/Queen Creek Rd bridges in accordance with TPA 600-3 (*Repairs and Modifications to Existing Bridges*).

In conjunction with removing the AR-ACFC overlay on bridges (I-10 over SR 202L, the I-10/SR 202L system interchange ramps N-E and W-S, and the SR 202L over 56th Street), the existing steel bars welded to the expansion joint rails shall be removed at each location.

(13) Removal of Existing Medians, Sidewalks and Barriers

Prior to removal of medians, sidewalks and barriers on existing bridge decks and approach slabs, photos shall be taken to document the existing condition of the elements and adjacent structure. Removal of these elements shall be with hand tools only to prevent damage to the adjacent and underlying concrete and reinforcing steel. Due care shall be taken when contacting existing reinforcing steel to prevent damage to existing concrete or reinforcing steel to remain.

For the removal areas that will be located within future travel lanes or shoulders, after initial removal of the median, sidewalk or barrier, an additional one inch of deck shall be removed by milling in accordance with TPA 600-5 (*Remove Deck Surface (Mechanical Milling)*). This area shall be filled with one inch of polyester polymer concrete in accordance with TPA 600-6 (*Polyester Polymer Concrete Bridge Deck Overlay*). The final surface shall match the profile and cross slope of the existing deck adjacent to the new Work. The finished surface in travel lanes and shoulders shall be finished or tined to match the existing deck adjacent to the new Work.

(14) SR 347/Queen Creek Rd TI Steel Box Girder Superstructure

Design-Builder shall design and construct a direct-connect ramp from EB SR 347 to WB I-10 in accordance with Section 200.03(C)(8) and the Proposal Design. The bridge shall consist of an eight-span bridge with round columns for the piers and stub abutments on earthen cones which utilize slopes of 3:1 or flatter. The bridge superstructure shall consist of steel box girders. A minimum three-box girder section shall be used for each span.

(a) Design

The design shall be in accordance with AASHTO *LRFD Bridge Design Specifications, 10th Edition*. All steel details shall be in accordance with the applicable steel box girder details provided in AASHTO/NSBA *Guidelines for Design Details G1.4-2006*.

The redundancy factor for the strength limit states in Section 1.3.4 of AASHTO *LRFD Bridge Design Specifications, 10th edition*, must be equal to 1.0 for a three-box girder section. Attempting to demonstrate redundancy and classify structures with two-box girder cross sections as system redundant members is not allowed.

References to nonredundant steel tension members in the reference documents contained in Table 600-1 shall be considered the same as references to fracture critical members. Attempting to demonstrate redundancy and classify fracture critical members as system redundant members is not allowed.

When setting haunch heights, Design-Builder shall specify a height necessary to avoid conflicts between lateral bracing and stay-in-place deck forms.

The design of the steel box girders and the camber values provided in the Plans must consider the deck casting sequence.

All bolted connections used with non-weathering steel that are designed as slip-critical connections must assume a class "A" faying surface with a slip coefficient of 0.30. All bolted connections used with weathering steel that are designed as slip-critical connections may assume a class "B" faying surface. Threads must be excluded from the shear plane for the plate thicknesses adjacent to the nut of $\frac{3}{4}$ -inch or greater. Bolt heads must be on the exterior/exposed faces of the girders.

Design-Builder shall perform an additional transverse deck analysis which includes the behavior of torsionally stiff girder cross sections as depicted in Figure C9.7.2.4-1 of AASHTO *LRFD Bridge Design Specifications, 10th Edition*. The deck section shall be checked at the Service I and Strength I load combinations using the HL-93 live load. For deck design, Design-Builder shall not include wind effects for the Service I load combination. The analysis of the deck must assume no benefit from the stiffening effects of traffic railing or barriers.

Design-Builder shall prepare an Independent Design Check Calculation Report for the steel box girder superstructure including bearings and connections to the substructure. Design-Builder shall prepare and submit the Independent Design Check Calculation Report in accordance with Section 600.03(1)(2)(a).

(b) Bracing

Design-Builder's design must designate all bracing members as primary or secondary based on Table 6.6.2.1-1 in AASHTO *LRFD Bridge Design Specifications, 10th Edition*.

Design-Builder shall design internal cross frames as a "K-frame" and show internal cross frames connected by welding or bolting to stiffeners.

Design-Builder shall design an internal lateral bracing system in the plane of the top flange using a Warren-type configuration that extends the full length of the girder. Pratt-type configurations and partial span length systems are not allowed.

Design-Builder shall provide exterior end diaphragms between adjacent box girders at all support locations. Diaphragms must be full-width connecting the box girders. Each box girder must have an interior plate diaphragm colinear with each exterior diaphragm. The interior diaphragm top flange must be connected to the exterior diaphragm top flange. The exterior diaphragm bottom flange must be connected to the box girder bottom flange. Diaphragms must be full-depth with an I-shaped cross section. A full-depth diaphragm is defined as having its web top and bottom aligned with the top and bottom of the box girder web. Design-Builder shall provide a minimum of two rows of shear studs on the diaphragm top flange at a maximum pitch of 12-inches and embedded into the concrete deck. The diaphragm connection to the boxes must be designed for all applicable limit states.

Design-Builder shall provide a minimum of three permanent exterior intermediate diaphragms in each span. The diaphragms must be spaced evenly and must be full-width connecting the box girders. Each box girder must have an interior cross frame colinear with each exterior intermediate diaphragm.

(c) Access

For maintenance and inspection, the minimum interior height of the box girders must be 6-feet measured perpendicularly from the top of the bottom flange to the bottom of the top flanges.

(i) Bottom Flange Access Openings

Design-Builder shall design box sections with ingress/egress access openings in the bottom flanges located at maximum 600-foot spacing. Design-Builder shall space access openings along the length of the box girder such that the distance from any location within the box girder to the nearest opening is 300-feet or less. Design-Builder shall provide a minimum of two access openings per box girder line. Whenever feasible and in areas not deemed problematic for access by unauthorized persons or due to bridge security issues, Design-Builder shall include an access opening near each abutment. Design-Builder shall provide additional access openings along the length of the box girder as required to meet the maximum spacing requirement. Design-Builder shall not place access openings over traffic lanes and/or over sloped embankments. Design-Builder shall coordinate with ADOT for final guidance in establishing access opening locations.

The minimum access opening size must be 32-inches x 42-inches or a circle with a minimum 36-inch diameter. The Plans must specify that access openings are to remain clear and are not to be used for Utilities, drain pipes, conduits, or other attachments.

Design-Builder shall analyze access opening sizes and bottom flange locations for structural effects on the box girder. Design-Builder shall not place access openings in zones where the bottom flange is in compression.

Access hatch assemblies must be provided at each bottom flange access opening. Design-Builder shall not specify ladder braces at locations where the access opening is not accessible using an extension ladder or the access opening is greater than 25-feet above the ground. Keyed, commercial grade, weather resistant padlocks with a 2-inch shackle must be included at all access hatches. All padlocks must be keyed as specified by and coordinated with ADOT.

(ii) Interior Diaphragm Access Openings

Design-Builder shall provide access openings through all interior diaphragms. The minimum diaphragm access opening size is 32-inches wide x 42-inches tall. The Plans must specify that diaphragm access openings are to remain clear and are not to be used for utilities, drain pipes, conduits or other attachments. If these items are required, Design-Builder shall provide additional areas or openings.

Access door assemblies must be provided through diaphragms at both ends of simple span box girders and at both ends of continuous box girder units. Expanded metal mesh must be ½-inch No. 16 expanded carbon steel metal mesh in accordance with ASTM F 1267, Type I or II, Class 2, Grade A. Equipment access doors must include a lockable latch that can be opened from both sides of the door. Keyed, commercial grade, weather resistant padlocks with a 2-inch shackle must be included at all access doors at abutments. All padlocks must be keyed the same as those specified for the bottom flange access openings.

(iii) Other Exterior Openings

Design-Builder shall design each box girder with minimum 2-inch diameter ventilation or drain holes located in the bottom flange on both sides of the box spaced at approximately 50-feet or as needed to provide proper drainage. Design-Builder shall specify drains at all low points against internal barriers.

¼-inch mesh screen must be used to cover all exterior openings not covered by a door. This includes holes in webs through which pass utility pipes, ventilation holes, drain holes, etc. Welding of screens to structural steel components is prohibited. Screens must be attached to structural steel components with a self-adhesive.

Design-Builder shall design flexible barriers to seal openings between expansion joint segments of adjacent end units to prevent birds from roosting on the box end ledges. Barriers must be UV and weather resistant and easily replaceable.

(D) Additional Requirements at Bridge Widening**(1) Geometry**

Vertical clearances shall be in accordance with TPA 200-1.1 (Mainline and Ramp Design Criteria) and Section 600.03(C)(1). The lane and shoulder widths shall be in accordance with Section 200 and TPA 200-1.2 (Crossroad and Local Street Design Criteria).

At Wild Horse Pass Blvd/Sundust Rd TI, the approach slab length for the widened approach slab shall match the existing approach slab length. The widened approach slab shall be reinforced in accordance with ADOT *Bridge Group Structure Details SD Series*. Any deviations in approach slab placement must be approved by ADOT.

At Wild Horse Pass Blvd/Sundust Rd TI, there is a variance in the existing bridge width between the as-built drawings and the Project survey. The bridge drawings included in the RIDs assume the as-built drawings control and reflect an east bound shoulder on Wild Horse Pass Blvd that is 3.5 inches larger than the five-foot minimum required by the Technical Provisions.

(2) Bridge Deck

Partial-depth and full-depth precast concrete deck panels are not allowed on bridge widenings.

A minimum deck thickness less than what is required by Table 600-4 may be used to match the existing deck thickness when effective length of the new deck, as defined in *AASHTO LRFD Bridge Design Specifications 9.7.2.3*, is equal to or less than the effective length of the existing deck. For larger effective lengths, the minimum deck thickness required by Table 600-4 applies. Deck overhangs shall meet the deck thickness requirements shown in the barrier details.

Longitudinal joints, other than construction joints, are not permitted.

The bridge deck finish in the widening shall match the finish of the existing bridge deck.

At Wild Horse Pass Blvd/Sundust Rd TI, the expansion joints shall match existing expansion joints in location, type and opening. After removal of the barrier, deck overhang and approach slab have occurred for the bridge widening, the soundness of existing expansion joint header concrete for a distance of five feet from the removal limit shall be tested by Design-Builder with a representative of ADOT and the IQF by sounding the concrete with a hammer. All voids detected through testing shall be repaired by Design-Builder by epoxy injection as ADOT-Directed Maintenance. Sounding the concrete with a hammer is not included in such ADOT-Directed Maintenance. Design-Builder shall request ADOT attendance seven Days prior to the existing bridge expansion joint soundness testing. Void repairs are included in the cost of the new expansion joint for the widened sections. As noted in Section 600.03(C)(12), the existing joint glands will be replaced. The new glands shall be installed as one continuous piece through the existing and widening sections of the bridge.

(3) Structure Type and Diaphragm Type

The structure type for bridge widenings shall match the existing structure type. Precast-prestressed concrete bulb-tee girders may be used for the widening of a precast-prestressed concrete I-girder bridge. Weathering steel shall not be used on the widening of existing steel girder bridges.

CIP concrete diaphragms located to match existing diaphragms shall be used on the widening of precast-prestressed concrete I-girder and bulb-tee girder bridges. Steel diaphragms are not allowed.

Steel diaphragms shall be used on the widening of steel girder bridges.

(4) Bearings

Bridge widening bearings shall match the existing bridge configuration and details, unless otherwise approved by ADOT. Design-Builder's design shall account for expansion or contraction in the lateral as well as the longitudinal directions.

The condition of the existing bearings shall be inspected with a representative of ADOT in attendance. Bearings that are damaged shall be evaluated and a repair plan developed for review and approval by ADOT. Expansion bearings where debris is preventing movement shall be cleaned. If ADOT requires the repair and/or cleaning of existing bearings, such direction shall be considered an ADOT-Directed Change.

(5) Steel Girders

New and existing steel girders shall be painted per ADOT *Standard Specifications* and Section 800.03(C)(2).

(6) Existing Structure Modification Report

Design-Builder shall prepare an Existing Structure Modification Report for each bridge widening. The Existing Structure Modification Reports must be signed and sealed by a registered Professional Engineer. The Existing Structure Modification Reports shall address the impacts to existing foundations including the following:

- (a) Proposed deep foundations to be placed near an existing deep foundation such that the spacing between the two is reduced below three diameters center-to-center based on the average diameter of the proposed and existing deep foundation;
- (b) Proposed deep foundations to be placed within the influence zone of existing spread footings. The influence area is defined as the frustum bounded by a 45-degree line starting at each bottom corner of the spread footing and extending to a depth equal to the longest horizontal dimension of the foundation;
- (c) Proposed spread footings to be placed next to an existing deep foundation such that the spread footing imparts a lateral squeeze and/or downdrag force to the existing deep foundation;
- (d) Proposed spread footings to be placed next to an existing spread footing such that increased vertical loading causes additional settlement to the existing structure; and
- (e) A proposed substructure is rigidly attached to an existing substructure causing a redistribution and/or increase to foundation elements in the existing substructure.

The Existing Structure Modification Reports contents shall include the following:

- (a) An analysis of the as-built existing bridge foundations, including the affected frame within the bridge, if required. If there is no impact to the existing frame, the report shall state there is no impact along with a description of the engineering judgement and/or analysis used to determine no impact;
- (b) An analysis and assessment of the maximum allowable settlement and differential settlement of the existing bridge, or affected frame within the bridge, caused by impacts to its foundation. The maximum allowable settlement and differential settlement will be that which causes any portion of the existing structure to reach a maximum permissible stress as specified in the AASHTO *LRFD Bridge Design Specifications*, as modified by the Technical Provisions;
- (c) A detailed procedure that will be employed to monitor and preclude/control/recover deflection of the existing superstructure throughout the bridge widening construction, beginning 30 Days prior to commencement of construction, and ending

no earlier than 120 Days after completion of the superstructure construction. Monitoring is required at existing foundations impacted by construction and at existing nearby foundations subject to disruption of the footing influence area;

(d) For existing spread footing foundations, the procedure shall outline the steps to be taken to avoid disruption of the influence area below the foundations of structures located near construction activities;

(e) In cases where construction encroachment on the influence area is unavoidable, the report shall identify countermeasures and safeguards to protect the integrity of the existing foundations against settlement, lateral movement, and loss of capacity. The procedure shall identify all temporary and permanent materials, products, equipment, instrumentation, and processes to be used. The procedure shall prescribe the sequence and estimated duration of installation, utilization, and removal of such items;

(f) Analysis, design, and preliminary drawings of the proposed structure foundations;

(g) Drawing(s) clearly illustrating the construction sequence and schematic load transfer and deflection control from the existing foundation to the new foundation modification; and

(h) A detailed list of the phases or steps, if any, and their estimated durations during which closure of the existing bridge to vehicular traffic is necessary.

Design-BUILDER shall submit the Existing Structure Modification Reports to ADOT in accordance with Table 600-7.

(7) Additional Considerations

Design-BUILDER shall ensure that creep and shrinkage parameters are properly incorporated into the design of the superstructure with consideration given to the existing structure. Guidance for creep and shrinkage can be found in the AASHTO *LRFD Bridge Design Specifications*, NCHRP Report 496, and the FHWA *Post-Tensioned Box Girder Design Manual*. Deck closure pours shall be placed no less than 60 Days after tensioning activities.

(8) Required Bridge Repairs and Modifications

Design-BUILDER shall carry out such repairs and modifications to existing bridges to be widened as required by TPA 600-3 (Repairs and Modifications to Existing Bridges).

(E) Retaining Walls and Wingwalls

Design-BUILDER shall design retaining walls in accordance with the applicable standards provided in Table 600-1 and Section 300.

(1) Geometry

Retaining wall layout shall address slope maintenance above and below the wall and provide return into the retained fill or cut at retaining wall ends where possible.

Footings shall be level. Batter walls during construction to balance lateral deflection due to permanent loads. Negative batter, defined as the top of wall rotated towards the outside exposed face of wall, is not allowed.

(2) Drainage

Design-BUILDER's design shall account for surface and subsurface drainage. Design-BUILDER shall provide a system to intercept or prevent surface water from entering behind walls. Surface water shall be captured and redirected behind walls. Conveyance of surface water over the top of walls is not allowed.

(3) Barriers and Pedestrian/Barricade Railing

Design-Builder shall provide 42-inch tall pedestrian railing or barricade railing on top of existing and new retaining walls of 48 inches in height or greater, except when protected by 42-inch barrier against the top of the retaining wall.

Pedestrian railing, which can utilize concrete or steel, shall be designed per the AASHTO *LRFD Bridge Design Specifications* and shall be located at locations where pedestrians will have access to the area. Barricade railing, which may be used on top of walls when reasonable access by pedestrians will not occur and only maintenance staff are anticipated to access, shall be designed per the AASHTO *LRFD Bridge Design Specifications* except that rail spacing may be increased to 1'-9" maximum (steel two-rail system). The maximum allowable gap between the pedestrian railing or barricade railing and an adjacent facility providing protection for pedestrians and/or maintenance staff shall be three inches. Fencing may be substituted for railing if fencing is shown to meet the loading requirements of AASHTO *LRFD Bridge Design Specifications*. Locations of fencing replacing railing must be approved by ADOT.

MASH compliant concrete barriers along the tops of wingwalls and retaining walls shall be supported on a footing independent from the adjacent wall. Approach slabs and anchor slabs may be employed as independent footings. These barriers shall not be slip formed.

Barriers integral with walls are not allowed, except for combination barrier/toe-down walls that utilize a CIP wall extending below the barrier foundation without the use of a secondary foundation. These toe-down walls shall be limited to a maximum height of six feet measured along the exposed face from the top of barrier foundation to the bottom of the toe-down wall. The bottom of the wall shall have a minimum of 18 inches cover for a maximum exposed surface of 4.5 feet measured from the top of barrier foundation to finished grade.

The maximum slope for finish grading adjacent to retaining walls, toe-down walls and noise barriers shall be three horizontal to one vertical. A minimum four foot-wide bench shall be provided and graded away from the wall at both faces of noise walls and the front faces of retaining and toe-down walls for maintenance access activities.

(4) Wall Types

Design-Builder shall prepare a Wall Concept Report if the proposed wall type is not in the ADOT *Bridge Group Structure Details SD Series*. The Wall Concept Report shall outline wall type, wall location, wall geometry and design specifications. Wall types identified in the Wall Concept Report shall be used. Design-Builder shall submit the Wall Concept Report to ADOT in accordance with Table 600-7.

(5) Cast-in-Place Walls on Spread Footings

CIP concrete cantilever retaining walls shall be in accordance with ADOT *Bridge Group Structure Details SD 7.01*. If such structure details drawing is unmodified, structural calculations are not required per Section 600.03(I)(2)(a). The spacing of construction and expansion joints shall account for short and long-term longitudinal differential settlements. If a wall section is modified, it shall be designed in accordance with AASHTO *LRFD Bridge Design Specifications* and Section 300. The modified wall section shall extend at a minimum to adjacent contraction or expansion joints.

Design-Builder may provide specially designed CIP walls. Specially designed CIP walls shall be designed and constructed in accordance with AASHTO *LRFD Bridge Design Specifications* and Section 300.

(6) Cast-in-Place Walls on Drilled Shafts

CIP walls on drilled shafts shall be designed and constructed in accordance with the AASHTO *LRFD Bridge Design Specifications*. Geotechnical design shall be in accordance with Section 300.

(7) Anchored Walls

Anchored walls design and construction shall be in accordance with Section 300. Anchors shall use Class A protection and shall be encapsulated with grout-filled plastic sheathing. Proof load tests for anchors shall be provided in accordance with Section 300. Calculations and drawing details shall be signed and sealed by a registered Professional Engineer.

The use of anchored walls is limited to supporting existing embankment and at bridge widenings. Anchored walls shall not be used to support embankment under new bridges.

(8) Mechanically Stabilized Earth Walls

Design and construction of MSE wall systems shall be accordance with Section 300. Calculations and drawing details shall be signed and sealed by a registered Professional Engineer.

MSE walls shall not be used to support abutment spread footing foundations. Drilled shaft foundation and driven pile foundations may be placed within the MSE wall reinforced zone. Foundation loads from the structure shall be properly incorporated into the MSE wall design in accordance with the FHWA design manuals.

Barriers adjacent to MSE walls shall be supported independently from the wall coping. Top of coping shall match top of barrier footing.

Design-Builder shall design and construct MSE walls in accordance with Section 300 and TPA 600-2 (*Mechanically Stabilized Earth (MSE) Wall Systems*).

(9) Soil Nail Walls

Soil nail wall design and construction shall be in in accordance with Section 300. Calculations and drawing details shall be signed and sealed by a registered Professional Engineer.

For design and construction requirements refer to TPA 600-1 (*Soil Nailed Wall Systems*).

The use of soil nail walls is limited to supporting existing embankment and at bridge widenings. Soil nail walls shall not be used to support embankment under new bridges.

(10) Post and Panel Walls

Post and panel walls shall be designed in accordance with the AASHTO *LRFD Bridge Design Specifications*. Geotechnical design shall be in accordance with Section 300.

(11) Walls in Close Proximity to Other Structures

Design-Builder shall consider the impact to walls of nearby structures. Loading due to earth surcharge (vertical and horizontal) from adjacent structures shall be included in the design of walls when structures are considered in the influence area of the wall. Global stability and compound stability shall also be evaluated.

(F) Sign Structures, Lighting Structures, CCTV Structures and Drainage Structures

Design-Builder shall specify sign structures, lighting structures, Closed Circuit Television (CCTV) structures, Dynamic Messaging Sign (DMS) structures and drainage structures to be in accordance with ADOT Bridge, Traffic or Construction Standard Drawings as applicable. If the standard drawings are not applicable, Design-Builder shall design the structure in accordance with the applicable standards in Table 600-1. Wind speed shall not be interpolated from the maps located in the design specifications. The greatest wind speed contour adjacent to the Project shall be used for design. Sign structures within the Community and Governmental Entity shall be designed per those entities regulations and standards.

(1) Sign Structures

The minimum vertical clearance for all new sign structures shall be in accordance with TPA 200-1 (Roadway Design Criteria). Minimum vertical clearance is measured between the lowest sign, attachment, or component of the sign structure to the roadway, including shoulders and gutters.

Sign structures placed above mainline roads shall be in accordance with the ADOT *Bridge Group Structure Details SD Series*. Sign structures placed above ramps and crossroads shall be in accordance with either the ADOT *Signing and Marking Standard Drawings* or the ADOT *Bridge Group Structure Details SD Series*. For conditions where sign panel height, area or structure geometry exceed the limits shown in these details, the sign structure shall be designed in a manner similar to these details. Significant deviations from the structural concept shall require approval by ADOT.

Drilled shafts shall be used to support overhead and cantilever sign structures. Where signs are located on a retaining wall, only CIP retaining walls or pedestals may be used to support them. The supporting CIP retaining wall or pedestal shall be painted in accordance with Section 800.03(C)(2). Where signs are located on bridge elements, connections shall be incorporated into the bridge design. Installation of anchors into prestressed or post tensioned elements after fabrication is not allowed.

If the sign foundation extends more than two feet above adjacent finished grade, it shall be constructed as a formed element. Round forms will not be allowed. The formed element shall have a rustication pattern and be painted in accordance with Section 800.03(C)(2) and incorporated into the aesthetics, such as rustication pattern, of the adjacent structures.

Signs supported directly on bridge precast elements shall be incorporated into the precast construction. Drilling into pretensioned or post tensioned structures is not allowed.

For existing sign support structures on existing superstructures that are to be removed, bolts remaining in the existing superstructures shall be ground and patched in accordance with Section 601-3.05 (B): Class I Finish of the ADOT *Standard Specifications*.

(2) Lighting Structures and CCTV Structures

Poles shall be constructed of material conforming to ASTM A595, Grade A or ASTM A572, Grade 55 or higher grade. Drilled shafts shall be used to support lighting structures and CCTV structures.

Where localized conflicts with existing median drainage facilities to remain are present, light poles may be mounted to a CIP concrete median barrier foundation, without a drilled shaft, that has been designed to support the loads imparted by the pole in accordance with the design standards listed in Table 600-1.

Where light poles are located on a retaining wall, only CIP type retaining walls or pedestals may be used to support them. Light poles located on retaining walls or toe-down walls may be mounted to barrier rail without drilled shafts at locations approved by ADOT.

Where light poles are located on bridge elements, connections shall be incorporated into the bridge design. Installation of anchors into prestressed or post tensioned elements after fabrication is not allowed.

CCTV poles shall be designed for a minimum effective wind area of two square feet for CCTV & Assembly and shall be designed for a one-inch maximum deflection at the top of the pole under a 30 mile per hour non-gust wind speed.

(3) Drainage Structure Railing

Design-Builder shall provide 42-inch tall railing on top of existing and new concrete structures, outlets, and wing walls of 48 inches in height or greater. Refer to Section 600.03(E)(3) for railing requirements.

(G) Undercrossing of Koli Road

The underpass of Koli Rd shall be a reinforced concrete single-cell box that provides a minimum opening of 14 feet in height and 16 feet in width. A minimum fill height of 2 feet shall be placed between the top of the structure and the bottom of the subgrade. The box shall have a maximum length of 295 feet and include headwalls and wingwalls as needed beyond that length. The box must include a reinforced concrete skylight port in the median of Koli Rd centered between the eastbound and westbound curbs. The port shall provide a clear opening of six feet by 16 feet. The east and west walls of the port shall be in the same plane as the box sides. The north and south external walls of the box shall connect to the east and west walls.

The port shall include steel grates covering the entire opening at the top of the port. The grates shall be attached to the port with saddle-style bolt-down clips, one at each corner of each grate. The finished grade of the port and grates shall be three inches above the finished grade of the median and the adjacent median shall be graded away from the skylight port walls at a slope of 10:1 or flatter. The steel grating must be galvanized in accordance with ASTM A153. Additional steel members must be galvanized in accordance with ASTM A123. Connection hardware including bolts, nuts and washers must be galvanized in accordance with ASTM A153. The skylight port, including grating, additional steel members and connection hardware must be able to support HL-93 live loading.

(H) Use of ADOT Standard Drawings

ADOT *Bridge Group Structure Details SD Series* are acceptable if the design and construction criteria as stated on the Structure Details are applicable and where the ADOT Structure Details are unmodified. No calculations will be required for ADOT structure details used. ADOT *Bridge Group Structure Details SD Series* for barriers may be considered acceptable under this section if modified for aesthetics with the following restrictions:

- (1) The one foot by two inch thick band at the top of the barrier may be eliminated; and
- (2) The rustication shall extend outwards from the back of barrier and shall be limited to two inches in depth.

Modifications beyond those listed above shall not be allowed without providing a special detail in the Plans and supporting calculations.

(I) Construction Plans and Design Calculations**(1) Plans**

Design-Builder shall request and receive structure names and structure numbers from ADOT for each bridge and shall include that information in the Preliminary Design Submittal for the bridge.

Design-Builder shall prepare Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks*. Plans shall be submitted separately for individual bridges. The Plans, at a minimum, shall include the following:

- (a) General plan, including plan, elevation, and typical section;
- (b) General notes, including bridge load rating;
- (c) Foundation sheets;
- (d) Drilled shaft or pile details (if appropriate);
- (e) Abutment plans, elevations, sections, and details;
- (f) Wing wall elevations, sections, and details (if appropriate);
- (g) Pier plans, elevations, sections, and details (if appropriate);
- (h) Slope protection (if appropriate);

- (i) Superstructure plan and section;
- (j) Girder framing plan (if appropriate);
- (k) Girder details (if appropriate);
- (l) Prestressing details (if appropriate);
- (m) Diaphragm details (if appropriate);
- (n) Bearings details;
- (o) Deck joint details;
- (p) Drainage system details (if appropriate);
- (q) Screed elevations;
- (r) Foundation data sheets;
- (s) Special details (if applicable); and
- (t) Pile records (if applicable).

Geotechnical and foundation information presented on the Plans shall be consistent with the Geotechnical Engineering Report(s) and meet the requirements of Section 300.03(C).

Screed elevations sheets shall be part of the Plans but may be submitted unpopulated for Preliminary Design Submittal, Final Design Submittal, and RFC Submittals. Screed elevations shall be provided to IQF and ADOT for review prior to construction of the deck and shall be considered as a Shop Drawing and Working Drawing. Screed elevation and foundation data sheets shall be completed and submitted as part of the Record Drawings as required in Section 113.06(D).

(2) Design Calculations

(a) Structure Calculations

Design-BUILDER shall prepare a Structure Calculations Report for each structure 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. All pages shall be numbered. The Structure Calculations Report shall be compiled in electronic format. Design-BUILDER shall provide bound hard copies if requested by ADOT. Design-BUILDER shall submit the Structure Calculations Report to ADOT in accordance with Table 600-7.

An Independent Design Check Calculation Report shall be required on complex structures and on structures with a low level of redundancy. These structure types include, but are not limited to, steel box structures, straddle bents of any length and bridge structures with spans of over 250 feet. Independent checks shall include independent design calculations and a review of the applicable structural details and shall be performed by a registered Professional Engineer with at least 10 years of relevant experience and who was not involved in the original design of the specific structure being reviewed. When required, Design-BUILDER shall submit the Independent Design Check Calculation Report to ADOT in accordance with Table 600-7.

(b) Bridge Load Rating

Design-BUILDER shall load rate all NBI qualified bridges carrying vehicular traffic, including culverts that qualify as bridges, and prepare a Load Rating Report(s) in accordance with the AASHTO Manual for Bridge Evaluation and the ADOT Bridge Load Rating Guidelines. References to CONSPAN in the ADOT Bridge Load Rating Guidelines are intended to reference LEAP Bridge Concrete software. The minimum length of structures required to be load rated and the loading requirements shall be in accordance with the AASHTO Manual for Bridge Evaluation. This

requirement applies to structures designed and constructed using ADOT Standard Details that meet the definition of a bridge as described herein. Load rating shall be completed using the LRFR method using HL-93 live loading. This requirement applies to all new bridges and bridges that are widened.

The minimum operating load rating factor for all new vehicular bridges shall be 2.0 for concrete structures and 1.8 for steel structures. This requirement does not apply to reinforced concrete box culvert structures that do not qualify as a bridge.

For bridge widenings, the minimum operating load rating factor shall be the operating load rating of the existing bridge or 1.5, whichever is greater. If the operating load rating of the existing bridge is greater than 2.0, then the minimum operating load rating factor shall be 2.0. Coordination and approval from ADOT will be required in instances where these provisions cannot be met. Table 600-5 provides *Inventory and Operating Load Ratings* for bridge widenings that are part of the Work and identified in the Schematic Design, subject to DBA Section 7.02(C) (Schematic Design). Values provided shall be considered informational. Design-Builder is responsible for developing an independent load rating for all bridge widenings. Significant differences from the values shown in Table 600-5 shall be brought to the attention of ADOT to determine the controlling rating value to be used for the widening. This requirement does not apply to reinforced concrete box culvert structures that qualify as a bridge.

Table 600-5: Existing Bridge Load Ratings

No.	Bridge Name	Structure Number	Load Factor Rating (LFR)		Load and Resistance Factor Rating (LRFR)	
			Inventory Rating	Operating Rating	Inventory Rating	Operating Rating
1.	Wild Horse Pass Blvd/Sundust Rd TI UP	02612	1.16	2.34	-	-
2.	SR 347/Queen Creek Rd TI UP	02302	1.15	3.02	-	-

Design-Builder shall submit a Preliminary Load Rating Report(s) with load rating calculations to ADOT in accordance with Table 600-7. Design-Builder shall submit a Final Load Rating Report(s) with load rating calculations to ADOT in accordance with Table 600-7. All Preliminary Load Rating Report(s) and Final Load Rating Report(s) shall be prepared in accordance with ADOT *Bridge Load Rating Guidelines*.

600.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all structures Construction Work in accordance with the standards, manuals, and guidelines listed in Table 600-6.

Table 600-6: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Standard Specifications for Road and Bridge Construction and Stored Specifications
2.	AASHTO	LRFD Bridge Construction Specifications, 4th Edition
3.	AASHTO	Guide Design Specifications for Bridge Temporary Works, 2nd Edition
4.	AASHTO	Construction Handbook for Bridge Temporary Works

No.	Organization	Name
5.	AASHTO	Manual for Bridge Evaluation
6.	ADOT	Material Testing Manual

(B) Bridge Material Properties

For concrete, Design-Builder shall use accepted mix designs which have shown a history of satisfactory performance and minimal life-cycle costs.

Structural steel shall conform to the requirements specified in AASHTO *LRFD Bridge Design Specifications* Table 6.4.1-1, with the selection based on strength, serviceability, and overall economy. All structural steel shall be ASTM A709 Grade 50 or 50W (AASHTO M270 Grade 50 or 50W). Special shapes requiring different material types shall be clearly identified on the Plans and shall reference an AASHTO or ASTM standard.

All structural steel designated as main load carrying members in tension must meet Charpy V-notch toughness testing requirements for zone 2.

Shear connectors must be welded studs conforming to the requirements of Section 604 of the ADOT *Standard Specifications*.

ASTM A709 Grade 36 (AASHTO M270 Grade 36) steel may be used for miscellaneous applications, such as, bearing assemblies, expansion joints, rods, etc. All miscellaneous steel hardware exposed to weathering action shall be galvanized.

All anchor bolts must be ASTM F1554 and must be galvanized.

(C) Concrete Structures

Design-Builder shall saw longitudinal grooves on bridge decks, approaches, and concrete pavement protective systems. See Section 701.04(M)(1) for requirements for construction activities over live traffic and/or over shoulders.

(D) Reinforcement Fabrication

Lap splices or mechanical connectors shall be used for all reinforcing steel splices and connections. Welding of reinforcing steel to replace the requirements of a lap splice is not allowed.

(E) Construction Requirements for Sign Structures

Sign structures shall be galvanized.

(F) Structure Shop Drawings and Working Drawings

Shop Drawings and Working Drawings, which include drawings for falsework, shoring, soldier piles, cofferdams, temporary bridges, and other major temporary support structures, shall be signed and sealed by a registered Professional Engineer.

Design-Builder shall prepare MSE Wall Drawings that include the design and construction requirements of the MSE wall. MSE Wall Drawings are considered Shop Drawings and Working Drawings. Design-Builder shall submit MSE Wall Drawings to ADOT in accordance with Table 600-7.

The following Shop Drawings and Working Drawings, if applicable, shall become part of the Record Drawings structure drawings:

- (1) Post-tensioning details;

- (2) Expansion joint details;
- (3) Proprietary bearing details;
- (4) Proprietary retaining wall details;
- (5) Precast and stay-in-place deck panels;
- (6) Precast girder; and
- (7) Other Shop Drawings and Working Drawings for atypical structures as specified in the Contract Documents.

(G) Falsework, Forms, and Shoring

Design-Builder shall design and construct falsework, forms, and shoring in accordance with the following:

- (1) ADOT *Standard Specifications*;
- (2) AASHTO *Guide Design Specifications for Bridge Temporary Works*;
- (3) AASHTO *Construction Handbook for Bridge Temporary Works*; and
- (4) AASHTO *LRFD Bridge Construction Specifications*.

Design-Builder shall prepare Falsework Drawings that comply with the design and construction requirements of the falsework and forms. Falsework Drawings are considered Shop Drawings and Working Drawings. Design-Builder shall submit Falsework Drawings to ADOT in accordance with Table 600-7.

All falsework shall maintain a minimum of 16 feet of vertical clearance to the roadway below.

Design-Builder shall prepare Shoring Drawings that comply with the design and construction requirements of the shoring. Shoring Drawings are considered Shop Drawings and Working Drawings. Design-Builder shall submit Shoring Drawings to ADOT in accordance with Table 600-7.

(H) Load Rating Report

Design-Builder shall prepare an As-Built Load Rating Report(s) based on as-built condition in accordance with the AASHTO *Manual for Bridge Evaluation* and shall include both inventory and operating ratings of the “as-built” structures. Design-Builder shall submit the As-Built Load Rating Report(s) to ADOT in accordance with Table 600-7.

(I) Removal of Existing Bridges

Prior to the demolition of any bridge, Design-Builder shall prepare a comprehensive Bridge Removal Plan for the existing structure. The Bridge Removal Plan shall include the following:

- (1) Evaluation reports documenting asbestos and lead testing of the bridge;
- (2) Proposed sequencing of the bridge demolition. Sequencing shall consider loading of elements during all phases of demolition to ensure that the structure is stable. Design-Builder shall provide structural calculations showing the stability of the structures if requested by ADOT;
- (3) Steps, equipment, and duration of demolition for the sequence proposed;
- (4) Qualifications of the demolition contractor demonstrating prior experience of bridge demolition using similar techniques (a minimum of two projects);
- (5) Environmental and safety measures to satisfy federal, State, and local requirements for the removal and disposal of solid waste and/or hazardous material as applicable;

(6) Disposal of steel members painted with lead-based paint shall be in accordance with Section 117.04(D);

(7) If a portion of the existing structure is to temporarily remain and will remain in an area above or near traffic, Design-Builder shall provide:

(a) An analysis showing that the remaining portion of the structure is stable, and that failure will not occur;

(b) The anticipated time the portion of structure will remain in place before final demolition; and

(c) A debris containment system in accordance with Section 600.04(J) shall be provided for any portion of the existing structure that extends above traffic.

Design-Builder shall take the necessary measures during the bridge demolition to prevent the contamination of the earthwork, roadway, and landscaping areas underneath and around the bridge. Design-Builder is responsible for ensuring that all federal, State, and local standards, regulations, and requirements have been met and shall bear the responsibility for any non-compliance with these standards, regulations, and requirements. Holes, cavities, and depressions resulting from the removal of structures shall be backfilled and compacted to a density of not less than 95% of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT *Material Testing Manual*.

Design-Builder shall submit the Bridge Removal Plan(s) to ADOT in accordance with Table 600-7.

(J) Debris Containment Systems

If Design-Builder uses a debris containment system for sections of removed structures that will remain in place over traffic, the debris containment system must comply with the requirements in this Section 600.04(J). The debris containment system shall be of a type and size suitable to contain all debris anticipated during the work. Design-Builder shall prepare a Debris Containment System Plan that includes the following:

(1) A description of the debris containment system;

(2) Maximum loading on the debris containment system;

(3) Details for the support system designed to resist loads, including analysis of existing structure for any proposed support attached to existing structure;

(4) Sequence of installation and removal of the debris containment system, including patching of existing structure; and

(5) Duration of proposed use and frequency of inspection for removal of debris.

The Debris Containment System Plan shall be submitted to ADOT in accordance with Table 600-7.

Design-Builder shall meet and coordinate with ADOT and document the existing site condition of the facility being spanned prior to the Work over such facility.

Design-Builder shall remove debris in a reasonable time or as directed by ADOT while the debris containment system is in use. Design-Builder shall immediately notify ADOT if any debris falls outside the debris containment system and shall make immediate efforts to safely remove the debris.

The requirements in this section do not waive the requirements in Section 600.04(C).

(K) Other Requirements**(1) Cracks in New Concrete Structures**

New concrete that exhibits severe cracking shall be evaluated by Design-Builder and IQF. Severe cracking is defined as cracks with a measured crack width of 0.012 inch. In instances where crack widths exceed 0.012 inch, Design-Builder shall propose a remediation method to seal the crack, and if required, the surrounding concrete surface. When numerous cracks are identified in a finished deck surface, Design-Builder shall seal the deck with a methacrylate penetrating crack sealer after cracks have been remediated.

(L) Steel Box Girder Fabrication and Construction**(1) Fabrication**

Steel box girder fabrication must be in accordance with the following:

- (a) Shop splices in flanges or webs must be made prior to welding flange plates to web plates with full penetration groove welds;
- (b) Steel box girders, cross frames, and diaphragms must be detailed for no load fit (also known as “fully cambered fit”);
- (c) Design-Builder shall ensure the fit of all connections and the geometry of all components by providing a preassembly method by preparing a Steel Box Girder Drawings in accordance with Section 11.5.2 of the AASHTO LRFD *Bridge Construction Specifications*. Steel Box Girder Drawings are considered Shop Drawings and Working Drawings. Design-Builder shall submit Steel Box Girder Drawings to ADOT in accordance with Table 600-7;
- (d) Internal intermediate diaphragms, lateral bracing and cross frame bracing must be installed in the fabricator's shop prior to shipping;
- (e) Girder ends, bearing stiffeners, end diaphragms, and pier diaphragms must be normal to the bottom flange;
- (f) Intermediate stiffeners, intermediate cross frames, and field splices must be normal to grade;
- (g) Welding must be in accordance with Section 604 of the ADOT *Standard Specifications*;
- (h) Field welding, except for the welding of stud shear connectors and permanent connections to the bearing assemblies, is not permitted;
- (i) Structural steel must be painted in accordance with Section 610 of the ADOT *Standard Specifications*; and
- (j) Design-Builder shall apply a coat of white amine epoxy directly to the surface of interior components of steel box girders. Design-Builder shall caulk and paint all bolted assemblies and joints in accordance with Section 610 of the ADOT *Standard Specifications*. When stud welding is specified, Design-Builder shall apply a mist coat of inorganic zinc-rich primer to the top flange at a dry film thickness no greater than 1 mil. Design-Builder shall prevent rust bleeding from the top flange from staining adjacent painted surfaces.

(2) Construction

Steel box girder construction must be in accordance with the following:

- (a) Design-Builder shall submit an erection Plan, signed and sealed by a registered Professional Engineer, for review and approval by the ADOT. The plan must include proposed actions for ensuring stability of girders during erection and placement. The erection Plan must include methods to temporarily brace the girders until all diaphragms are completely installed in accordance with the Plans;
- (b) The deck slab must not be placed before all girder framing has been installed in accordance with the Plans;
- (c) Bolts in field connections must be fully tightened before deck pours are made;
- (d) The deck casting sequence on the Plans shall not be changed unless a new structural analysis is performed, new camber diagrams are developed, deck reinforcing steel layouts are revised, and a new load rating is performed by Design-Builder;
- (e) Weathering Steel: upon completion of fabrication operations in the shop, and before shipment to the Project site, weathering steel bridge components must be blast cleaned to a near white surface condition according to SSPC-SP 10. Prior to the start of any blast cleaning, oil, grease, cutting fluids or other foreign matter must be removed from the surfaces of the steel by solvent cleaning according to SSPC-SP 1; and
- (f) Weathering Steel: the members or portions of members listed below must be blast cleaned and shop painted according to Section 610 of the ADOT *Standard Specifications* using the zinc rich, low voc system. Design-Builder shall apply the full paint system in the fabrication shop, except faying surfaces of high strength bolted connections, which shall be shop painted with primer only. The color of the final topcoat shall be 20062 according to AMS-STD-595A and the gloss at an angle of 60 degrees must not exceed 25. Design-Builder shall provide a mockup for ADOT approval prior to painting members being erected.
- (i) Design-Builder shall paint the ends of the girders and other structural components for a length equal to a minimum of 1.5 times the girder depth at expansion joints.
- (ii) For areas of the shop applied paint system which are damaged during erection and high strength bolted connection areas that were only prime painted, Design-Builder shall clean and paint those areas according to Section 610 of the ADOT *Standard Specifications*, and approved by ADOT.

600.05 Submittals

Table 600-7 reflects a list of Submittals identified in this Section 600 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 600-7: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Vibration Monitoring Plan</u>	3	Not less than 30 Days prior to Work involving driving piles	600.03(C)(2)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
2.	<u>Deck Panel Detail Drawings</u>	4	Not later than 10 Business Days prior to implementation	600.03(C)(9)
3.	<u>Existing Structure Modification Reports (including the Box Culvert Loading Report)</u>	3	At the same time as the <u>Preliminary Design Submittal</u> of a bridge Plan	600.03(D)(6) 500.03(G)(2)
4.	<u>Wall Concept Report</u>	3	At the same time as the <u>Preliminary Design Submittal</u> of a wall Plan	600.03(E)(4)
5.	<u>Structures Calculations Report</u>	3	Concurrent with the <u>Final Design Submittal</u> of a structure Plan	600.03(I)(2)(a)
6.	<u>Independent Design Check Calculation Report</u> (when required)	3	Concurrent with the <u>Final Design Submittal</u> of a structure Plan	600.03(I)(2)(a)
7.	<u>Preliminary Load Rating Report(s)</u>	3	At the same time as the <u>Preliminary Design Submittal</u> of a bridge Plan	600.03(I)(2)(b)
8.	<u>Final Load Rating Report(s)</u>	3	At the same time as the <u>Final Design Submittal</u> of a bridge Plan	600.03(I)(2)(b)
9.	<u>MSE Wall Drawings</u>	4	Not later than 10 Business Days prior to implementation	600.04(F)
10.	<u>Falsework Drawings</u>	4	Not later than 10 Business Days prior to implementation	600.04(G)
11.	<u>Shoring Drawings</u>	4	Not later than 10 Business Days prior to implementation	600.04(G)
12.	<u>Steel Box Girder Drawings</u>	4	Not later than 10 Business Days prior to fabrication	600.04(L)
13.	<u>As-Built Load Rating Report(s)</u>	3	At the same time as the <u>Record Drawings</u> Submittal	600.04(H)
14.	<u>Bridge Removal Plan</u> (when required)	3	Prior to the demolition of any bridge	600.04(I)
15.	<u>Debris Containment System Plan</u>	3	Prior to the demolition of any bridge where a portion will remain in place over traffic	600.04(J)
Notes: A. Levels of Review 1. Sole discretion approval (DBA Section 3.01(B)(1)) 2. Good faith discretion approval (DBA Section 3.01(B)(2)) 3. Review and comment (DBA Section 3.01(B)(3)) 4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))				

DIVISION VII

TRAFFIC CONTROL FACILITIES

700 Signing, Striping, Pavement Markings, and Signals**700.01 General Requirements**

Design-Builder shall perform all traffic Work in compliance with the requirements in this Section 700.

700.02 Administrative Requirements**(A) Software**

Design-Builder shall use SignCAD to develop non-standard or specific sign format layouts.

700.03 Design Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all traffic Design Work in accordance with the standards, manuals, and guidelines listed in Table 700-1.

Table 700-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	FHWA	Manual on Uniform Traffic Control Devices (MUTCD), 2009 with 2012 Revisions
2.	ADOT	Arizona Supplement to the MUTCD, 2009 with revisions
3.	U.S. Access Board	Americans with Disabilities Act Accessibility Guidelines
4.	ADOT	Signing and Marking Standard Drawings
5.	ADOT	Traffic Signals and Lighting Standard Drawings
6.	ADOT	Arizona Manual of Approved Signs
7.	ADOT	Standard Specifications for Road and Bridge Construction, 2021
8.	MCDOT	Pavement Markings Standards
9.	ADOT	Dictionary of Standardized Work Tasks
10.	ADOT	Bridge Group Structure Details SD Series
11.	MCDOT	Traffic Signal and Lighting Standard Drawings
12.	MCDOT	Traffic Signal Design Manual
13.	MCDOT	Supplement to MAG Standards Specifications
14.	MCDOT	Approved Materials List

(B) General

Design-Builder shall design traffic improvements that require Utility service in accordance with Section 119. Design-Builder shall utilize ADOT standards, manuals, and guidelines for all ADOT-owned facilities.

(C) Pavement Markings

Pavement marking layout shall comply with the ADOT *Signing and Marking Standard Drawings*. Design-Builder shall design a complete and functional pavement marking system for the Project that complies with the following requirements:

- (1) Provides for the orderly and predictable movement of all traffic;
- (2) Provides guidance and warnings as needed to ensure the safe and informed operation of individual elements of the traffic stream; and
- (3) Consistent with pavement markings on the ADOT transportation system in the Phoenix area.

Pavement markings for legends, symbols, in-lane pavement markings, system to system ramp edge lines, lane skip striping, and gore marking shall be Preformed Type I pavement marking (durable tape) in accordance with Section 704 of the ADOT *Standard Specifications*. All other final striping shall be 90 mil (0.090-inch) thick ribbon extruded thermoplastic in accordance with Section 704 of the ADOT *Standard Specifications*.

New and existing PCCP and bridge decks that are not overlaid with AR-ACFC at the completion of the Work shall have high durability type one high-contrast pavement marking tape applied in accordance with Section 705 of the ADOT *Standard Specifications*. HOV white solid 12-inch stripe shall include Type C raised pavement markers as shown in ADOT *Standard Drawing M-13*.

Design-Builder shall provide delineators in accordance with ADOT *Traffic Signing and Marking Standard Drawings M-26 and M-27*. Delineators will not be required behind guardrail or barrier. Delineators shall be installed in the segment from Station 1208+00 to the southern Project limit.

Design-Builder shall provide off-mainline reference markers in accordance with ADOT *Traffic Signing and Markings Standard Drawings M-29 and M-30*.

Design-Builder shall provide bridge and barrier markers in accordance with ADOT *Standard Drawings M-32 and M-33*.

Design-Builder shall provide two sets of Type I in-lane route designation pavement markings in each system ramp lane in advance of each system interchange at the following locations: Westbound I-10 approaching SR 202L (mainline only).

The in-lane route designation markings shall indicate the numerical route and the direction of the approaching interchange, "ONLY" legend as applicable for exclusive exit lane and be placed far enough in advance of the interchange as to allow drivers to assume adequate lane positioning. The exact distance will vary depending on proposed geometry and signage. Design-Builder shall coordinate with ADOT for guidance on exact placement as part of the Design review process.

Design-Builder shall install wrong-way arrows on service interchange off-ramps in accordance with ADOT *Signing and Marking Standard Drawing M-12*.

Design-Builder shall design and construct a re-stripe of the project limits of the Gila River Bridge Project to provide three lanes in each direction of I-10, including a transition to two lanes in each direction at the south end of the Gila River Bridge, if required. For each direction of I-10, Design-Builder shall modify the existing EB and WB I-10 pavement markings from approximate Sta 1456+40 to 1508+19 as follows:

- (1) Remove the existing inside six-inch thermoplastic yellow edge lines and raised pavement markers;
- (2) Construct new six-inch white lane line preformed contrast striping (10 foot white stripe and 30 foot space) in accordance with Standard M-19 of the ADOT *Signing and Marking Plans* on

the bridge and approach slabs, and Type C raised pavement markers at 40-foot spacing in accordance with the Technical Provisions; and

- (3) Construct a new thermoplastic yellow six-inch edge line with Type E raised pavement markers at a 20-foot spacing in accordance with the Technical Provisions.

(1) Rumble Strips

Design-Builder shall install longitudinal rumble strips in accordance with ADOT *Traffic Signing and Marking Standard Drawings M-22*. Rumble strips must be 12" wide with offset. Rumble strips shall be installed in the segment from Station 1208+00 to the southern Project limit.

(2) Raised/Reflective Pavement Markers

Reflective raised pavement markers shall be installed on the mainline, ramps, and crossroads in accordance with ADOT *Signing and Marking Standard Drawings*.

Design-Builder shall use raised pavement markers as part of temporary pavement markings in accordance with Standard M-19 of the ADOT *Signing and Marking Plans* through crossovers, lane shifts, and tapers.

(3) Pavement Marking Plans

Design-Builder shall prepare construction Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks*. The Plans, at a minimum, shall include edge and lane line striping, stop lines, crosswalks, arrows, legends, gore areas, symbols, in-route designation markings and legends, raised pavement markers, object markers, delineation, and other required markings in accordance with applicable standards. Design-Builder shall include the re-striping of the Gila River Bridge project limits in the pavement marking plans in accordance with the Technical Provisions.

Design-Builder shall design and construct the pavement marking for the Koli Rd TI, ramps and Koli Rd approaches to indicate no through movements to the east of the TI.

(4) MCDOT Pavement Marking Plans

For roadways within MCDOT design authority, pavement marking shall comply with the MCDOT *Pavement Markings Standards*. Design-Builder shall provide lane and shoulder widths per TPA 200-1 (Roadway Design Criteria) to establish roadway width. Design-Builder shall coordinate and lead a meeting with MCDOT prior to *Preliminary Design Submittal* to obtain final lane and shoulder widths. Lane and shoulder widths shall not change the combined width of the roadway per dimensions shown in TPA 200-1 (Roadway Design Criteria).

(5) Community Pavement Marking Plans

For roadways within the Community's design authority, pavement marking shall comply with Section 700.03(C)(3).

(D) Signing

Signing layout shall comply with the ADOT *Signing and Marking Standard Drawings*. Design-Builder shall design all components of the signing system for the Project to provide a complete and functional system that complies with the following requirements:

- (1) During all phases of construction and until such time that the permanent signs are in place, Design-Builder shall relocate existing signs or provide temporary signs;
- (2) Remove and dispose of all conflicting signs and sign structures;
- (3) Design-Builder shall replace overhead sign structures with new sign bridge structures and sign panels if the signs are impacted by the construction activities;

- (4) Design-Builder shall replace the existing truss sign structures on eastbound I-10 approaching SR 347/Queen Creek Rd TI with new sign bridge structure(s) and signs;
- (5) Design-Builder may reuse existing cantilever sign structures if the sign structures are not impacted by the construction activities. Design-Builder shall replace the sign panels on these sign structures; and
- (6) Modification or relocation of existing signs, sign structure foundations, or sign structures is not allowed.

ADOT and Community signs shall comply with the ADOT *Standard Specifications* for retroreflective sign sheeting. MCDOT signs shall comply with Section 465 of the MCDOT *Supplement to MAG Standards Specifications*.

Design-Builder shall replace ground-mounted sign panels and posts within the Project limits with new sign panels and posts if the signs are impacted by the construction activities.

Design-Builder shall replace sign panels mounted on the bridge structures within the Project limits with new sign panels on new overhead sign structures. The crossroad street name signs shall be replaced with new sign panels if the signs are impacted by the construction activities.

The limits of sign panel replacement on service interchange ramps extend to the crossroad crosswalk of that ramp. Any signs impacted by crossroad construction or modifications to access, or destinations shall be new.

Guide sign spacing shall be coordinated with the DMS signs and shall conform to the ADOT *Standard Specifications*.

Design-Builder shall install standard guide signs for urban and rural segments per the ADOT *Standard Specifications*. The Project shall be considered urban, except for the segment from Station 1208+00 to the southern Project limit, which shall be considered rural. However, advance signage for the eastbound entrance ramp and westbound exit ramp of Riggs Rd service interchange shall be considered as urban.

(1) Urban Segment Guide Signs

Design-Builder shall install overhead guide signs on ADOT standard sign structures. Design-Builder shall remove existing guide signs and brackets from roadway bridges. The signage shall be replaced by new signs on new overhead sign structures. The area where the brackets are removed shall be patched in accordance with Section 601-3.05 (B): Class I Finish of the ADOT *Standard Specifications*.

Design-Builder shall design and construct interchange sequence signing within the Urban portion of the Project, which shall be mounted on overhead structures. Interchange sequence signs shall take the place of a required advance guide sign and shall list the next three available exits. The interchange sequence sign shall not take the place of an advance guide sign positioned over an auxiliary lane.

The signing system shall include HOV violation signs providing for a \$400 minimum fine. HOV lane time restrictions shall be included on all overhead HOV signage. Design-Builder shall remove all signs indicating the end of the HOV lane on I-10 EB approaching the Project, and replace with new sign panels to convey the information that is still relevant. Design-Builder shall install new overhead signs on new overhead sign structures indicating the end of the HOV lane on I-10 EB. The signs indicating the end of the HOV lane shall be placed ½ mile in advance of, and at the location of, the beginning of the closure taper. The Design-Builder shall install new overhead signs on new overhead structures indicating the beginning of the HOV lane for WB I-10. The signs indicating the beginning of the HOV lane shall be placed ½ mile in advance of, and at the location of, the end of the opening taper. The signs for the other mainline lane merge locations shall be overhead and the spacing shall conform to the MUTCD.

(2) Rural Segment Guide Signs

All guide signs shall be ground mounted for the rural corridor segment south of Sta 1208+00 unless otherwise stated in the Technical Provisions.

Design-Builder shall remove all "Trucks Stay In Right Lane Signs".

(3) Supplemental Signing

Design-Builder shall coordinate with ADOT Adopt-A-Highway Central District for the location and design of Adopt-A-Highway signs within the Project.

Design-Builder 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. Design-Builder shall provide locations for new logo sign installation to Grand Canyon State Logo Signs. Grand Canyon State Logo Signs is responsible for coordinating with ADOT for the fabrication and installation of the specific service logo signs.

All existing supplemental guide signs and posts listing attractions or destinations, including educational locations, cities, and towns shall be replaced in kind if impacted by construction. Otherwise, they may remain in place.

To enforce ADOT access control limits, Design-Builder shall provide signage to exclude bicycles from traveling on mainlines, and ramps.

Design-Builder shall remove all "Trucks Stay in Right Lane Signs".

(4) Sign Panels

All sign panels shall be aluminum. Design-Builder shall not use overlaid sign panels or overlaid plywood sign panels. All ground mounted sign supports used shall be in accordance with the ADOT *Signing and Marking Standard Drawings*. Design-Builder shall not use U-channel posts for sign mountings.

(5) Overhead Sign Structures

Refer to Section 600.03(F)(1) for structural requirements of overhead sign structures and foundations.

All mainline overhead sign bridge structures within the I-10 widening shall be removed and replaced with new mainline overhead sign bridge structures. Existing cantilever sign structures that are impacted by the Work shall be removed and replaced with new cantilever sign structures.

Minimum sign clearance for overhead signs shall be in accordance with TPA 200-1 (Roadway Design Criteria) over the entire width of the pavement, including shoulders and gutters. The minimum sign clearance for signs mounted on bridge structures shall not be less than the bridge clearance requirements specified in the Contract Documents. The bottom of signs mounting assemblies on bridge structures shall be, in accordance with Section 600.03(F)(1). Design-Builder shall locate overhead sign structure foundations required in areas other than the mainline and ramps in such a manner as to provide a minimum of two feet of horizontal clearance from the vertical face of curb.

Overhead signs mounted adjacent to and on the same structure as other overhead signs shall all be aligned such that the bottoms of the signs are at the same height above the pavement. If the difference in height of adjacent signs is to be less than or equal to two feet, the smaller signs shall be increased in size to match the height of the adjacent taller signs.

All overhead signs, existing or proposed, with information that applies only to certain lanes below shall be mounted only over those lanes. This includes HOV and Exit Only signs. Down arrows or upward angled exit only arrows shall be centered over the lane they control.

(6) Signing Plans

Design-Builder shall prepare a Signing Concept Plan roll plot showing all existing to remain and proposed guide signs and DMSs for the Project. Design-Builder shall submit the Signing Concept Plan to ADOT in accordance with Table 700-3. A signing concept workshop shall be held to present the preliminary Signing Concept Plan to ADOT and obtain input and guidance prior to the preliminary signing Plan Submittal. When there are changes to the Work that

1 affect the guide signing or DMS, Design-Builder shall prepare and submit a Signing Concept Plan Update to ADOT in
2 accordance with Table 700-3.

3 Design-Builder shall prepare signing Plans, in conjunction with the pavement marking Plans, showing all existing and
4 proposed signs and DMSs for the Project, including signs designated for removal that are outside the limits of sign
5 replacement.

6 Design-Builder shall prepare Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks*. The Plans,
7 at a minimum, shall include the following:

- 8 (a) The location of all proposed and existing to remain signs within the Project limits and
9 proposed and removal of signs outside the Project limits;
- 10 (b) Signs in relation to the roadway and other features, graphical representation of
11 number of posts and legend of sign, sign number and station of sign;
- 12 (c) Proposed locations for Grand Canyon State Logo signs and Adopt-A-Highway signs;
- 13 (d) Signing summary sheets that include the plan sheet number, sign number, sign code,
14 disposition of sign, mounting height and offset, background color, legend, the size of
15 the sign, type of sign, foundation type and quantity, post length and quantity, slip
16 base requirement, stringer and overhead sign structure information and any
17 additional remarks following the format of the typical ADOT sign format;
- 18 (e) Sign format sheets for all signs that are specific and not included in the ADOT *Manual*
19 *of Approved Signs*. Design-Builder shall develop sign formats using SignCAD and
20 ADOT's current policy for the formatting of guide signs;
- 21 (f) Sign elevation sheets that show the sign position in relation to the travel lanes for all
22 overhead signs, spacing between brackets, the number of brackets used, the
23 minimum vertical clearance, and structure and foundation information, including
24 dimension of clear zone distance; and
- 25 (g) Sign mounting details for all overhead signs mounted on bridges, nonstandard sign
26 structures details, and nonstandard sign structure foundations details.

27 Design-Builder shall design and construct the signing Plans for the Koli Rd TI, ramps and Koli Rd approaches to
28 indicate no vehicular movements are allowed to the east of the TI. Design-Builder shall also install four barricade
29 signs in accordance with ADOT *Traffic Signing & Marking Standard Drawing S-17* at the four locations where Design-
30 Builder shall install TCB to remain in accordance with Section 200.03(C)(8).

31 (7) MCDOT Signing

32 Signing within MCDOT's design authority shall comply with MCDOT requirements.

33 (8) Community Signing

34 Signing within the Community's design authority shall comply with ADOT requirements. Street name signs mounted
35 to traffic signal poles within the Community design authority that are affected by the Work shall be new and match
36 the type, format and color of the existing signs.

37 (E) ADOT Traffic Signal Systems

38 Traffic signal systems design shall comply with the ADOT *Traffic Signal and Lighting Standard Drawings*, *MUTCD*, and
39 the ADOT *Arizona Supplement to the MUTCD*. Design-Builder shall design all components necessary to provide a
40 complete and functional traffic signal system that complies with the following requirements:

- 1 (1) Design-Builder shall replace any existing traffic signals affected by Design-Builder's design.
2 Traffic signal ADA facilities impacted by construction activities shall be replaced with new
3 features in accordance with Section 200.03(C)(14);
- 4 (2) Design-Builder shall install new conduits/pull boxes and conductors at the TIs, the TIs shall be
5 completely re-wired;
- 6 (3) Design-Builder shall not reuse existing conduits, conductors and signal equipment including
7 poles, and controller cabinet;
- 8 (4) Design-Builder shall coordinate with ADOT, appropriate Government Entities, and the
9 Community for interconnection and synchronization of traffic signal networks;
- 10 (5) The traffic signal system shall:
- 11 (a) Include a signal phasing and timing plan proposed by Design-Builder that has been
12 reviewed and approved by ADOT;
- 13 (b) Provide communication between each ADOT-maintained traffic signal and the ADOT
14 Traffic Operations Center per ADOT Requirements;
- 15 (c) Accommodate pedestrians as required by local, state, and federal regulations, and
16 Section 200.03(C)(14) for ADA Compliance;
- 17 (d) FLIR TrafiSense AI Model 632 Thermal Detection Camera/ TrafiSense AI Model 645
18 Thermal Detection Camera with sunshield with FLIR TI BPL3 Edge Card and other
19 miscellaneous items and mounting equipment required by the manufacturer to
20 provide a fully functional system shall be used for traffic signal vehicle detection on
21 each approach of the signalized intersection;
- 22 (e) The Bosch CCTV camera, model number MIC-7522-Z30W, shall be provided at each
23 signalized intersection;
- 24 (f) The traffic signals shall be integrated with the ADOT freeway management system
25 for communication;
- 26 (g) Provide the recommended minimum number of overhead-mounted primary through
27 signal faces for each appropriate intersection approach as specified in Table 4D-1 of
28 the *MUTCD* and as required by the Community and Governmental Entity;
- 29 (h) Provide temporary traffic signals at any location that currently has traffic signals and
30 that are removed for construction or locations that are required to facilitate
31 maintenance of traffic;
- 32 (i) Provide a traffic signal uninterruptible power supply for each new or modified ADOT-
33 maintained traffic signal that complies with the requirements in TPA 700-1
34 *(Uninterruptible Power Supply)* to maintain eight full hours of operation of the traffic
35 signals in the event of a power outage. Provide 120V/240V power service per ADOT
36 *Traffic Signals and Lighting Standard Drawing T.S 3-5* Myers MEUG16 Meter
37 Pedestal, Myers HC100HZ Battery Backup Enclosure, Myers Battery Backup System
38 with Inverter and Switch and MK Power AGM Batteries;
- 39 (j) Provide TS2 Type 4 controller cabinet with Econolite Cobalt controllers (two per TI
40 and shall be interconnected for traffic signal operations);

- (k) Provide pedestrian pushbuttons in accordance with ADA requirements for all pedestrian crossings at new or modified signalized intersections in accordance with the *MUTCD* and the requirements of the Community and Governmental Entity;
- (l) Provide signal head visors on all signal indications in accordance with ADOT *Traffic Signals and Lighting Standard Drawing T.S. 8-4*;
- (m) Provide egg crate-type visors on all pedestrian signal housings in accordance with ADOT *Traffic Signals and Lighting Standard Drawing T.S. 8-7*;
- (n) Provide two two-inch conduits along the exit ramps from the new no. 7 pull box with extension adjacent to the overhead sign structure with wrong-way signs to the crossroad intersection signal pull box;
- (o) Install two two-inch conduits from sign structure foundation to the new no.7 pull box adjacent to the sign structure; and
- (p) Install Opticom Emergency Vehicle Pre-emption System for the crossroad approaches in accordance with TPA 700-3 (*Opticom Pre-emption Unit*).

Type Q and Type Q-2 signal heads shall only be used with ADOT approval.

New ADOT Traffic Signals are required at the Koli Rd TI. Design-BUILDER shall establish a new point of service for the ADOT Traffic Signals in the vicinity of the Koli Rd TI.

Traffic signals anticipated to be impacted by construction activities, which will require removal of existing and installation of new signal systems include:

- (1) I-10 & Wild Horse Pass Blvd/Sundust Rd TI;
- (2) I-10 & SR 347/Queen Creek Rd TI; and
- (3) I-10 & Riggs Rd TI.

For the dual right turn lanes at the I-10 EB exit ramp terminal with WB Wild Horse Pass Blvd, Design-BUILDER may install yield signs in lieu of signal control provided that sufficient sight distance is provided in accordance with the requirements in Section 408 of the ADOT *Roadway Design Guidelines*. If sufficient sight distance cannot be achieved, then signal control shall be required.

(F) Community/MCDOT Traffic Signal Systems

Traffic signal systems within the Community or MCDOT design authority shall comply with the MCDOT *Traffic Signal and Lighting Standard Drawings*, and the MCDOT *Traffic Signal Design Manual*. All equipment shall be listed in the MCDOT *Approved Materials List*. All traffic signal equipment that must be removed shall be replaced with new equipment.

(G) All Signal Systems

For all ADOT and Community/MCDOT traffic signals, Design-BUILDER shall maintain existing traffic signal operations with either existing or temporary portable traffic signals during the construction. Video detection shall be furnished or maintained during construction. Design-BUILDER shall maintain the existing/ temporary signals equipment with the exception of the equipment inside the controller cabinet. Design-BUILDER shall coordinate with the Community through ADOT and MCDOT for modifications inside the cabinet including the controller settings, in accordance with Section 113.03(B).

At TIs, new vehicle detection shall be installed for all approaches of the interchange to include the intersections with both the eastbound and westbound ramps of I-10. The detection system may function as both traffic signal detection and wrong way driver detection provided requirements of both systems can be met.

Design-Builder shall prepare Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks*. The Plans, at a minimum, shall include the following:

- (1) Existing removals and proposed traffic signal equipment;
- (2) Traffic signal details;
- (3) Signal phasing diagrams;
- (4) Pull box schedules;
- (5) Pole and equipment schedules; and
- (6) Conductor schedules.

Design-Builder shall include a copy of the ADA Asset Spreadsheet with each traffic signal Submittal in accordance with Section 200.03(C)(14) and Table 200-3.

700.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all traffic Construction Work in accordance with the standards, manuals, and guidelines listed in Table 700-2.

Table 700-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	FHWA	Manual on Uniform Traffic Control Devices (MUTCD), 2009 with 2012 Revisions
2.	ADOT	Arizona Supplement to the MUTCD, 2009 with revisions
3.	ADOT	Signing and Marking Standard Drawings
4.	ADOT	Traffic Signals and Lighting Standard Drawings
5.	ADOT	Arizona Manual of Approved Signs
6.	ADOT	Standard Specifications for Road and Bridge Construction, 2021

(B) Pavement Marking

Pavement marking shall comply with the FHWA *MUTCD* and the ADOT *Arizona Supplement to the MUTCD*. Pavement markings shall not be placed on the final pavement surface course unless it is the final pavement marking at its final location.

Design-Builder shall re-stripe routes utilized by construction vehicles in which pavement markings were damaged or prematurely deteriorated due to the construction activity, determined at the sole discretion of ADOT.

(C) Signs

Design-Builder shall remove all sign lighting fixtures, exposed conduit, and wiring to the nearest pull box serving the fixture. Design-Builder shall remove all hardware from bridge fascia in the instance a bridge fascia mounted sign is to be removed.

Design-Builder shall coordinate with ADOT Central District Adopt-A-Highway permit representative, Sharon Williams (602) 712-6954 for the suspension of the Adopt-A-Highway program as well as the removal, salvage, design, and installation requirements of the Adopt-A-Highway Signs.

Grand Canyon State Logo Signs is an ADOT program that installs and maintains wayfinding signs on the mainline and off-ramps to guide motorists to businesses along a given route throughout the State. There are existing logo signs within the Project limits. Design-Builder shall coordinate with Grand Canyon State Logo Signs throughout the Project. Design-Builder is responsible for removing all logo sign panels and posts which are impacted by the Project. The sign panels and posts shall be removed in such a manner as to prevent any damage to the removed items. Logo sign panels, logos, and posts shall be preserved and delivered by Design-Builder to the Grand Canyon State Logo Signs task force yard at 7638 W. Orangewood, Glendale, AZ 85303. Design-Builder shall contact David Abbott at (602) 799-8288 two weeks prior to delivery. Logo sign panels shall be stored and transported on sign racks and shall not be stacked on top of each other at any time. Logo sign panels, posts, and logos shall not be bent, scratched, or damaged during removal and delivery. Design-Builder shall be responsible to replace the damaged signs with new logo signs.

Signs within the design authority of the Community and Governmental Entities shall be labeled in accordance with those entity's requirements. Design-Builder shall coordinate with the Community through ADOT and Governmental Entity for font requirements as well as notification and procedure for procuring and placement of labels prior to installation of signs, in accordance with Section 113.03(B).

(D) Traffic Signal Systems

Design-Builder shall deliver new permanent ADOT traffic signal cabinets to ADOT Traffic Operations, 2104 S. 22nd Avenue, Phoenix, AZ 85009, for assembling and testing by ADOT at least 30 Business Days prior to the scheduled traffic signal turn-on date. Upon successful testing by ADOT, Design-Builder will pick up the cabinet for installation. A representative from ADOT Traffic Operations shall be present at the intersection during signal turn-on.

Design-Builder shall deliver new permanent Community or MCDOT traffic signal cabinets to MCDOT Traffic Operations, for assembling and testing by MCDOT at least 30 Business Days prior to the scheduled traffic signal turn-on date. Upon successful testing by MCDOT, Design-Builder will pick up the cabinet for installation. A representative from MCDOT Traffic Operations shall be present at the intersection during signal turn-on.

Refer to Section 104.14 for magnetic detection for underground facilities.

700.05 Submittals

Table 700-3 reflects a list of Submittals identified in this Section 700 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format.

Table 700-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Signing Concept Plan</u> ^B	3	At the same time as the <u>Preliminary Design Submittal</u> for Signing Plans	700.03(D)(6)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
2.	<u>Signing Concept Plan Update</u> ^B	3	At the same time as the next Signing Plans design Submittal after the occurrence of a change that requires the update	700.03(D)(6)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none">1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>)2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>)3. Review and comment (<u>DBA Section 3.01(B)(3)</u>)4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required (crossroads only), ADOT will coordinate review.</p>				

701 Maintenance and Protection of Traffic

701.01 General Requirements

Design-Builder shall perform all Maintenance and Protection of Traffic (MOT) Work in compliance with the requirements in this Section 701.

701.02 Administrative Requirements

(A) Transportation Management Plan

Design-Builder shall develop, implement, and maintain a TMP for the Project that complies with the ADOT *ENG 07-3 Work Zone Safety and Mobility Policy*. The TMP shall include the following items:

- (1) Work zone TCPs including entrances and exits from the Site and proposed haul routes;
- (2) Procedures to communicate TMP information to the PCT, other public information personnel, and ADOT, and notify the public of MOT issues in accordance with Section 116;
- (3) Design-Builder shall refer to the ADOT *Emergency Route Traffic Control Plan Manual* (provided in the RIDs) for coordination of emergency traffic management.
- (4) An emergency vehicle access plan shall:
 - (a) Describe 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;
 - (b) Describe how Design-Builder plans to provide adequate room throughout the work zone during nonworking hours for emergency services access that is free of obstructions, including staging of materials or equipment;
 - (c) Provide procedures and contacts to assist emergency responders during an Emergency. Design-Builder shall obtain approval of the emergency vehicle access plan from all applicable emergency responders (e.g., police, fire, Arizona DPS, Gila River Police Department, Gila River Fire Department, Flood Control District of Maricopa County etc.);
 - (d) Include emergency vehicle access plans Identified on MOT Plans as an appendix to the TMP; and
 - (e) Include the locations of emergency median crossovers;
- (5) Descriptions of the duties of the traffic personnel, by name and level of authority, with MOT responsibilities;
- (6) Procedures to identify and incorporate the needs of emergency service providers, law enforcement entities, the Community, Governmental Entities and Utility Companies, and other related corridor users, which shall be presented in the emergency vehicle access plan;
- (7) Procedures to provide access and minimize disruption to U.S. mail, parcel delivery services, school buses, refuse collection, Governmental Entities, the Community, and Utility Companies' maintenance activities, etc.;
- (8) Procedures to address special circumstances, such as equipment malfunction, traffic incidents, full Closures and Lane Closures not reopening on time, motorists' property being damaged, and special events;

- (9) 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;
- (10) Identification of all special events, including location, anticipated attendance, publicized event routes for attendees, and contact information for each event. Design-Builder shall identify any modifications to TCPs or procedures to assist with event coordination;
- (11) Procedures to minimize Project-related traffic delays and potential collisions 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;
- (12) Identify areas with multiple preconstruction accidents stored in the ADOT Arizona Crash Information System database one-mile upstream and downstream and within limits of work zones and detour routes;
- (13) Provide measures to mitigate accidents given traffic control implementation;
- (14) Incorporation of Crisis Communication Plan when applicable; and
- (15) Procedures to modify the TMP as needed to adapt to current Project circumstances.

Design-Builder shall submit the TMP to ADOT in accordance with Table 701-8. Design-Builder shall present the TMP at the first *Construction Weekly Meeting*. The TMP is considered a living document. As changes occur in the MOT strategies proposed by Design-Builder, Design-Builder shall amend and submit the updated TMP to ADOT in accordance with Table 701-8.

(B) Regional Traffic Coordination

For Lane Closures of I-10 and crossroads, Design-Builder shall coordinate with ADOT and the Community through ADOT and Governmental Entity, in accordance with Section 113.03(B).

701.03 Design Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all MOT Design Work in accordance with the standards, manuals, and guidelines listed in Table 701-1.

Table 701-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	FHWA	Manual on Uniform Traffic Control Devices (MUTCD), 2009
2.	ADOT	Arizona Supplement to the MUTCD, 2009 with revisions
3.	ADOT	ENG 07-3 Work Zone Safety and Mobility Policy
4.	ADOT	Standard Specifications for Road and Bridge Construction, 2021

(B) Maintenance of Traffic Plans

Design-Builder shall prepare MOT Plans that provide for all construction stages and phasing in accordance with the requirements of the Contract Documents and this Section 701. The MOT Plans shall include any proposed changeable message board legends and proposed messages on existing or proposed DMS. MOT Plans shall be

required for the installation of temporary concrete barrier, temporary striping, or any traffic control that will be in place longer than two Days.

MOT Plans shall include critical sections to ensure adequate horizontal and vertical clearances. Critical sections include existing and proposed bridge piers and spans, falsework, walls, utility poles, vaults, manholes and required maintenance spacing around such utility elements, overhead sign structures, DMS structures, and other locations where horizontal and vertical clearances are approaching minimum requirements of the Contract Documents.

Design-Builder shall include "Minor Crash" signs (R16-4AZ), one per mile, throughout the mainline work zones.

Design-Builder shall provide "Project Information" signs (G20-103) in both directions of mainline. Project information signs shall include the Project hotline number and dates of construction. Project information signs shall be located in both directions of traffic at the Project limits, including:

- (1) Along I-10 (near SR 202L Santan/South Mountain TI);
- (2) Along I-10 (near southern Project limit);
- (3) Along Wild Horse Pass Blvd and along Sundust Rd near I-10 approaching the TI;
- (4) Along SR 347 and along Queen Creek Rd near I-10 approaching the TI;
- (5) Along Riggs Rd near I-10 approaching the TI in both directions;
- (6) Along Goodyear Rd near I-10 approaching the crossroad in both directions; and
- (7) Along Koli Rd near I-10 approaching the TI, once connections are open to traffic.

Project information signs shall be incorporated into the Project advance warning signing plans and MOT and TCPs.

Design-Builder shall coordinate with all appropriate Governmental Entities and affected parties in the development of the MOT Plans.

Design-Builder shall submit MOT Plans to ADOT in accordance with Table 701-8. Design-Builder shall obtain all permits and approvals from all applicable Governmental Entities and the Community.

Any changes from the approved MOT Plans or TCPs must be approved by the MOT Manager and implemented by Design-Builder. Such approved changes shall be followed up with an RFI and/or NDC to the MOT Plans or TCPs. The MOT Manager shall maintain an accurate record of both the current and past in-place MOT Plans and TCPs at all times.

(C) Temporary Construction Design Criteria

For MOT, the design and posted speed on I-10 shall be 55 MPH except as specified in Section 701.03(M). Design-Builder may use a design speed of 35 mph with a work zone posted speed of 35 mph for the crossroads. Design speed and construction posted speed limit shall be shown on MOT Plans. Design-Builder shall not use AASHTO *Low-Speed Urban* radii for curves on I-10, or SR 347.

I-10 Wild Horse Pass Blvd/Sundust Rd TI temporary traffic control shall accommodate the trailers expected to use the Wild Horse Pass Raceway. WB-67 design vehicle shall be used for the turning movements including the TI ramp terminals and driveways along Wild Horse Pass Blvd/ Sundust Rd TI.

(D) Lane and Shoulders

The minimum allowable lane widths are 11 feet on all mainline roadways, ramps, and 10 feet on crossroads during all phases of construction.

On I-10 mainline, crossroads and ramps, a minimum two foot left and right shoulders shall be provided during all phases of construction.

Design-Builder shall include emergency pull-off areas one per mile along both directions of I-10 in accordance with TPA 701-1 (*Temporary Emergency Pull-Off Detail*) where outside shoulder widths are reduced to less than 10 feet.

Differential pavement between two lanes must be less than two inches. When the drop-off between the newly paved surface and existing adjacent lane or shoulder is less than two inches, and the adjacent lane or shoulder build-up will not be completed before traffic is allowed on the new pavement, a temporary fillet shall be placed adjacent to the drop off at a slope of three-to-one.

Temporary pavement design shall be required for any proposed use of temporary pavement in conformance with Section 400. Temporary pavement limits shall be provided, and sections shown on MOT Plans.

Design-Builder shall not place mainline traffic on rumble strips; Design-Builder shall mill rumble strips and place new AC before traffic is placed on the shoulder.

(E) Pedestrian Access

Design-Builder shall maintain and provide access along existing pedestrian facilities, regardless of classification. Access along crossroads through construction limits shall be maintained at a minimum on one side at all times. Pedestrian access shall be shown on the MOT Plans or as separate Plans accompanying MOT Plans.

If existing access cannot be maintained, Design-Builder shall prepare a Pedestrian Access Modification/Closure Request that includes Plans showing the proposed modification/closure, proposed signs, and indicating the applicable ADA path of travel and associated ADA requirements. Design-Builder shall submit the Pedestrian Access Modification/Closure Request to ADOT and the applicable Governmental Entities in accordance with Table 701-8.

(F) Temporary Lighting

Design-Builder shall maintain existing lighting levels on the existing roadways during construction. Where existing lighting is impacted, or temporary roadways are implemented, Design-Builder shall meet, at a minimum, a horizontal illuminance of 0.6 footcandles with an average to minimum uniformity ration of 4:1. Design-Builder shall not use a light loss factor greater than 0.8 for determining light levels.

The power source for temporary lighting may be from Utility service, generators, or solar power.

Existing lights to be removed, existing lights to remain active, proposed permanent and temporary lights to be installed prior to each stage shall be identified on MOT Plans. Design-Builder shall design temporary lighting plans and provide all materials and equipment for temporary lighting installations, using either screw-in bases and poles or wooden poles, or portable light towers. If used, portable light towers shall be oriented in such a way to minimize glare to drivers.

Design-Builder shall prepare a Temporary Lighting Analysis showing fixture, mounting height, and proposed light levels. Design-Builder shall submit the Temporary Lighting Analysis to ADOT in accordance with Table 701-8.

(G) Temporary Drainage Facilities Management

Design-Builder shall design and manage (including infield activities by ADOT and Design-Builder) the temporary drainage systems in accordance with Section 500.03(H).

Design-Builder shall incorporate the temporary drainage design and management systems on the MOT Plans. The temporary pavement drainage design shall not allow water to pond on the roadway.

(H) ITS Facilities During Construction

Design-Builder shall maintain existing fiber-optic communication, CCTV camera locations, and DMS locations during construction.

Design-Builder shall prepare a Temporary ITS Plan for each phase of construction indicating the location of existing elements to be maintained; whether existing element is to remain, to be removed and replaced with temporary

element; or whether existing element is to be removed and replaced with ultimate element. The Temporary ITS Plan shall be submitted to ADOT in accordance with Table 701-8. Temporary ITS Plan may be in the form of a roll plot submittal with specific details on Plan Sheets for clarity.

Traffic count stations affected by modifying the lane configuration or impacted by construction shall be removed until the proposed station is in place and traffic is in the final proposed configuration.

The maximum disruption of the ITS system shall be no longer than 24 continuous hours, and only with prior approval from ADOT. If any new ITS facilities are added prior to construction, including but not limited to by the Community, Utility Companies and Governmental Entities, coordination will be required and disruption must be no longer than 24 continuous hours. The maximum disruption of service for an individual ITS component (i.e., CCTV, DMS, and ramp meters) shall be no longer than 72 continuous hours.

Design-Builder may use an alternative power source, including solar power, to temporarily service ITS devices until permanent power is installed. The power supply for temporary ITS devices shall be uninterrupted. Design-Builder shall remove temporary ITS devices prior to Substantial Completion.

There are 911 and RCN fibers which are part of the ADOT trunk line. Contact information for owners is listed in Table 701-2.

Table 701-2: Contact Information for RCN and 911 System Owners

No.	Name	Organization	Title	Phone Number
1.	Ryan Gish	MAG	RCN Program Manager	(602) 254-6300
2.	Tristan DeSoto/ Tony Middleton	MCDOT	TSMO	(602) 506-0074

(I) Temporary Traffic Signals

Design-Builder shall design a temporary traffic signal system for intersections under construction as needed where existing traffic signals regulate and manage traffic. Temporary traffic signal Plans shall be included with MOT Plans and shall include pole types, signal head types and locations relative to traffic, phasing information, details for detection, conduit, and conductor information as well as information to maintain any existing interconnect and communications with adjacent traffic signals or signal systems.

(J) Crossroad and Ramp Detours

Design-Builder shall prepare Detour Plans for all proposed detours regardless of duration. Detour Plans shall include advance warning signs, trailblazing signs, portable message board locations and messages, and other information specific to the detour.

Detour Plans shall include detour dates and duration, horizontal and vertical clearances, weight restrictions, and all proposed signs, and shall ensure that all detoured vehicle types can negotiate the detoured path. The Detour Plans shall also address disruptions to public services, including the following:

- (1) Emergency responders;
- (2) U.S. Mail and parcel delivery services;
- (3) School buses;
- (4) Public transportation services;
- (5) Refuse collection;

(6) Normal commercial activities (e.g., materials and products pick-ups and deliveries, customer access); and

(7) Safe routes to school plans.

Design-Builder shall submit Detour Plans to ADOT and all applicable Governmental Entities in accordance with Table 701-8.

(K) Construction Ingress/Egress

Design-Builder shall detail and show construction ingress and egress on the MOT Plans. Changes and relocation of construction ingress/egress shall be updated on MOT Plans as approved by the EOR and ADOT. Changes and relocations of construction ingress/egress shall be communicated to Emergency Services, DPS, and other stakeholders at the *Corridor Transportation System Management Meetings* or more frequently as needed prior to implementation.

(L) Temporary Crossovers

For any temporary crossovers between MP 161 and MP 164, Design-Builder shall design and construct the temporary crossovers to provide a minimum of three lanes in each direction. For any temporary crossovers south of MP 164, Design-Builder shall design and construct the temporary crossovers to provide a minimum of two lanes in each direction. The design of the temporary crossover shall meet the below criteria:

(1) Design Speed: 55 mph;

(2) Minimum paved lane width: 11 feet; however, the geometry of the crossover must demonstrate that a WB-67 design vehicle is able to use any lane of the crossover without encroaching into an adjacent lane or shoulder of the crossover;

(3) Minimum paved width of shoulder: two feet on the inside shoulder and two feet on the outside shoulder;

(4) Maximum grade break without vertical curve: 2%; and

(5) Side Slopes: No steeper than 1:4 (V:H)

Temporary crossovers located fully within a tangent section of the mainline roadway shall utilize horizontal curvature and cross slope in accordance with the superelevation rates given in Table 202.3B of the ADOT *Roadway Design Guidelines*. For temporary crossovers located fully or partially within a mainline curve, the horizontal curvature and cross slope used for the temporary crossover shall provide a superelevation rate at least 4% greater than the calculated superelevation rate using friction (AASHTO Equation 3-7).

Temporary concrete barriers on detours separating two-way I-10 traffic shall be 42 inches in height. Temporary concrete barriers for temporary crossovers and detours shall be placed on a surface in accordance with Section 701.04(E).

Portable changeable message signs shall be placed in advance of crossovers at increments of two miles, one mile, and a half mile. Design-Builder shall prepare a Crossover Signing Concept Plan that illustrates the placement of all warning, regulatory, and guide signs necessary to implement the temporary crossovers. Design-Builder shall submit the Crossover Signing Concept Plan to ADOT in accordance with Table 701-8.

Design-Builder shall provide temporary lighting for crossover entrance and exit gores. The power source may be from Utility service, generators, or solar power.

Design-Builder shall design temporary lighting systems to comply with the same design illumination levels as for the permanent systems. Design-Builder shall design temporary lighting plans and provide all materials and equipment for temporary lighting installations, using either screw-in bases and poles, wooden poles, or portable light towers. If used, portable light towers shall be oriented in such a way to minimize glare to drivers.

For I-10 mainline temporary detours when both bounds of traffic are on one bound of roadway for one mile or longer, Design-Builder shall provide, install and maintain temporary Dynamic Speed Feedback Signs (DSFS), one in each direction, for each mile, or portion thereof, of such I-10 mainline detour. Each temporary DSFS shall include a changeable message display, and all processing and disseminating equipment and functionality needed to detect and display the speed of approaching vehicles 24 hours a Day. Each temporary DSFS assembly shall meet the following specifications:

- (1) Assembly shall include a static speed limit sign display which shall be the R2-1 sign type, per the MUTCD, with white background and black legend;
- (2) The changeable message display shall be two digits displayed in miles per hour with character height of 24 inches at a minimum. The changeable message display shall have the ability to:
 - (a) Continuously show the speed of an approaching vehicle and not flash regardless of speed limit or preset thresholds.
 - (b) Display a blank message if the detected vehicle speed is between 0% and 50% of the predetermined speed limit setting.
 - (c) Display the speed of the approaching vehicle if the speed is greater than 50% of the predetermined speed limit setting.
- (3) Assembly shall provide the functionality for the user to identify the GPS coordinates of the DSFS assembly through the Smart Work Zone (SWZ) system software Graphical User Interface. Changes in GPS coordinates of the DSFS assembly shall be logged in the SWZ system software with a timestamp;
- (4) Each DSFS assembly deployed within the SWZ area shall have a unique number to identify that location and differentiate it from other DSFS locations.

(M) I-10 Detours Utilizing the Traffic Interchange Ramps

Detours that direct I-10 traffic through the Community are not allowed. If two lanes of traffic can be maintained, vehicles may utilize the TI ramps within the allowable closure periods identified in [Table 701-7](#). Free flow movement of the I-10 traffic shall be maintained at all times. Detours utilizing the TI Ramps for freeway traffic shall meet the following criteria:

- (1) Minimum design speed: 35 mph;
- (2) Minimum lane width: 11 feet; and
- (3) Minimum shoulder width: 2 feet.

(N) Phasing and Construction Sequence

Design-Builder shall prepare *Phasing and Construction Sequence Tables*. Each *Phasing and Construction Sequence Table* shall address, at a minimum, construction activities, construction stage limits, construction sequencing, and traffic control. Design-Builder shall submit *Phasing and Construction Sequence Tables* to ADOT as part of the *MOT Plans* in accordance with [Table 701-8](#).

701.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all MOT Construction Work in accordance with the standards, manuals, and guidelines listed in [Table 701-3](#).

Table 701-3: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	FHWA	Manual on Uniform Traffic Control Devices (MUTCD), 2009
2.	ADOT	Arizona Supplement to the MUTCD, 2009 with revisions
3.	ADOT	ENG 07-3 Work Zone Safety and Mobility Policy
4.	ADOT	Standard Specifications for Road and Bridge Construction, 2021
5.	NCHRP	Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features
6.	AASHTO	Manual for Assessing Safety Hardware (MASH)

(B) General

Design-Builder shall manage traffic in accordance with the procedures and guidelines specified in the FHWA *MUTCD*, the ADOT *Arizona Supplement to the MUTCD*, and Design-Builder's Traffic Control and *MOT Plans*.

Design-Builder shall not close lanes on the mainline, ramps, adjacent freeways, or local roadways, prior to approval of the *TMP* by ADOT.

(C) Traffic Control Devices

All traffic control devices shall comply with the requirements of the NCHRP *Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features* or AASHTO *MASH*, in accordance with Federal Guidelines, Part VI of the *MUTCD* and the ADOT *Arizona Supplement to the MUTCD*.

The Traffic Control Manager or ADOT approved designee shall inspect and maintain all traffic control daily, including nights. Design-Builder shall maintain a 24 hour telephone number at which the Traffic Control Manager or their approved designee can be contacted. Design-Builder shall submit a *Traffic Control Diary* to ADOT in accordance with Table 701-8 for every calendar day that the Traffic Control Manager or designee is required on the Project. The *Traffic Control Diary* shall include the following:

- (1) Project number;
- (2) Date and time of inspection;
- (3) Name of the Traffic Control Manager or approved designee;
- (4) Description of traffic control operations (lane closures, shoulder closures, pilot car operations, detours, etc.) including location, and setup and takedown time;
- (5) Traffic control problems (traffic accidents, delays to traffic, traffic control devices needing repair or cleansing, inoperative lights, missing signs, additional signs required, etc.) and corrective action taken;
- (6) Attached copies of all *TCPs* and *MOT Plans* in use that day with all modifications noted;
- (7) Attached pictures of any photographs taken that day.

Design-Builder shall submit *Traffic Control Documentation* that includes the types and quantities of traffic control devices used to ADOT in accordance with Table 701-8.

All orange signs shall use fluorescent orange sheeting.

(D) Signs

Design-Builder shall provide advance signing notifying all users of the proposed Closure a minimum of five Business Days prior to the proposed Closure. The advance signing shall include the Closure dates and duration. Design-Builder shall provide advance notification through portable changeable message sign for all Closures and for each direction of traffic that is affected. Advance signing notification shall be provided as noted in Table 701-4.

Table 701-4: Advance Signing Notification

No.	Event	Advance Notification
1.	Construction phase changes	5 Business Days
2.	Lane Closures on the mainline	5 Business Days
3.	Lane Closures of ramps and crossroads	5 Business Days
4.	Lane Closures with detour implications or if traffic delays are expected	5 Business Days

The text for all temporary guide signs shall be at least 10 inches in height. Temporary sign formats shall be included with MOT Plans.

Design-Builder shall completely cover or remove all signs that conflict with the Work during construction. Any signs that remain at the completion of construction must be undamaged, if any damage has occurred the sign must be replaced. Design-Builder shall ensure that any modifications to the existing signing system during construction include: an exit sign at the exit gore and a minimum of one advance notice exit sign. If such signs are temporary signs, the temporary signs shall remain in place until the permanent signs are installed.

Signs outside Project limits which are intended to remain and not affected by proposed design of this Project but are impacted by traffic control, shall be recorded on signing Plans as “existing to remain” to ensure proper location and messaging upon the completion of the traffic control phase.

(E) Temporary Barrier, Attenuators, and Glare Screen

At a minimum, Design-Builder shall use temporary barrier and attenuators to protect the travelling public from the following:

- (1) Fixed objects / work zone within the clear zone;
- (2) Drop-offs two inches or greater that are not in accordance with the traffic control treatment of longitudinal joint and edge drop-off guidelines.;
- (3) Slopes steeper than 4:1 (H:V);
- (4) Separate opposing travel lanes where posted speeds are greater than 45 mph; and
- (5) Separate work activities within clear zone.

Temporary concrete barrier shall be pinned when separating opposing traffic. Design-Builder shall prepare a Pinned Barrier Asphalt Repair Plan discussing repair and patching procedures for the pavement upon removal of Temporary Concrete Barrier. Temporary concrete barrier shall not be pinned into existing or new pavement to remain without approval of their Pinned Barrier Asphalt Repair Plan. Design-Builder shall submit the Pinned Barrier Asphalt Repair Plan to ADOT in accordance with Table 701-8.

Temporary concrete barrier shall be placed on a flat, all-weather surface constructed with a minimum two-inch thickness of concrete, asphalt, or gravel/AC millings, which surface must extend to include a two-foot flat area

behind the barrier for deflection. Temporary concrete barrier shall not be placed on embankment. Additional temporary pavement for Temporary concrete barrier placement may be required.

(F) Intentionally Left Blank

(G) Law Enforcement

Design-Builder may request law enforcement officers to be on-site for freeway Closures. Authorized law enforcement officers include those who meet the requirements of a "Peace Officer" under ARS Title 38, generally including anyone certified by the Arizona Peace Officer and Training Board (POST). Vehicles must be authorized emergency vehicles and meet the requirements of ARS Title 28. If law enforcement officers are used, Design-Builder shall request law enforcement officers from DPS prior to requesting from any other law enforcement entity. Design-Builder shall submit a request for law enforcement services directly with law enforcement entity. Design-Builder shall be responsible for providing for public safety, notwithstanding the presence of law enforcement at the Site. The cost of law enforcement shall be included in Contract Price.

In the event that local enforcement officers or DPS officers are temporarily unable to provide flagging services, Design-Builder shall ensure that traffic control is maintained and all personnel are protected.

(H) Temporary Traffic Signal Systems

Design-Builder shall recommend all temporary traffic signal timing for signal systems, or any phasing required for traffic management during construction. Design-Builder shall prepare a written Traffic Signal Modification Request for any proposed timing or phasing changes, including temporary signal head placement, and submit to ADOT in accordance with Table 701-8. For traffic signal modifications at intersections controlled by MCDOT, Design-Builder shall submit the Traffic Signal Modification Request to ADOT and MCDOT concurrently.

Design-Builder shall prepare a written Temporary Phasing Controller Programing Request and submit to ADOT in accordance with Table 701-8. ADOT will program the controller, no more than five Business Days after approval of the written request, after which Design-Builder may implement the temporary phasing.

(I) Temporary Pavement Marking

No stripe obliteration is allowed on the final pavement surface. Only preformed tape will be allowed as temporary pavement marking on the final pavement surface. Preformed tape is allowed to be placed over temporary paint in permanent locations. Temporary or permanent pavement markings not utilized for a specific stage of construction shall be completely obliterated unless behind temporary concrete barrier and not visible to the traveling public. The use of vertical panels, barrels or other traffic control devices to merge or shift traffic shall not be allowed, except for nighttime or weekend Closures as approved by ADOT.

Reflectance for both white and yellow temporary pavement marking paint will be determined using the same 15-mil draw-down film as for the yellowness index. For white paint, the same sample may be utilized for both the yellowness index and reflectance. Design-Builder shall measure the reflectance of the paint film using the reflectance meter according to the manufacturer's instructions. Reflectance for the white paint shall be at least 85. Reflectance for the yellow paint may range from 42 to 59.

Temporary pavement markings shall be applied at 25 mils wet film thickness for Type II. Both Type I and Type II paint shall show the following properties at ambient temperatures of 50 to 100 degrees F (10 to 38 degrees C) with paint spray temperature of 150 degrees F (66 degrees C), maximum.

For Type II paint, 10 to 12 pounds of Type 3 beads shall be post-applied per gallon of paint.

Temporary pavement markings shall be refreshed as directed by ADOT at Design-Builder's expense.

(J) Traffic Control Plans

Design-Builder shall prepare TCPs for each specific set up of traffic control activities. TCPs may utilize MOT Plans. TCPs shall be reviewed by the Maintenance of Traffic Manager prior to submission to ADOT. Design-Builder shall submit the TCPs to ADOT in accordance with Table 701-8. This review shall include both conformance to the Contract Documents as well as accuracy, including number of lanes, lane configuration, lane designation and posted speed limits. The MOT Manager shall be responsible for approving necessary adjustments to the approved TCPs due to safety and field conditions during a closure to install such TCPs. Design-Builder prepare TCP Updates that includes such approved adjustments. Design-Builder shall submit the TCP Updates to ADOT in accordance with Table 701-8.

(K) Access

Design-Builder shall maintain access to all businesses within and adjacent to the Project at all times. Any proposed or necessary modifications to existing access shall be the responsibility of Design-Builder and shall be coordinated with ADOT's ROW Department, public involvement, the *Corridor Transportation System Management Meeting* invitees, the Community, and the specific business owner. Design-Builder shall prepare an Existing Access Modification Notification for wherever Design-Builder intends to modify existing access to a property. The Existing Access Modification Notification must include the correspondence of the coordination with and approvals from the applicable property owner, the designated alternate access, and TCPs including signage. Design-Builder shall submit the Existing Access Modification Notification to ADOT in accordance with Table 701-8.

Access to the Community, Utility Companies, and Governmental Entity facilities within and adjacent to the Project shall be maintained at all times unless specifically agreed upon and approved by the respective entities.

Design-Builder shall maintain emergency median crossovers at the approximate (within 200 feet) locations described in Section 200.03(C)(7). Planned locations of emergency median crossovers shall be included in the TMP and discussed with the emergency responders.

(L) Mail Services

Design-Builder shall temporarily or permanently relocate mailboxes, as required, in such a manner as to permit uninterrupted mail services. Design-Builder shall comply with all applicable Governmental Entity and Community requirements for the relocation of mailboxes.

(M) Closures**(1) Lane and Shoulder Closures**

Design-Builder shall prepare a Lane Closure Request identifying the time window for the Lane Closure and must include TCPs. Design-Builder shall submit Lane Closure Requests to ADOT in accordance with Table 701-8. ADOT will input the time of all approved Closures into the ADOT *Event Reporting System* upon ADOT's approval of specific times for the Lane Closure Request or, if possible, in cases of Emergency. Design-Builder shall participate in ADOT training prior to obtaining read access to the ADOT *Event Reporting System*. Design-Builder shall notify ADOT immediately as soon as Design-Builder becomes aware of a delayed or canceled scheduled Lane Closure.

Design-Builder 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.

Design-Builder shall maintain at least two general purpose lanes in each direction during all times of construction along I-10, south of SR 347/Queen Creek Rd TI ramps, except for any Closures approved by ADOT. Design-Builder shall maintain existing number of general purpose lanes in each direction north of SR 347/Queen Creek Rd TI ramps, except for any Closures approved by ADOT.

Design-Builder shall maintain at least one through lane and the existing number of turn lanes in each direction on Wild Horse Pass Blvd/Sundust Rd TI, Riggs Rd TI and Goodyear Rd, throughout the Project limits. Design-Builder may maintain one-lane two-way traffic operation on Goodyear Rd in accordance with Typical Application-12 of MUTCD.

Design-Builder shall maintain existing number of through lanes and turn lanes in each direction on SR 347/Queen Creek Rd TI throughout the Project limits. On I-10 during any Lane Closure, including nighttime Lane Closures, Design-Builder shall maintain a minimum of one open general-purpose lane in each direction.

Mainline Lane or shoulder Closures shall occur only during the periods reflected in Table 701-5.

Table 701-5: Allowable Mainline Lane or Shoulder Closure Periods

No.	Allowable Mainline Lane Closure Periods
1.	9:00 p.m. Sunday to 5:00 a.m. Monday
2.	9:00 p.m. Monday to 5:00 a.m. Tuesday
3.	9:00 p.m. Tuesday to 5:00 a.m. Wednesday
4.	9:00 p.m. Wednesday to 5:00 a.m. Thursday
5.	9:00 p.m. Thursday to 5:00 a.m. Friday
6.	9:00 p.m. Friday to 5:00 a.m. Saturday
7.	9:00 p.m. Saturday to 5:00 a.m. Sunday
Notes: <ol style="list-style-type: none"> In addition to the times listed above shoulders can be closed from 9:00 a.m. to 3:00 p.m. daily. All lanes shall be open outside the listed times. Traffic control devices must be completely removed from the clear zone within one hour after reopening the lanes. Closure times include setup and take down of all traffic control devices. Except for the Wild Horse Pass Blvd/Sundust Rd TI, longer weekend closures may be allowed for AR-ACFC removal as approved by ADOT in its sole discretion. 	

Rolling closures will only be permitted Tuesdays and Thursdays from 12:00 a.m. to 3:00 a.m. in accordance with ADOT *Traffic Control Design Guidelines Figure SA-18A*. Rolling closures are limited to 30 minutes in duration.

No full Closures of I-10 mainline are allowed in either direction. TI ramps used for the freeway traffic will only be permitted during allowable Lane Closure periods. Design-Builder shall prepare and submit a Request for I-10 Mainline Detour Utilizing TI Ramps to ADOT in accordance with Table 701-8. The request shall include the approvals from the applicable Governmental Entity and/or the Community, documentation of the coordination with Governmental Entity and/or the Community, designated detour route for the crossroad, and TCPs.

No construction activities, including but not limited to concrete pours, bridge demolition, and painting are allowed over live traffic and/or over shoulders.

(2) Ramps

Ramp closures shall occur only during the time periods reflected in Table 701-6. Design-Builder shall not close sequential ramps at the same time. For example, EB On Ramp at SR 347 and EB On Ramp at Riggs Rd cannot be closed at the same time.

Table 701-6: Allowable Ramp Closure Periods

Night Time Closures	Full Weekend Closures
9:00 p.m. Sunday to 5:00 a.m. Monday 9:00 p.m. Monday to 5:00 a.m. Tuesday 9:00 p.m. Tuesday to 5:00 a.m. Wednesday 9:00 p.m. Wednesday to 5:00 a.m. Thursday 9:00 p.m. Thursday to 5:00 a.m. Friday 9:00 p.m. Friday to 5:00 a.m. Saturday 9:00 p.m. Saturday to 5:00 a.m. Sunday	9:00 p.m. Friday to 5:00 a.m. Monday
Notes: <ol style="list-style-type: none"> 1. Right turn access from the EB I-10 off-ramp right-turn to WB Wild Horse Pass Blvd must be maintained at all times, including during allowable closure periods. 2. All lanes shall be open outside the listed times. Traffic control devices must be completely removed from the clear zone within one hour after reopening the lanes. 3. Closure times include setup and take down of all traffic control devices. 4. Except for the EB off-ramp at Wild Horse Pass Blvd/Sundust Rd TI, longer weekend closures may be allowed for AR-ACFC removal as approved by ADOT in its sole discretion. 	

Design-Builder shall obtain all stakeholder approvals of the full Closure of any ramp.

After issuance of Certificate of Early Opening, full weekend closures are not allowed at the associated ramps for the I-10/Wild Horse Pass Blvd/Sundust Rd TI.

(3) Crossroads

Crossroad Closures shall occur only during the time periods reflected in Table 701-7. Acceptable Closures on crossroads shall be in accordance with permit requirements and approval from the applicable Governmental Entity and the Community. Design-Builder shall obtain approval from ADOT, the applicable Governmental Entity and the Community for each and every closure. No construction activities requiring full Closures of Wild Horse Pass Blvd/Sundust Rd crossroad shall be permitted unless the Koli Rd TI is completed and open to traffic.

Table 701-7: Allowable Crossroad Lane or Full Closure Periods

Night Time Closures	Weekend Closures
9:00 p.m. Sunday to 5:00 a.m. Monday 9:00 p.m. Monday to 5:00 a.m. Tuesday 9:00 p.m. Tuesday to 5:00 a.m. Wednesday 9:00 p.m. Wednesday to 5:00 a.m. Thursday 9:00 p.m. Thursday to 5:00 a.m. Friday 9:00 p.m. Friday to 5:00 a.m. Saturday 9:00 p.m. Saturday to 5:00 a.m. Sunday	9:00 p.m. Friday to 5:00 a.m. Monday
Notes: <ol style="list-style-type: none"> 1. All lanes shall be open outside the listed times. Traffic control devices must be completely removed from the clear zone within one hour after reopening the lanes. 2. No more than six full closures at Wild Horse Pass Blvd/Sundust Rd crossroad. Right turn access from the EB I-10 off-ramp right-turn to WB Wild Horse Pass Blvd must be maintained at all times, including during allowable closure periods. 3. No more than 15 full closures on SR 347/Queen Creek Rd crossroad. 4. No more than 10 full closures on Riggs Rd. 5. Only one closure of a crossroad is allowed at the same time. 6. No full closures on Koli Rd are allowed once Koli Rd is open. 7. Closure times include setup and take down of all traffic control devices. 	

After issuance of Certificate of Early Opening, full weekend closures are not allowed at the associated crossroads for the I-10/Wild Horse Pass Blvd/Sundust Rd TI. After issuance of Certificate of Early Opening, temporary traffic control devices are not allowed on the associated crossroads for the I-10/Wild Horse Pass Blvd/Sundust Rd TI.

(4) Holiday Restrictions

Lane Closures are not allowed on the holidays specified in this section or weekends that are adjacent to or following these holidays. The restricted holidays include New Year's Day, Martin Luther King, Jr. Day, Presidents' 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. Design-Builder shall remove all short-term traffic control for Lane Closures prior to these holidays or weekends that adjoin these holidays.

(5) Special Events Restrictions

Special events are events that attract more than 30,000 people per day or create significant increase in traffic throughout the Phoenix area and may occur during the Work. Design-Builder shall coordinate Work activities with local special events in the area so that the special events will not be affected. Lane Closures 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. Lane Closures are not allowed when a special event is occurring. Design-Builder shall coordinate with ADOT and applicable Governmental Entity and the Community to identify the special events.

Design-Builder is responsible for identifying and verifying the actual dates and related activities 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) State Farm Stadium, Glendale;
- (b) IMS Speedway, Avondale;
- (c) Chase Field, Phoenix;
- (d) Talking Stick Resort Arena, Phoenix;
- (e) Gila River Arena, Glendale;
- (f) Wild Horse Pass Resorts and Casino;
- (g) Gila River Resorts and Casino, Lone Butte and Vee Quiva;
- (h) Ak-Chin Pavilion, Phoenix;
- (i) Tempe Diablo Stadium;
- (j) Arizona State University;
- (k) Phoenix Convention Center;
- (l) Harrah's Casino special events;
- (m) Rawhide; and
- (n) Arizona State Fair Grounds.

701.05 Submittals

Table 701-8 reflects a list of Submittals identified in this Section 701 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 701-8: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Transportation Management Plan</u> ^B	4	Prior to issuance of NTP 2 or prior to MOT <u>RFC Submittal</u>	701.02(A)
2.	Updated <u>TMP</u> ^B	4	As changes occur in the MOT strategies proposed by Design-Builder	701.02(A)
3.	<u>MOT Plans</u>	3	Prior to any modification of existing travel lanes	701.03(B)
4.	<u>Pedestrian Access Modification/Closure Request</u> ^B	3	Not less than 15 Business Days prior to the planned modification/Closure	701.03(E)
5.	<u>Temporary Lighting Analysis</u>	3	Not less than 10 Business Days prior to impacting lighting	701.03(F)
6.	<u>Temporary ITS Plan</u>	3	Prior to Work impacting existing ITS facility	701.03(H)
7.	<u>Detour Plans</u> ^B	3	Not less than 15 Business Days prior to implementation of the proposed detour	701.03(J)
8.	<u>Crossover Signing Concept Plan</u>	3	Not less than 15 Business Days prior to implementation of the proposed detour	701.03(L)
9.	<u>Phasing and Construction Sequence Tables</u>	3	Not less than 15 Business Days prior to implementation of the proposed traffic modification	701.03(N)
10.	<u>Traffic Control Diary</u>	4	Not later than one Business Day after the date of the diary entry	701.04(C)
11.	<u>Traffic Control Documentation</u>	4	Not later than one Business Day after the traffic control devices are in place	701.04(C)
12.	<u>Pinned Barrier Asphalt Repair Plan</u>	3	Prior to pinning any barrier to existing or new pavement to remain	701.04(E)
13.	<u>Traffic Signal Modification Request</u> ^B	3	Not less than 15 Business Days prior to the signal being activated	701.04(H)
14.	<u>Temporary Phasing Controller Programing Request</u> ^B	3	Not less than 10 Business Days prior to implementing temporary phasing	701.04(H)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
15.	<u>Traffic Control Plans</u> ^B	3	Not less than 5 Business Days prior to implementing <u>TCP</u>	701.04(J)
16.	<u>TCP Updates</u> ^B	3	The following Business Day after the adjustment is made	701.04(J)
17.	<u>Existing Access Modification Notification</u> ^B	3	Not less than 15 Business Days prior to implementing the access modification	701.04(K)
18.	<u>Lane Closure Requests</u> ^B	2	Not less than 5 Business Days prior to any Lane Closure	701.04(M)(1)
19.	<u>Request for I-10 Mainline Detour Utilizing TI Ramps</u>	2	Not less than 10 Business Days prior to any I-10 Mainline Detour Utilizing TI Ramps	701.04(M)(1)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none"> 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required, ADOT will coordinate review.</p>				

736 Lighting**736.01 General Requirements**

Design-Builder shall perform all lighting Work in compliance with the requirements in this Section 736. Design-Builder shall design and construct a fully functional lighting system in accordance with the Contract Documents.

736.02 Intentionally Left Blank**736.03 Design Requirements****(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all lighting Design Work in accordance with the standards, manuals, and guidelines listed in Table 736-1.

Table 736-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Traffic Signals and Lighting Standard Drawings
2.	AASHTO	Roadway Lighting Design Guide
3.	ADOT	Standard Specifications for Road and Bridge Construction, 2021
4.	ADOT	Dictionary of Standardized Work Tasks
5.	ADOT	Standard Drawings

(B) General

Design-Builder shall design a light emitting diode (LED) roadway lighting system in accordance with the requirements in the *AASHTO Roadway Lighting Design Guide*, the *ADOT Standard Specifications*, and the *ADOT Standard Drawings*.

LED lighting for ADOT facilities shall have a correlated color temperature of 3000 Kelvin.

(C) Urban Roadway Lighting System

Design-Builder shall design continuous LED urban roadway lighting in accordance with the requirements in the *AASHTO Roadway Lighting Design Guide*, the *ADOT Standard Specifications*, and the *ADOT Standard Drawings*. For all lighting that is to remain, Design-Builder shall upgrade all non-LED lighting to LED on I-10 freeway from Santan/South Mountain Freeway system interchange (I-10 Station 856+00) to south of Riggs Rd TI including ramps (I-10 Station 1208+00). All existing ADOT non-LED luminaires shall be replaced with LED luminaires, including underdeck lighting. The entire housing unit shall be replaced if necessary to accommodate the upgrade to LED lights. The existing light poles for the ramp gores at the SR 347/Queen Creek Rd and Riggs Rd TIs shall be removed and replaced with new light poles.

System interchanges shall have high mast poles as the primary lighting source. For areas of I-10 mainline separated by a median barrier, the lighting system shall specify poles installed in the median barrier. Light poles shall comply with the requirements in the *ADOT Traffic Signals and Lighting Standard Drawings*. For the median mounted poles, the Design-Builder may specify special design poles that shall be designed by the Design-Builder, included in the design Plans and designed in accordance with Section 600.03(F)(2). All new light poles shall be aluminum, except high mast poles. All light poles with a mounting height that exceeds 69 feet shall be equipped with a lowering device. Design-Builder shall provide a permanent level maintenance pad of at least 15 feet in diameter for all proposed high mast lighting. Level maintenance pad shall not exceed 2% cross slope, 3:1 embankment slope and shall be

constructed with four inch-thick Class 2 AB. Design-Builder shall provide a level maintenance platform of at least 15 feet in diameter for all proposed light poles placed where the roadway side slope is steeper than 3:1 (H:V). The maintenance platform shall be designed including structural details, handrail details, include a light broom concrete finish for the pad surface, and match the aesthetic patterns for walls within the area of the platform for any exposed surface. Landscape blocks shall not be used. Grading details shall be provided to transition from typical cross section side slope to those required by the pad or platform detail.

Service interchanges may have high mast poles and shall have supplemental lighting to attain lighting levels on all travel lanes. Existing high mast lighting may remain in place if not impacted by the construction provided the lighting levels accommodate the Project improvements. All high mast poles impacted by construction must be replaced. If the existing high mast poles remaining in place do not provide adequate lighting levels, additional roadway lighting shall be on a median lighting system that lights the freeway from the median edge line to the outside shoulder edge line in both directions.

Design-Builder shall design and construct an underdeck lighting system for bridge crossings of the roadway where light levels cannot be otherwise achieved.

The required level of maintained horizontal illuminance, measured in footcandles, on the mainline roadway and any ramps, shall be an average of 0.6 to 0.9 with an average to minimum uniformity ratio of 4:1. On freeway ramps, roadway lighting shall light the ramp between the lane lines from the gore area to within 75 feet of the crossroad. Design-Builder shall install lights on signal poles as needed to reach the required lighting levels of the intersections at the crossroads, however, no additional crossroad lighting will be required. Design-Builder shall not use a light loss factor (LLF) greater than 0.8.

Design-Builder shall maintain consistent light levels within the Project ROW and minimize luminaire glares. In areas where existing luminaires have glare screens or shields, Design-Builder shall include glare screens or shields in their analysis with new fixtures and replace in kind.

(D) Rural Partial Lighting System

There are no lighting requirements south of Station 1208+00.

(E) Photometrics and Circuits

Design-Builder shall prepare a Photometric Analysis Strip Map that displays all 0.2 iso-contours. The design shall keep light levels at the edge of the Project ROW less than 0.20 footcandles. Any 0.2 iso-contour that falls outside of the Project ROW, adjacent to neighboring residences, shall be redesigned for avoidance. If the lighting engineer determines that a specific area outside of residential areas cannot meet this requirement Design-Builder shall bring that specific area to the attention of ADOT to determine the best option to properly light the roadway. Design-Builder shall submit the Photometric Analysis Strip Map to ADOT in accordance with Table 736-3.

Design-Builder shall perform load calculations and voltage drop calculations for each circuit. Design-Builder shall not use more than a 3% 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 shall be sized using a 1% voltage drop. All new lighting load center cabinets shall be metered for a maximum of 480 volts.

Design-Builder shall design the freeway lighting circuits in such a manner as to minimize the total loss of lighting to an area in the event of a circuit failure. At a minimum, the design shall include the following for new and existing lights:

- (1) Median poles with two or more lights shall have a minimum of two circuits within each pole; Adjacent poles may be on the same circuit(s), but luminaire orientation shall be varied (staggered by 180°±) to minimize the effect of all luminaires in a circuit being on the same side of the barrier wall;

(2) High mast poles of 100 feet, 120 feet, and 150 feet, or any pole containing two or more luminaires, shall have a minimum of two circuits within each pole; and

(3) Light poles containing one luminaire each shall not have adjacent single poles on the same circuit unless there are special circumstances approved by ADOT.

Design-Builder shall provide a pull box at the intersection of each new foundation conduit and the mainline conduit that runs parallel with the freeway. All proposed lighting pull boxes and lids shall be locking lid pull boxes (4B and 6B). All must comply with ANSI/SCTE 77 requirements with a Tier 22 load requirement and must be tamper resistant.

Any nonstandard equipment and installations shall be reviewed and approved by ADOT. All conductors, conduit and pull boxes for new lighting shall be new.

Design-Builder shall replace existing load centers with new load center cabinets, including internal components, per ADOT standards. All electric load center cabinets and internal components shall be new.

Design-Builder shall remove existing lighting conductors that are impacted, or when modifying existing circuits, and replace with new lighting conductors.

Design-Builder shall prepare a Lighting Design Report that provides all necessary engineering data to support the conclusions arrived at by Design-Builder for the roadway lighting design. The Lighting Design Report shall include equipment type, photometric analyses, layout, voltage drop calculations, load calculations, and conductor sizing information. The final Lighting Design Report shall be signed and sealed by a registered Professional Engineer. Design-Builder shall submit the Lighting Design Report to ADOT in accordance with Table 736-3.

No sign lighting fixtures shall be installed within the Project limits. Any existing sign lighting fixtures shall be removed by Design-Builder.

(F) Power Metering Requirements

Design-Builder shall design lighting power services to meter the following lighting systems:

(1) Mainline lighting, including underdeck lighting; and

(2) Ramp lighting.

Metered power supplies and associated work to power the lighting system shall be designed and constructed by Design-Builder. All new lighting load center cabinets shall be metered for a maximum of 480 volts.

Design-Builder shall establish a new point of service for ADOT lighting in the vicinity of the Koli Rd TI.

Ramp terminal and TI lighting between the ramp terminals shall be connected to the signal meter pedestal.

(G) Lighting Plans

Design-Builder shall prepare Plans in accordance with the ADOT *Dictionary of Standardized Work Tasks*. The Plans, at a minimum, shall include all existing and new electrical features, all details, pole schedules, conductor schedules, notes, and special provisions.

The Plans shall include information regarding conduit used to intercept existing conduits to be used for new lighting and for new conduit crossing locations for median lighting. The lighting system Plans shall also include lighting summary sheets providing the location of the lighting poles and load centers, and the conductor summary.

Lighting Plans shall include maintenance unit (MU) numbers for all light poles, provided by the ADOT System Maintenance and Management group. See Section 736.04(B) for further information on obtaining MU numbers.

736.04 Construction Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all lighting Construction Work in accordance with the standards, manuals, and guidelines listed in Table 736-2.

Table 736-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Traffic Signals and Lighting Standard Drawings
2.	AASHTO	Roadway Lighting Design Guide
3.	ADOT	Standard Specifications for Road and Bridge Construction, 2021
4.	ADOT	Stored Specifications

(B) General

Prior to issuance of NTP 2, Design-Builder shall replace all ADOT locks on existing pull boxes with locks installed by Design-Builder. New pull boxes shall have Design-Builder locks once conductors are installed. Prior to Substantial Completion, Design-Builder shall install ADOT locks on all new and existing pull boxes. Design-Builder shall coordinate with ADOT timing of ADOT locks being placed on all pull boxes.

All luminaires shall be individually fused. Design-Builder shall place the in-line fuse of high mast light fixtures that are mounted on lowering devices in the fixture housing. Design-Builder shall place the in-line fuses of all other fixtures in the nearest pull box.

Design-Builder shall record GPS positions for each new pull box in accordance with the ADOT *Standard Specifications* and the ADOT *Stored Specifications*. Design-Builder shall prepare a Pull Box Location Report that includes the GPS positions for all new pull boxes. Design-Builder shall submit the Pull Box Location Report to ADOT in accordance with Table 736-3.

Design-Builder shall attach MU device decals 42 inches above the base plate at 45 degrees in the direction of oncoming traffic on each new electrical cabinet and new lighting pole. The MU decals shall be comprised of individual three-inch tall, reflectorized alpha-numeric decals for each number or digit in the sequence. Design-Builder shall prepare and submit a written Maintenance Unit Device Decal Request to ADOT in accordance with Table 736-3, to obtain the required MU numbers for the equipment. Design-Builder is responsible for purchasing and installing MU stickers on the equipment.

Design-Builder shall attach a permanent metal tag to the pole above the hand hole stating the manufacturer'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.

Refer to Section 104.14 for magnetic detection for underground facilities.

736.05 Submittals

Table 736-3 reflects a list of Submittals identified in this Section 736 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

1

Table 736-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Photometric Analysis Strip Map</u>	3	As part of the <u>Lighting Design Report</u>	736.03(E)
2.	<u>Lighting Design Report</u>	3	At the same time as the <u>Preliminary Design Submittal</u> of the roadway lighting Plans	736.03(E)
3.	<u>Pull Box Location Report</u>	3	In accordance with the ADOT <i>Standard Specifications</i> and the ADOT <i>Stored Specifications</i>	736.04(B)
4.	<u>Maintenance Unit Device Decal Request</u>	4	As determined by Design-Builder	736.04(B)
Notes: A. Levels of Review <ol style="list-style-type: none"> 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) 				

2

End Section

738 Intelligent Transportation System

738.01 General Requirements

Design-Builder shall perform all ITS Work in compliance with the requirements in this Section 738.

738.02 Administrative Requirements

Design-Builder shall not be responsible for the central software integration of the ITS elements.

TPA 738-1 (*ITS Technical Specifications*) contains ITS technical specifications, including references to sections of the *ADOT Standard Specifications*, that further describes the ITS requirements of the Work.

Design-Builder shall be responsible for the cost of all Utility permit fees, the required service deposits, and turn-on fees prior to the successful completion of system acceptance test. No deposits or refundable fees shall be returned to Design-Builder. The required service applications shall be made by Design-Builder in the name of ADOT.

(A) Typical Design-Build Process for Intelligent Transportation Systems

TPA 738-2 (*ITS Workflow Flow Chart*) contains a flow chart which illustrates the minimum level of effort required by Design-Builder for controlling the design, construction, and testing of ITS for this Project. The following are key requirements within TPA 738-2 (*ITS Workflow Flow Chart*) and further described herein:

- (1) Inventory and document existing ITS elements to remain with the existing traffic management functionality within Project limits;
- (2) Conducting ITS design workshops (Initial, during design and before construction starts);
- (3) Preparing ITS Master Plan;
- (4) Preparing equipment Submittals;
- (5) Preparing a comprehensive equipment and system testing plan;
- (6) Conduct *Pre-activity Meeting* (including communication of operational impacts during construction);
- (7) Conducting both pre- and post-installation testing;
- (8) Providing comprehensive documentation;
- (9) Provide for an orderly hand-over of the control of the Site; and
- (10) Provide applicable warranties as required by DBA Section 20 (*Assignment of Warranties*).

(B) ITS Inventory

Design-Builder shall inventory existing ITS elements that are to remain from MP 161.3 (Sta 857+00) to approximately MP 162.5 (Sta 910+50) and shall protect those elements in place. Relocating existing equipment shall not be allowed except as specified in the Technical Provisions. Within the limits of the ITS Inventory above, all existing ITS elements that are to remain and are found not to be adequate or compatible with the Project shall be removed and replaced with new and will be considered as an ADOT-Directed Change. If Design-Builder damages any existing ITS elements during the ITS Inventory, it shall be replaced at the cost of Design-Builder. Design-Builder shall photograph elements included in the ITS Inventory. Photos shall clearly depict the overall condition of the element and its location, and any visible defects or damage that may warrant the element as not allowed to be reused. File and folder names shall be listed within the ITS Inventory for reference to each element.

The ITS Inventory shall include type of element, location, route, direction of travel, identification numbers, contents of element as applicable, condition, photo reference identification, and any other remarks regarding the element.

The ITS Inventory shall be for existing ITS elements that are to remain operational during and after construction as part of the permanent ITS system. The ITS Inventory shall include items outside the Project limits, where necessary, to show how the proposed ITS is to function with the existing ITS. Elements to be removed and not reused are not required to be included in the Inventory. The ITS Inventory shall be submitted on roll plots, in addition to the photographs.

The ITS Inventory shall be submitted to ADOT in accordance with Table 738-3.

(C) ITS Maintenance During Construction

Design-BUILDER shall maintain existing ITS facilities during construction per Section 701.03(H).

738.03 Design Requirements

(A) Standards, Manuals, and Guidelines

Design-BUILDER shall perform all ITS Design Work in accordance with the standards, manuals, and guidelines listed in Table 738-1.

Table 738-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Intelligent Transportation System Design Guide
2.	ADOT	Ramp Metering Design Guide
3.	ADOT	FMS Communications Master Plan
4.	ADOT	Statewide Dynamic Message Sign Masterplan
5.	AASHTO	Roadside Design Guide
6.	ADOT	Construction Standard Drawings
7.	ADOT	Standard Specifications for Road and Bridge Construction
8.	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals
9.	ADOT	ITS Standard Drawings
10.	ADOT	Roadway Design Guidelines

(B) ITS Master Plan

Design-BUILDER shall prepare an ITS Master Plan. The ITS Master Plan shall provide an approximate 15% level design showing the existing ITS elements proposed to remain and new ITS elements proposed for the Project. The ITS Master Plan shall include the following:

(1) Traffic flow detection including:

- (a) The location of each existing and new traffic flow detection station with a typical roadside cabinet, controller and hardware identified; and
- (b) A table of detection system locations showing distances between each location in the same direction of travel;

- (2) CCTV including the location of each existing and new CCTV and lowering device. ITS Master Plan shall demonstrate CCTV coverage of DMS;
- (3) Ramp meters including the location of existing and new ramp metering elements, site layout illustrating signal and loop detector location, and approach for maintaining ramp metering during construction;
- (4) DMS including:
 - (a) The location of each existing and new DMS;
 - (b) Structural requirements at each site and coordination with traffic signing plan;
 - (c) The distances between DMS, distances between DMS and nearby upstream and downstream static sign structures as well as distances to the nearest system interchange;
- (5) Communication network including the location and relocation of fiber optic trunk line, proposed ITS elements, pull box, connections to existing communication network, and extension of conduit and microduct runs for the entire length of the Project, including the segment from the south end of the Project to the pull box at the Gila River Bridge;
- (6) Wrong way detection including the location of each new wrong way detection elements;
- (7) Power distribution network including the location of power distribution network, load centers, connections, and transformers; and
- (8) Dynamic Speed Feedback Signs (DSFS) including the location of each new dynamic speed feedback sign assembly.

Design-Builder shall submit the ITS Master Plan to ADOT on roll plots in accordance with Section 113.02 and in accordance with Table 738-3. Comments provided on the ITS Master Plan shall be incorporated into the ITS Preliminary Design Submittal Plans.

Design-Builder shall update and submit the ITS Master Plan to ADOT in accordance with Section 113.02 and in accordance with Table 738-3.

(C) ITS Elements

Design-Builder shall design a fully operational ITS for the Project that integrates with the existing ADOT ITS elements and with the Traffic Operations Center (TOC). Design-Builder shall inspect all existing ITS elements proposed to remain and software for adequacy and compatibility with the proposed ITS and the Project. The ITS elements shall include the following:

- (1) ITS backbone communication network;
- (2) DMSs;
- (3) CCTV cameras;
- (4) Detection system;
- (5) Ramp meters;
- (6) Wrong way detection; and
- (7) DSFS.

Existing ITS equipment must remain operational until new equipment is installed in accordance with Section 701.03(H).

Design-Builder shall prepare a written ITS Element Number Request for new ITS elements that includes the element type, the element location, and a site map or strip map of sufficient detail to clearly define the relationship of the street names and names of the pertinent features in the vicinity of the ITS element. Design-Builder shall submit an ITS Element Number Request to ADOT in accordance with Table 738-3. ADOT will provide ITS element numbers to Design-Builder within 10 Business Days of receipt of the written request. Design-Builder shall ensure that ITS element numbers are shown on the ITS Plans for the Final Design Submittal and RFC Submittal.

ITS Plans shall include specific tables and notes for field GPS data to be recorded on the RFC Submittal as part of the Record Drawing process.

(D) ITS Backbone Communication Network

Design-Builder shall design the ITS backbone communication network to be a redundant system, including fiber communication, conduits, microduct, innerducts and pull boxes, in accordance with the ADOT *ITS Design Guide* and the Contract Documents. Fiber redundancy shall be incorporated via folded cable and redundant equipment in the nodes. The ITS backbone network shall connect to the traffic signal cabinets owned and operated by ADOT, and any other existing connections shall be maintained and provided at the completion of the Project.

The ITS system shall support data and video communication between the ITS field devices and TOC. The system shall include 144 SMFO cable on the west side of I-10 to serve as the communications backbone. The design shall include fiber splice enclosures, network switches, patch panels, and upgrades at the existing node buildings that includes but is not limited to patch panels, network switches, and patch cables as required to complete the ITS system. Communication to each field device shall be designed with a 12 SMFO branch cables that are spliced to the 144-SMFO backbone fiber and terminate at each field device on each side of the freeway. ITS fiber optic cable shall meet the requirements of TPA 738-1 (*ITS Technical Specifications*).

Design-Builder shall provide a network connection to the existing node building 12 at I-10 and Broadway Rd north of the Project limits, to the existing node building 16 at SR 202 and SR 101 system interchange northeast of the Project limits and to the existing node building 19 at SR 202 South Mountain and 17th Avenue northwest of the Project limits for three separate paths to ensure redundancy. Design-Builder shall evaluate the three existing node buildings 12, 16, and 19, and upgrade the existing switches as needed to accommodate the addition of new devices. Design-Builder shall splice the fiber with that of the existing system to the north at the following locations in accordance with TPA 738-3 (*Fiber Splicing Schematic Layout*):

- (1) The new no. 9 pull box at approximately MP 162.49 (Sta 920+00, 137 feet right);
- (2) An existing pull box west of I-10 along the north side of Loop 202 (South Mountain Freeway) at approximate 202L Med Sta 2007+53 (I-10 Sta 855+67, 754 feet right);
- (3) An existing pull box east of I-10 located on the south side of Loop 202 (South Mountain Freeway) at approximate 202L Med Sta 1998+46 (I-10 Sta 856+20, 161 feet right);
- (4) An existing pull box located on the northwest quadrant of I-10 and Ray Rd;
- (5) Any other points of connection with the existing system that may be necessary due to conflicts with the proposed roadway improvements.

Design-Builder to coordinate with ADOT for splicing activities. Design-Builder shall maintain existing connectivity and conduit for the Gila River Telecommunications, Inc. (GRTI) ITS crossings.

(E) Dynamic Message Signs

The design for the DMS shall conform to the ADOT *ITS Design Guide* and the ADOT *DMS Master Plan* and shall meet the following requirements:

- (1) For the mainline traffic, DMS shall be designed to be installed beyond the right shoulder;
- (2) The DMS support structures shall be designed as tubular butterfly structures consisting of a single tubular post with a minimum of two tubular mast arms on each structure;
- (3) The DMS shall be designed to not encroach on travel lanes or the shoulder;
- (4) The structure shall be designed to provide for front access to the DMS;
- (5) The DMS shall meet the primary and secondary placement criteria per the ADOT *DMS Master Plan* and shall provide a minimum of 1,000 feet visibility in a 30-degree cone of vision, both horizontally and vertically to the relevant traffic lanes;
- (6) DMS controller cabinets shall be designed to meet the requirements of the ITS design requirements, be located within 300 feet of the DMS and as specified by the manufacturer, and be located within Project ROW on the outside of the rightmost mainline lane;
- (7) Each DMS sign shall be controlled by its own unique controller cabinet assembly; and
- (8) The locations of all DMS structures and cabinets installed shall meet the clear zone requirements of Section 200.

Design-Builder shall provide new DMS installations at the following locations:

- (1) EB I-10 approximately 1.5 miles south of the SR 347/Queen Creek Rd TI;
- (2) WB I-10 approximately 1.5 miles south of the SR 347/Queen Creek Rd TI;
- (3) EB I-10 approximately one mile south of the Riggs Rd TI; and
- (4) WB I-10 approximately one mile south of the Riggs Rd TI.

Design-Builder shall remove the existing DMS structures, foundations, assemblies, and associated cabinets and install new DMS installations per the Technical Provisions at the following locations:

- (1) Remove DMS EB I-10 approximately 4,450 feet north of SR 347. Install new DMS EB I-10 approximately 5,950 north of SR 347;
- (2) Remove DMS WB I-10 approximately 4,800 feet north of SR 347 and install new DMS at the same location; and
- (3) Remove DMS WB I-10 approximately 850 feet north of Wild Horse Pass Blvd and install new DMS at the same location.

Certain elements within the existing DMS's and associated cabinets that are to be removed will be salvaged by ADOT. Design-Builder shall remove the DMS and associated cabinets, with cabinet contents intact, and stockpile them in Design-Builder yard. These items shall be stored in an area that is accessible to allow ADOT personnel to access each DMS and cabinet. ADOT personnel will remove any internal components they wish to salvage. The remainder shall be disposed of by Design-Builder. Design-Builder shall contact Steve Koebler Tran at (480) 589-8250 to arrange a date for the ADOT personnel to perform the salvage operations. ADOT will complete the salvage within 5 Days of starting the salvage work.

Design-Builder shall prepare DMS Cone of Vision Exhibits as part of the ITS Master Plan. The DMS Cone of Vision Exhibits must include graphics illustrating drivers' cone of vision of the DMS, to confirm the DMS are placed for

optimal visibility. Design-Builder shall submit the DMS Cone of Vision Exhibits to ADOT in accordance with Table 738-3.

(F) Traffic Detection System and Ramp Metering System

Design-Builder shall provide a traffic detection system including any ancillary and incidental equipment required for providing a complete, fully functioning system per the ADOT *ITS Design Guide*. Locations of proposed traffic detection stations shall be in the relative proximity to existing traffic detection systems. For the urban section north of Station 1208+00, additional new traffic detection stations shall be required per the spacing criteria in the ADOT *ITS Design Guide*. The new traffic detection stations shall include all HOV, general purpose, and auxiliary lanes. No additional traffic detection stations are required in the rural section south of Sta 1208+00.

Design-Builder shall provide new mainline detection at the following locations:

- (1) Westbound at approximately Sta 915+00;
- (2) Eastbound at approximately Sta 923+00 (Ahd);
- (3) Westbound at approximately Sta 963+44;
- (4) Eastbound at approximately Sta 977+80;
- (5) Westbound at approximately Sta 1014+00;
- (6) Eastbound at approximately Sta 1028+00;
- (7) Westbound at approximately Sta 1067+00;
- (8) Eastbound at approximately Sta 1081+00;
- (9) Westbound at approximately Sta 1120+00;
- (10) Eastbound at approximately Sta 1134+00;
- (11) Westbound at approximately Sta 1173+00; and
- (12) Eastbound at approximately Sta 1183+00,

Design-Builder shall provide new ramp metering at the following locations:

- (1) Wild Horse Pass Blvd/Sundust Rd TI eastbound/westbound entrance ramps to I-10;
- (2) Koli Rd TI eastbound/westbound entrance ramps to I-10;
- (3) SR 347/Queen Creek Rd TI eastbound entrance ramp to I-10; and
- (4) Riggs Rd TI eastbound/westbound entrance ramps to I-10.

The mainline and service interchange ramps shall employ loop detection and shall be designed per the ADOT *Ramp Metering Design Guide and Errata*. Existing ramp metering equipment not impacted by construction but not meeting the requirements of the ADOT *Ramp Metering Design Guide and Errata* at the above locations shall be replaced. Ramp meter cabinets shall be placed per ADOT *Ramp Metering Design Guide*.

At locations where the number of lanes exceed that as shown in the *ITS Standard Drawings*, Design-Builder shall coordinate with the cabinet manufacturer to ensure the cabinets are pre-wired to accommodate loops and detectors for all lanes of traffic.

Each detector cabinet shall be placed for convenient and safe maintenance access per the ADOT *ITS Design Guide* requirements. Detector cabinets shall not be placed in the medians nor between mainline and ramps.

(G) Closed Circuit Television

The CCTV system shall be designed per the requirements of the ADOT *ITS Design Guide* and shall meet the following minimum requirements:

- (1) Urban Section (north of Sta 1208+00): The CCTV system including new and existing CCTVs shall be designed to provide 100% coverage of the freeway, one camera at each of the TI intersections, and a view of the DMS messages within the Project limits. 100% coverage shall include a distance of at least 30 feet beyond the shoulder of freeway lanes and interchange ramps. Design-Builder shall remove existing cameras installations and install new camera installations as needed to be in compliance with the above and Section 738.03(E). All cameras, poles, cabinets and associated appurtenances that are to be installed shall be new equipment in accordance with the Technical Provisions.
- (2) Rural Section (south of Sta 1208+00): The CCTV system shall be designed to provide a view of the DMS messages;
- (3) Design-Builder shall demonstrate that the required coverage is achieved using any one or a combination of plan/profile exhibits, site line exhibits, 3D-coverage model or other means approved by ADOT; and
- (4) All CCTV poles in the system including new and existing poles shall be equipped with a camera lowering device.

Design-Builder shall prepare a CCTV Coverage Exhibit that includes graphics illustrating the coverage from each CCTV camera and the visibility of DMS signs. The CCTV Coverage Exhibit must also include the location and field of view of all CCTV cameras within the Project. Design-Builder shall submit CCTV Coverage Exhibit to ADOT in accordance with Table 738-3.

(H) ITS Cabinets

The design for cabinet locations shall be in accordance with the ADOT *ITS Design Guide* and ADOT *ITS Standard Drawings* and shall comply with ADOT *Roadway Design Guidelines*. Concrete maintenance pads shall be provided in accordance with ADOT *ITS Standard Drawings*.

Cabinet locations shall be designed to easily accessible from the ramp and/or the mainline by maintenance and operations personnel. Controller cabinets shall be placed with consideration of convenient and safe access and feasibility of performing any required calibration activities. System-to-system stations shall be placed such that controller cabinets can be placed on ground level.

(I) Power Distribution System

Design-Builder shall provide all electrical system components required for providing power service to proposed ITS equipment. Design-Builder acknowledges that new points of service for power may not be available in some areas; therefore, larger gauge conductor and conduit size may be required. Design-Builder shall establish a new point of service for the ADOT ITS in the vicinity of the Koli Rd TI. This design for the electrical work shall include:

- (1) Coordination of power sources with the Utility Adjustment Coordinator;
- (2) Load assessment; and
- (3) Sizing of conductors, transformers, breakers, lightning protection, and grounding.

(J) ITS Conduits, Microduct, and Pull Boxes

ITS conduit currently exists along I-10, including crossings of I-10 at various locations within the Project limits. Any conduit impacted during construction shall be removed and replaced in kind unless otherwise specified in the

Technical Provisions. Existing conduit and pull boxes shall be protected in place if not impacted by the Work. These conduits and pull boxes shall be inventoried. No. 9 pull box lids that do not meet the current requirements of that for new no. 9 pull box lids may be retrofit in place, in accordance with Section 741-3.02(B) of TPA 738-1 (ITS Technical Specifications). No other retrofit of existing no. 9 pull boxes will be allowed. Existing conduit and pull boxes south of approximate MP 162.5 within the project limits in conflict with the proposed improvements shall be removed.

Locations of retrofit no. 9 pull boxes shall be identified on the ITS Inventory, ITS Master Plan, and ITS Plans. No. 9 pull boxes shall be provided at every splice location with intermediate no. 9 pull boxes installed so the distance between no. 9 pull boxes is no greater than 1,500 feet, except that within the rural section south of Station 1208+00 the distance between no. 9 pull boxes shall be no greater than 3,000 feet. No. 7 pull boxes shall be provided as required to facilitate connectivity of field devices. The placement of the conduit, microduct and pull boxes shall be in conformance with the requirements of the ADOT ITS Design Guide and TPA 738-1 (ITS Technical Specifications). Pull boxes design shall include avoidance of drainage swales, slopes steeper than 2:1, maintenance vehicle pathways, utility easements, and other areas of conflict.

Pull boxes shall not be located in travel lanes under any circumstances. Connections between ADOT pull boxes and ITS devices shall be minimum three-inch diameter conduit.

The ADOT and GRTI ITS trunk lines shall be located along and inside the western ROW line of I-10 and shall consist of armored seven-way Duraline microduct suitable for fiber optic cable. The seven microducts shall consist of one each of the following colors: blue, orange, green, brown, gray, white, and red.

Design-Builder shall furnish and construct the following backbone elements:

ADOT trunk line:

- (1) Microduct and fiber on the western ROW between the new No.9 pullbox at approximate MP 162.3 (Sta 910+47) and approximate MP 173.10 (Sta 1475+00), where it shall be connected to an existing ADOT no. 9 pull box installed by the F0270 project. This microduct is anticipated to be installed using a combination of plowing, trenching and boring operations and will contain ADOT ITS fiber. Where boring is utilized, Design-Builder shall bore a four-inch HDPE and install the microduct inside the conduit.
- (2) Design-Builder shall re-route the existing fiber optic cable on the east side of I-10 to the existing fiber optic cable on the west side of I-10 by looping through the proposed HDPE conduit crossing on the north side of the Wild Horse Pass Blvd/Sundust Rd TI at approximate Sta 920+00. Unless otherwise specified in the Technical Provisions, Design-Builder shall remove all existing ADOT ITS infrastructure on the western side of the freeway from the new No.9 pullbox at Sta 910+47 to the end of the existing system at Sta 976+25, and on the east side of the freeway from the new I-10 crossing at approximate Sta 920+00 to the end of the existing system at Sta 976+25; and
- (3) Four-inch diameter HDPE crossings of I-10 and TI ramps on the north sides of Wild Horse Pass Blvd/Sundust Rd TI, Koli Rd TI, SR 347/Queen Creek Rd TI, Riggs Rd TI and Goodyear Rd. These conduits are anticipated to be installed using a boring operation and will contain ADOT ITS microduct, fiber, and other infrastructure as required by the Design-Builder's design of the ADOT ITS system.

GRTI trunk line (GRTI JPA Work):

- (1) Microduct only (no fiber) between approximate MP 162.48 and 173.10. This microduct must be installed in parallel with the ADOT trunkline, within the same joint trench, bore or plowed in together, but with associated GRTI-specific No.9 pull boxes. These GRTI pullboxes shall be located at an approximate 3000 foot spacing, adjacent to ADOT No.9 pullbox installations and connected to a no. 9 GRTI pull box to be installed by the F0270 project;

(2) Four-inch diameter HDPE conduit (no microduct or fiber) crossings of I-10 and TI ramps on the north sides of Wild Horse Pass Blvd/Sundust Rd TI, Koli Rd TI, SR 347/Queen Creek Rd TI, Riggs Rd TI and Goodyear Rd. These HDPE crossings shall be installed within the same joint boring operation as that for the ADOT four-inch diameter conduit crossings of I-10, but with associated GRTI-specific pull boxes located at roughly the same locations as the ADOT pull boxes. GRTI pull boxes on the GRTI main trunkline on the western side of the freeway shall be GRTI-specific No.9, while those on the eastern side of the I-10 crossings shall be GRTI-specific No.7; and

(3) Four-inch diameter HDPE conduit (no microduct or fiber) placed in a trench-and-backfill operation along Wild Horse Pass Blvd/Sundust Rd TI, Riggs Rd TI and Goodyear Rd. These conduits shall connect from the junction boxes on each end of the bored crossings of I-10 and extend along the listed crossroads to the lengths and configurations shown in the Schematic Design, ending in GRTI-specific No.7 pullboxes.

Additionally, Design-Builder shall furnish and install ADOT ITS microduct and fiber at the Gila River Bridge per the following:

(1) Terminate and cap the ADOT 7-way microduct in the existing ADOT No.9 pull box at the right-of-way line near the Gila River Bridge northern abutment (approximately MP 173.10).

(2) Terminate and cap the GRTI 7-way microduct in the existing GRTI No.9 pull box at the right-of-way line near the Gila River Bridge northern abutment (approximately MP 173.10).

(3) Install seven individual microducts within one of the two existing ADOT three-inch conduits which corresponds with the middle conduit in the bridge. These individual microducts shall extend from the existing ADOT No.9 pull box at the right-of-way line at the Gila River Bridge northern abutment, to the existing ADOT No.9 pull box near the north end of the Gila River Bridge, through the existing Gila River Bridge barrier and barrier junction boxes, to the existing ADOT No.9 pull box near the south end of the Gila River Bridge, and terminating in the existing ADOT No.9 pull box at the right-of-way line near the Gila River Bridge southern abutment (approximately MP 173.4). The seven individual microducts shall follow the same color order as the 7-way direct-bury microduct: blue, orange, green, brown, gray, white, and red. Splice seven individual microducts in the ADOT barrier pull boxes in the bridge barrier (spaced at approximately 100 feet intervals), leaving no slack. While there are barrier pull boxes every 100 feet on the bridge barrier, only every other one is for ADOT, while the remainder are intended for GRTI future use. Install mule tape in the existing spare ADOT conduit, which corresponds with the bottom conduit in the bridge, from the existing ADOT no.9 pull box near the north abutment of the Gila River Bridge, through the existing conduit and pull boxes in the Gila River Bridge barrier, to the existing ADOT No.9 pull box near the south abutment of the Gila River Bridge for future use.

(4) Jet fiber through the blue microduct from the existing ADOT No.9 pull box at the right-of-way line, through the existing ADOT no.9 pull box near the Gila River Bridge northern abutment, through the existing ADOT no.9 pull box at the Gila River Bridge southern abutment to the existing ADOT no.9 pull box near the right of way. This single run shall be jetted through the entire bridge and no.9 pull boxes. All microduct shall be tested and proofed per ADOT standard specifications prior to jetting. The barrier pull boxes in the bridge barrier shall remain closed during jetting.

Direct-buried conduit shall be polyvinyl chloride unless otherwise specified in the Technical Provisions. Design-Builder may substitute HDPE conduit with prior approval of ADOT. HDPE conduit shall conform to the requirements of TPA 738-1 (*ITS Technical Specifications*). Conduit type shall be clearly identified on the Plans.

ITS Plans shall indicate the station and offset of the three-inch “Y” that is required directly over ITS conduit on rolled or vertical curbs, as described in Section 741-3.01(F) of TPA 738-1 (*ITS Technical Specifications*).

(K) Wrong-Way Detection

Design-Builder shall design a fully functional wrong-way detection system in accordance with the *ITS Design Guide* and TPA 738-1 (*ITS Technical Specifications*). When existing signals are not being modified, Design-Builder shall install new camera poles and equipment required to allow for a wrong-way detection system. Design-Builder may utilize thermal cameras for signal detection such that all the requirements for both signal detection and wrong-way detection are met.

Design-Builder shall not install wrong-way detection cameras on traffic signal mast arms or luminaire mast arms. Wrong-way detection equipment shall not be installed in traffic signal cabinets. Design-Builder shall install a minimum of two wrong-way detection cameras at each intersection of each interchange. Illuminated wrong-way sign assemblies shall be shown on both ITS and signing and pavement marking Plans.

Design-Builder shall provide wrong-way detection systems at the following locations:

- (1) Wild Horse Pass Blvd/Sundust Rd TI eastbound and westbound exit ramps at I-10;
- (2) Koli Rd TI eastbound and westbound exit ramps at I-10;
- (3) SR 347/Queen Creek Rd TI eastbound and westbound exit ramps at I-10; and
- (4) Riggs Rd TI eastbound and westbound exit ramps at I-10.

The wrong-way detection shall be capable of detecting the presence of wrong-way vehicles and bicycles on the ramps over virtual detection zones, which are placed on a thermal image. Using a thermal detection sensor and in the absence of occlusion, the system shall be able to:

- (1) Detect vehicle presence with 98% accuracy under normal conditions (days and nights), and 96% accuracy under adverse conditions (fog, rain, snow); and
- (2) Detect bicycle presence with 95% accuracy under normal conditions (days and nights), and 92% accuracy under adverse conditions (fog, rain, snow), with separation of bicycles from other vehicles such as cars and trucks.

(L) Dynamic Speed Feedback Signs

Each ADOT DSFS assembly shall be provided with a static speed limit sign, a changeable message display, and all processing and disseminating equipment and functionality needed to detect and display the speed of approaching vehicles. Each ADOT DSFS assembly shall include all equipment necessary to provide a fully functional system. Connections to the ADOT backbone fiber are not required. Each ADOT DSFS shall be connected to the same permanent power supply as the rest of the system. Solar powered devices are not allowed for ADOT DSFS assemblies.

Design-Builder shall provide ADOT dynamic speed feedback sign assemblies at the following locations:

- (1) Along westbound I-10 approximately 750 feet north of the merge point with the Riggs Rd TI westbound entrance ramp
- (2) Along westbound I-10 approximately 2,250 feet north of the merge point with the Riggs Rd TI westbound entrance ramp

Each new ADOT DSFS assembly shall be provided and deployed in accordance with the MUTCD requirements for regulatory speed limit signs, vehicle speed feedback signs, and the following:

- (1) The static sign display shall be the R2-1 sign type, per the MUTCD, with white background and black legend. The pixels of the changeable message display shall be yellow or amber on a black background.
- (2) The changeable message display legend shall be the same height and width of those on the R2-1 Speed Limit sign it supplements or is mounted below
- (3) The changeable message display shall have the ability to:
 - (a) Continuously show the speed of an approaching vehicle and not flash regardless of speed limit or preset thresholds.
 - (b) Display a blank message if the detected vehicle speed is between 0% and 50% of the predetermined speed limit setting.
 - (c) Display the speed of the approaching vehicle if the speed is greater than 50% of the predetermined speed limit setting.

Design-Builder shall remove and relocate onto a new foundation the existing DSFS assembly, owned by the Community, which conflicts with the proposed Work at the following location:

- (1) Eastbound Sundust Rd at approximately Station 207+60

Design-Builder shall install the relocated Community DSFS assembly at the same station and at a minimum of two feet from the edge of sign to back of sidewalk. Design-Builder shall also relocate, or cause to be relocated, any power service to this sign that may be in place, and reinstall the solar power appurtenances.

(M) ITS Connection to Irrigation Controller

Design-Builder shall integrate the new irrigation system controller at Wild Horse Pass TI to the new ITS system to provide communication with the TOC. Design-Builder shall provide and install a new 2-inch conduit, with 12-SMFO branch fiber optic cable through the conduit, from the new irrigation controller at Wild Horse Pass TI to the nearest ADOT No.9 pull box and splice the fiber at that No. 9 pull box.

738.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all ITS Construction Work in accordance with the standards, manuals, and guidelines listed in Table 738-2.

Table 738-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	ITS Standard Drawings
2.	ADOT	Intelligent Transportation System Design Guide
3.	ADOT	Construction Standard Drawings
4.	ADOT	Standard Specifications for Road and Bridge Construction
5.	AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals

(B) ITS Components**(1) ITS Backbone Communication Network**

Design-Builder shall not work within the TOC. All interface cabling (i.e., video or data) that may be required in the TOC will be furnished and installed by ADOT personnel. Design-Builder shall complete the integration work in the existing node building, including supplying the required cabling and equipment.

Design-Builder shall provide sufficient slack fiber in pull boxes and cabinets per the ADOT *ITS Design Guide* requirements.

Before disconnecting any portion or any elements of the existing ITS system within the Project limits, Design-Builder shall prepare a Schedule for Disruption of Existing Conductors or Cables. The Schedule for Disruption of Existing Conductors or Cables must include a proposed schedule to document any disconnections of existing conductors/cables, how long they are anticipated to be disconnected in accordance with Section 701.03(H), and when they are scheduled to be reconnected. The Schedule for Disruption of Existing Conductors or Cables must also include location/limits of conductors/cables impacted, any devices connected via the impacted conductors/cables, and provisions for temporary/interim connections. Design-Builder shall submit a Schedule for Disruption of Existing Conductors or Cables to ADOT in accordance with Table 738-3.

(2) Dynamic Message Signs

Design-Builder shall have permanent (vs. generator) power available to the new DMS locations so the DMS supplier can complete the sign stand-alone test at the time of installation. The new DMS equipment shall conform to the ADOT *ITS Specifications* and shall meet the following minimum requirements:

- (a) Design-Builder shall submit drawings and design calculations for the DMS support structure and foundations, including all mounting hardware;
- (b) The final DMS support structure Shop Drawings and Working Drawings shall be submitted after Design-Builder conducts field survey including high point or roadway and foundation elevations;
- (c) Design-Builder shall ensure that any photoelectric controller, light-meter, or any other equipment controlling the 'dimmability' function of the DMS is not obscured and full functionality is provided in the event of back-to-back DMS signs being installed on the same supporting structure;
- (d) If applicable, foundations for mainline DMS shall be embedded in the median concrete barrier that shall be transitioned in both directions of traffic to accommodate the entire width of the foundations;
- (e) If applicable, the top elevations of DMS foundations shall be installed flush with the median;
- (f) If applicable, allowable barrier tapers shall be in accordance with Section 200;
- (g) Each DMS sign shall be controlled by its own unique controller cabinet assembly; and
- (h) DMS controller cabinet shall be installed to provide complete view of the DMS to a technician working at the cabinet, while the cabinet door is open.

The DMS items of work shall include the following:

- (a) 20 mm full-matrix, front access DMS;
- (b) Sign case, sign controller, cabinet;

- (c) Conduits and cabling (power and communications);
- (d) Foundations and structural supports, including mounting hardware;
- (e) Traffic control (as required); and
- (f) Foundations for cabinets (including conduits as required).

(3) Traffic Detection Systems and Ramp Metering System

Installation of ramp metering field equipment shall include:

- (a) Inductance loops (saw cut and preformed);
- (b) Ramp meter signal assembly (and associated signs);
- (c) Ramp meter flasher assembly (and associated signs);
- (d) Loop slot sealant;
- (e) Loop lead-in cable;
- (f) Connectors;
- (g) Controller cabinet complete with foundations and conduit connections;
- (h) Ramp meter controller;
- (i) Ramp metering central system license;
- (j) Ramp metering software; and
- (k) Loop detector surge protector.

Ramp meter controllers shall be delivered to ADOT TSMO YM PM02 Basement at 2302 W Durango Street, Phoenix, AZ, 85009 for programming and testing of controllers. Design-Builder shall notify ADOT at least two Business Days prior to the scheduled delivery of the controllers. Contact James White at (602) 359-2270 or Lucas Roatch at (602) 622-9128 to schedule delivery of controllers to ADOT.

All loop detectors on the mainline within the Project limits and on portions of the ramp affected by widening, and loop amplifier cards within existing or new ramp meter and count station cabinets shall be new. Design-Builder shall install an ethernet switch within all cabinets. This switch will facilitate all communication to the associated hardware as defined in TPA 738-1 (*ITS Technical Specifications*). Switches shall be Moxa 16 port EDS-G516 switches for all devices.

(4) Closed Circuit Television

CCTV cameras shall be Bosch model MIC-7522-Z30W.

The CCTV system shall include cameras, poles, lowering devices, power source and ITS backbone connection at each location, and other ancillary and incidental equipment required for assembling a complete, fully functioning system.

New CCTV equipment installed by Design-Builder shall include the following:

- (a) CCTV camera;
- (b) CCTV poles;
- (c) Lowering devices;
- (d) Foundations and structural supports, including mounting hardware;

- (e) Conduits (power and communications);
- (f) Video, power, and data cabling; and
- (g) Surge protectors.

Installation of CCTV equipment shall conform to TPA 738-1 (*ITS Technical Specifications*). New CCTV cameras to meet the requirements of Section 738.03(G) and shall not be installed until after the DMS installation is complete to ensure DMS message coverage is obtainable.

(5) Power Distribution System

Work to provide all electrical system components required to power new ITS equipment shall include the following items:

- (a) Provision of electrical service;
- (b) Power distribution wiring;
- (c) Transformer cabinets; and
- (d) Work to provide power distribution system shall comply with all Laws.

(6) Cabinets

Cabinets shall be installed such that the signal display, ramp and mainline loops are visible from the front door.

All environmentally sensitive equipment shall be housed within weatherproof outdoor cabinets. All ITS cabinets shall meet the requirements in TPA 738-1 (*ITS Technical Specifications*).

Design-Builder shall provide complete ITS Cabinet Wiring Diagrams and Schematics for all ITS Cabinet assemblies and submit to ADOT in accordance with Table 738-3. ITS Cabinet Wiring Diagrams and Schematics shall be submitted as one PDF and one 11-inch by 17-inch hardcopy with each ITS Cabinet assembly.

Design-Builder shall notify ADOT five Days prior to requiring entry to an ITS cabinet. ITS cabinet locks shall remain ADOT locks at all times.

(7) Conduits and Pull Boxes

Design-Builder shall replace all ADOT locks on existing ADOT pull boxes at the beginning of the Project with Design-Builder locks. Any new ADOT pull boxes installed prior to Substantial Completion shall be installed with Design-Builder locks. Design-Builder shall provide ADOT three keys to Design-Builder locks on ITS pull boxes prior to removing ADOT locks.

All new conduit, microduct and pull boxes shall be installed in accordance with the ADOT *ITS Specifications*.

Conduits originating from device cabinets shall enter the same No. 9 pull boxes as the backbone conduits or microduct through available entry ports.

Conduit and microduct warning tape shall be provided for all ITS conduit and microduct.

The Record Drawings shall include lateral offset dimensions of conduit and microduct referenced from back of curb, edge of pavement, barrier, guard rail, bridge wall, or other fixed landmark. The dimensions shall be provided for new conduit and microduct at angle points and tangent sections.

Trenchless installation methods of conduit and microduct shall be coordinated with ADOT and clearly identified on the ITS Plans. Design-Builder shall prepare an ITS Boring/Drilling Profile that shows the proposed profile including surveyed underground features, existing and proposed Utilities, and potholes. The ITS Boring/Drilling Profile must be to scale and all features/Utilities must be identified on the sheet. Design-Builder shall submit the ITS

Boring/Drilling Profile to ADOT in accordance with Table 738-3. Open cutting and trenching existing pavement to remain shall not be allowed.

Pull Box lids shall be locking and bear the words "ADOT FMS" or alternative text as provided by an Intergovernmental Agreement (IGA) or JPA, while meeting the requirements of TPA 738-1 (*ITS Technical Specifications*).

(8) Wrong-Way Detection

Wrong-way detection systems shall be constructed in accordance with *ITS Standard Drawings*, the RFC Plans and TPA 738-1 (*ITS Technical Specifications*).

Thermal cameras shall be FLIR TrafiSense AI 645 with sunshield.

Design-Builder shall coordinate with ADOT for the final locations of wrong way sign Assemblies in the field. wrong way sign assembly final locations shall be identified on the Record Drawings on both ITS and signing and pavement marking Plans.

(9) Wrong-Way Detection Mounting

Design-Builder may use new CCTV or ramp meter structures for mounting thermal cameras for the wrong-way driver detection system instead of new, dedicated Type G poles in one quadrant of each TI where wrong-way detectors are required. Design-Builder shall design new CCTV and ramp meter poles for a one-inch maximum deflection at the top of the pole under a 30 mile per hour non-gust wind speed. The CCTV and ramp meter poles shall be compliant with the *AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*.

(10) Dynamic Speed Feedback Signs

Dynamic speed feedback sign systems shall be constructed in accordance with *ITS Standard Drawings* and the RFC Plans.

Design-Builder shall coordinate with ADOT for the final locations of DSFS assemblies in the field. Dynamic speed feedback sign assembly final locations shall be identified on the Record Drawing Plans.

Each DSFS assembly shall be provided with a static speed limit sign, a changeable message display, and all processing and disseminating equipment and functionality needed to detect and display the speed of approaching vehicles. Each DSFS assembly shall include all equipment necessary to provide a fully functional system.

(11) Node Buildings

If Design-Builder plans to enter a node building, Design-Builder shall prepare a Node Building Access Request that includes the date and time Design-Builder needs access to the node building, node building number, purpose of the requested access, and a description of the work to be performed in the node building. Design-Builder shall submit a written Node Building Access Request to ADOT in accordance with Table 738-3.

(C) Operational Support and Warranty

Design-Builder shall provide operational support and warranty until Substantial Completion, beginning when Design-Builder is notified of successful completion of the system acceptance test.

The operational support and warranty services shall include maintenance, emergency repairs, and technical support for ADOT to operate the ITS system. Operational support does not replace ADOT's emergency maintenance; rather, it shall supplement it.

Design-Builder shall furnish staff trained to understand, use, and configure the supplied equipment and identify, diagnose, and troubleshoot all component failures. A single staff contact shall be assigned for 24-hour emergency response service. The initial assistance may be provided by telephone. If telephone contact is not sufficient to solve the problem, Design-Builder shall assign staff to assist on-site within 24 hours of the initial contact.

Design-Builder shall furnish all spare parts, the required test/diagnostic equipment, and additional support equipment required to successfully operate, maintain, and troubleshoot the ITS equipment throughout the duration of the warranty period.

ADOT will notify Design-Builder of hardware and software component failures. Design-Builder shall correct any component failure within two Days from the notification. Design-Builder shall maintain a log of the repairs, including date, nature of failure, make, and model of failed unit and cause.

(D) Testing

Design-Builder shall test the ITS, including the existing ITS Elements, for the fully operational ITS for the Project. Design-Builder shall prepare an ITS Equipment and System Testing Plan that includes all test results as identified in this Section 738.04(D). The ITS Equipment and System Testing Plan must include all ITS equipment to be tested, the type of test to be conducted, and the date and time the test is planned to be conducted. Design-Builder shall perform the tests in accordance with the ADOT *ITS Design Guide*. ADOT will conduct subsystem tests in accordance with the ADOT *ITS Design Guide*. Design-Builder shall submit the ITS Equipment and System Testing Plan to ADOT in accordance with Table 738-3.

(E) Certificates

Design-Builder shall prepare and obtain ITS Certifications as required by ADOT. *Certificates of Compliance* must be in accordance with TPA 738-1 (*ITS Technical Specifications*). Design-Builder shall submit all ITS Certifications to ADOT in accordance with Table 738-3.

(F) ITS Final Compiled Documentation

Design-Builder shall prepare an ITP Final Compiled Documentation that compiles a final set of documentation at the completion of ITS Construction Work. The ITP Final Compiled Documentation shall include:

- (1) ITS Master Plan;
- (2) ITS Record Drawings;
- (3) Approved equipment Submittals;
- (4) ITS specific project technical specifications;
- (5) ITS Equipment and System Testing Plan;
- (6) Testing procedures;
- (7) Testing reports;
- (8) Manuals:
 - (a) Installation manuals;
 - (b) User manuals;
 - (c) Operation manuals;
 - (d) Programming manuals;
 - (e) Theory of operation manuals;
 - (f) Diagnostic manuals; and
 - (g) Maintenance procedure manuals;
 - (h) Equipment assembly drawings;

- (9) Cabinet rack wiring diagrams (including node building racks);
- (10) Electrical schematic and wiring diagrams;
- (11) Record drawing cable schedule;
- (12) System connection diagrams;
- (13) Fiber optic splices and splice closures diagrams;
- (14) Installation details for all new or nonstandard installations;
- (15) Warranties and guarantees;
- (16) *Certificates of Compliance* and *Certificates of Analysis*;
- (17) Shop Drawings and Working Drawings and modifications; and
- (18) All other written or recorded documents.

The ITS Final Compiled Documentation shall be indexed and submitted electronically and in hard cover three-ring binder to ADOT in accordance with Table 738-3.

Design-Builder shall provide additional copies of items within the ITS Final Compiled Documentation to ADOT upon ADOT's request.

738.05 Submittals

Table 738-3 reflects a list of Submittals identified in this Section 738 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 738-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>ITS Inventory</u>	3	Approval required as a condition precedent to issuance of NTP 2	738.02(B)
2.	<u>ITS Master Plan</u>	3	Prior to the first <u>Preliminary Design Submittal</u>	738.03(B)
3.	Updated <u>ITS Master Plan</u>	3	No later than 30 Days after the RFC of ITS Design Plans	738.03(B)
4.	<u>ITS Element Number Request</u>	4	30 Days prior to the first <u>Final Design Submittal</u>	738.03(C)
5.	<u>DMS Cone of Vision Exhibits</u>	4	As part of the <u>ITS Master Plan</u>	738.03(E)
6.	<u>CCTV Coverage Exhibit</u>	4	At the same time as the <u>ITS Master Plan</u>	738.03(G)
7.	<u>Schedule for Disruption of Existing Conductors or Cables</u>	3	10 Business Days prior to disconnection of conductors or cables	738.04(B)(1)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
8.	<u>ITS Cabinet Wiring Diagrams and Schematics</u>	3	At the time of delivery of ITS cabinet to ADOT for testing	738.04(B)(6)
9.	<u>ITS Boring/Drilling Profile</u>	3	10 Business Days prior to installation	738.04(B)(7)
10.	<u>Node Building Access Request</u>	3	A minimum of 5 Business Days prior to any planned Work within an existing node building	738.04(B)(11)
11.	<u>ITS Equipment and System Testing Plan</u>	3	With <u>CQMP</u>	738.04(D)
12.	<u>ITS Certifications</u>	4	Prior to Final Acceptance (D&C)	738.04(E)
13.	<u>ITS Final Compiled Documentation</u>	3	Prior to Substantial Completion	738.04(F)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none"> 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) 				

DIVISION VIII ROADSIDE DEVELOPMENT

800 Aesthetics, Landscape, and Irrigation

800.01 General Requirements

Design-Builder shall perform all aesthetics, landscape, and irrigation Work in compliance with the requirements in this Section 800.

800.02 Administrative Requirements

(A) Plant Salvage Operation Plan

A plant inventory has been completed for the Project limits and is shown in TPA 800-3 (Plant Inventory). This plant inventory identifies all plant material within the Project ROW and impacted by construction that is to be salvaged and replanted and that which is to be salvaged for fuel wood. All plantings within the Wild Horse Pass and Sundust Rd medians shall be removed and replaced with new in accordance with Section 800.03(D). Design-Builder shall work within the New ROW shown in the Schematic Design ignoring any discrepancies that may be shown in TPA 800-3 (Plant Inventory) at Goodyear Rd and Riggs Rd. Plant material within the Project ROW that is not impacted by construction may remain and be protected in place unless it has been identified as 'dead', in which case Design-Builder shall remove and haul it off the Project. Plant material not identified in the inventory and material not tagged shall be hauled off the Project in accordance with the ADOT *Standard Specifications* and the GRIC *Native Plant Salvage Plan* developed for this Project dated June 20, 2024.

Design-Builder shall prepare a Plant Salvage Operation Plan that details the processes for the salvaging of cactus (saguaro, ocotillo, prickly pear, cholla), nursery setup and operation, and replanting of salvaged cactus within the disturbed area of Wild Horse Pass Blvd/Sundust Rd TI. Design-Builder shall salvage healthy, salvageable cactus located within the disturbed urbanized landscape section of Wild Horse Pass Blvd/Sundust Rd TI. All other plants in construction areas not salvaged for use on the Project are subject to the requirements of *Arizona Revised Statutes*, Title 3, Chapter 7 and related regulations (Arizona Native Plants).

Design-Builder shall clear and grub all plants determined to be non-salvageable or removed by Design-Builder within disturbance areas. Prior to clearing and grubbing activities, Design-Builder is to contact the GRIC District 5 Service Center in Bapchule at (520) 315-3445 or (520) 315-3441 and ask if fuel wood is needed. If fuel wood is needed, Design-Builder shall salvage all mesquite wood impacted by construction that has a diameter of four inches or greater and cut it to lengths not exceeding three feet. Design-Builder shall deliver the fuel wood to the Service Center at 3456 W. Casa Blanca Rd. If it is determined by the Service Center staff that the fuel wood is not needed, Design-Builder shall shred the fuel wood and haul it off the Project in accordance with the ADOT *Standard Specifications*.

Unless otherwise directed by ADOT, all cacti within the disturbance areas shall be salvaged and replanted by Design-Builder. Final locations to be identified in the RFC Plans and to be approved by ADOT and Community representatives. All other plant material within the limits of disturbance that are not to be salvaged/moved shall be shredded and hauled off the Project by Design-Builder in accordance with the ADOT *Standard Specifications*.

The Plant Salvage Operation Plan must include the following:

- (1) Cover page;
- (2) Timing of salvage operations for optimum success rate;
- (3) Anticipated phasing schedule for salvage and replanting of plant materials;
- (4) Details on how Design-Builder shall accomplish:
 - (a) Salvaging and transporting saguaros and cacti with attention given to the amount of root area that will be included in salvage based on plant size;
 - (b) If moving will be conducted for plants such as saguaros, describe the proposed methodology; and

- (c) Disposal method for plant material that is not salvaged;
- (5) Nursery details, including:
 - (a) Anticipated nursery location(s);
 - (b) Security measures for nursery site(s);
 - (c) Plant irrigation materials and watering schedules at the nursery(ies); and
 - (d) Maintenance and inspection requirements; and
- (6) Methods and details for replanting boxed trees, saguaros, and accents.

Design-Builder shall submit the Preliminary Plant Salvage Operation Plan to ADOT in accordance with Table 800-12.

Design-Builder shall provide the Final Plant Salvage Operation Plan to ADOT in accordance with Table 800-12.

(B) Noxious and Invasive Species Control Plan

Prior to any earthmoving and hauling equipment arriving onsite, Design-Builder shall provide certification that shows equipment has been washed, in accordance with environmental commitments of TPA 117-1 (Environmental Commitments). Design-Builder shall inventory the presence of noxious and invasive species in the Project ROW, in conformance with environmental commitments of Section 117. Prior to any ground disturbance, Design-Builder shall prepare a Noxious and Invasive Species Control Plan that describes the proposed methods and products for minimizing the spread and growth of noxious and invasive species from the beginning of Construction Work through the end of the D&C Period. Design-Builder shall treat noxious and invasive species before ground disturbance begins and throughout the D&C Work, excluding geotechnical activities.

The United States Department of Agriculture website includes a list of Arizona invasive and noxious plants. The Noxious and Invasive Species Control Plan must be consistent with implementing the applicable Project environmental commitment requirements and include the following:

- (1) Cover page;
- (2) Table of contents;
- (3) Information on the species that are found in the Project ROW;
- (4) Maps that identify the location(s) and approximate area(s) of each type of species found;
- (5) Proposed chemical or mechanical means to minimize germination of these plants; and
- (6) The schedule for periodic inspections and control of species throughout the D&C Work.

Design-Builder shall submit the Noxious and Invasive Species Control Plan to ADOT in accordance with Table 800-12.

Every three months, throughout D&C and the Landscaping Establishment Period, Design-Builder shall perform noxious and invasive species site inspection and take remedial action within 10 Business Days if identified species appear on site. Design-Builder shall prepare a Noxious and Invasive Species Site Inspection Report that includes the date of inspections, areas inspected, noxious and invasive species found or not found, and proposed treatment. Design-Builder shall submit the Noxious and Invasive Species Site Inspection Report to ADOT in accordance with Table 800-12. If Design-Builder is notified by ADOT at any time during D&C or the Landscaping Establishment Period that noxious and invasive species are present, Design-Builder shall remove identified noxious and invasive species within 10 Business Days.

(C) Aesthetics and Landscape Master Plan

Design-Builder shall prepare an Aesthetics and Landscape Master Plan that includes the following:

(1) Roll plot(s) in accordance with Section 113.02(B) at a legible scale that shows the Project layout and the following:

- (a) Areas to be planted or seeded shaded in green;
- (b) Landform graphic areas shaded in brown;
- (c) Areas to receive decomposed granite only shaded yellow; and
- (d) Retaining walls highlighted with color or thick line weight;

(2) A separate matrix that provides the total square footage for:

- (a) Planted and/or seeded areas;
- (b) Landform graphic areas; and
- (c) Decomposed granite only areas.

Design-Builder shall submit the Aesthetics and Landscape Master Plan to ADOT in accordance with Table 800-12.

(D) Irrigation Water Use and Conservation Plan

Design Builder shall not exceed the existing water usage of 6.9 ac-ft/year during both construction activities and permanent installation. Design Builder shall be responsible for the cost of any water usage above the identified existing water usage rate.

Design Builder shall prepare an Irrigation Water Use and Conservation Plan based on the Landscape Plans. The Irrigation Water Use and Conservation Plan must include the following:

- (1) Cover Page;
- (2) Table of Contents;
- (3) Discussion, including the following:
 - (a) Detailed methodology proposed how much irrigation water will be applied during the Work.
 - (b) Description of how the irrigation schedule will be developed and how water use will be monitored.
 - (c) Description of how mature protect-in-place plant material shall be watered between issuance of NTP 2 and Substantial Completion.
 - (d) Plan for recording water meter use at regular monthly intervals and delivering the results to IQF for review.
- (4) Proposed controller programming schedule;
- (5) 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 use plants will be located; and
- (6) Appendices, including the following, at a minimum:
 - (a) Baseline water usage for existing plant material in protect-in-place areas that are watered between issuance of NTP 2 and landscape establishment phase.
 - (b) Irrigation water use calculation by point of connection.

Design-Builders shall submit the Irrigation Water Use and Conservation Plan to ADOT in accordance with Table 800-12.

(E) Irrigation System Inventory

Design Builder shall prepare an Irrigation System Inventory that includes the following:

- (a) Cover page;
- (b) Table of contents;
- (c) Discussion;
- (d) A matrix of the existing irrigation system components and conditions; and
- (e) Existing Irrigation System Inventory exhibits.

Design-Builders shall submit the Irrigation System Inventory to ADOT in accordance with Table 800-12.

800.03 Design Requirements

(A) Standards, Manuals, and Guidelines

Design-Builders shall perform all aesthetics, landscape, and irrigation Design Work in accordance with the standards, manuals, and guidelines listed in Table 800-1.

Table 800-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ANA	Container Grown Tree Guide
2.	ANLA	American Standard for Nursery Stock (Sponsor American Association of Nurserymen, Inc.) ANSI Z60.1
3.	ADOT	Invasive Noxious Plant Species List for Construction Projects
4.	ADOT	Roadside Vegetation Management Guidelines
5.	ADOT	Erosion and Pollution Control Manual for Highway Design and Construction
6.	AASHTO	A Guide for Transportation Landscape and Environmental Design
7.	Arizona Department of Water Resources	Low Water Use Drought Tolerant Plant List; Official Regulatory List for the Arizona Department of Water Resources, Phoenix Active Management Area
8.	UL	UL1951-Electrical Plumbing Access, UL486D-Sealed Wire Connection Systems, UL486G-Sealed Twist-On Connecting Devices
9.	NFPA	National Electrical Code
10.	ALCA	Sustainable Landscape Management: Standards for Landscape Care in the Desert Southwest
11.	ADOT	Guide, Pruning Techniques
12.	ADOT	Publication, Slope Erosion Control for Urban Freeways in Arid Climates

No.	Organization	Name
13.	ADOT	Construction Standard Drawings
14.	ADOT	Standard Specifications for Road and Bridge Construction, 2008

(B) General

Design-Builder shall produce Plans and specifications to implement the landscape, irrigation components, and aesthetic treatments. All landscape, irrigation, aesthetics treatments, specifications, and reports shall be signed and sealed by a registered landscape architect. Since aesthetics and maintenance considerations will directly influence Project components, it is important for Design-Builder and ADOT to reach concurrence on the aesthetic, landscape, and irrigation design concepts to be incorporated into the final design.

(C) Aesthetics

(1) General

Design-Builder shall be responsible for developing detailed plans and construction specifications for the aesthetic treatments on the Project previously developed for the Corridor by ADOT and the Community as shown in TPA 800-1 (Structures Aesthetics DCR). Design-Builder shall adjust the design Plans and specifications as requested by ADOT. The Plans shall include:

- (a) Dimensions, shape, orientation, textures, and colors of aesthetic patterns (metal and incorporated into concrete) including recessed and built up (inward/outward) features of each treatment type and location. The Plans and details provided by Design-Builder shall specify the inward/outward distance of each aesthetic element, which is an important part of the aesthetics effect.
- (b) An elevation of the expected visible portion of the feature for all aesthetic treatments. The elevation shall demonstrate the placement of the treatment above the ground line, the top/bottom and outline of structure, and the locations of construction and/or expansion joints within 10 feet of the treatments.
- (c) Design Plans for the land graphic along EB and WB I-10 at the Wild Horse Pass Blvd/Sundust Rd TI as applicable. Any portion of this land graphic disturbed by the Work shall be reinstalled on the new finished grade. Delineate the limits of demolition and/or restoration.

All built structures shall include structure aesthetics as shown in TPA 800-1 (Structures Aesthetics DCR). Built structures, as defined herein, include bridge barrier walls, barrier walls on approach slabs, barrier walls on protective pavement systems, bridge abutments, bridge wing walls, bridge piers, retaining walls, and other similar site structures. Built structures do not include lined drainage channels, drainage head walls, or roadside or median barriers. Design-Builder shall also provide aesthetic treatment on pedestrian fencing on the Project as shown in TPA 800-1 (Structures Aesthetics DCR). For other retaining wall types that are not MSE, Design-Builder shall incorporate the same aesthetics as specified for MSE walls as shown in TPA 800-1 (Structures Aesthetics DCR).

Aesthetic Mockups cannot be initiated until the RFC Submittal for aesthetics Plans and Project Special Provision have been approved by ADOT.

Design-Builder shall be fully responsible for scheduling the activities to accommodate the time needed to review and approve the fabrication drawings, formliner preparation, and Mockups.

This section addresses only the aesthetics portion of the structure surfaces. Refer to Section 600 and Sections 601-3.02(C) and 610-1 through 610-3.06 of the ADOT *Standard Specifications* for additional criteria related to structure aesthetics.

(2) Painting

All existing and modified structures and non-traffic side of all barriers throughout the Project shall be re-painted a base color and accent color per Table 800-2 and TPA 800-1 (*Structures Aesthetics DCR*). All new structures and non-traffic side of all barriers throughout the Project shall be painted a base color and accent color per Table 800-2 and TPA 800-1 (*Structures Aesthetics DCR*). Lined drainage channels, drainage head walls, and roadside and median barriers shall not be painted.

Design-Builder shall paint the exposed structural surfaces specified in Section 610-3.05 of the ADOT *Standard Specifications* and paint all light and sign foundations (does not include drilled shaft foundations) located on the outside shoulder of the roadway, that are exposed by two feet or more, with the colors as shown in Table 800-2. Design-Builder shall paint concrete with a flat finish, accents with a gloss finish, masonry with a flat finish, and metal with a semigloss finish. Paint must extend to two feet below finish grade.

Table 800-2: Color Palette

No.	Location	Color
1.	Freeway corridor base field color (except for Wild Horse Pass bridge structure and barriers)	ADOT Standard Tan
2.	Freeway corridor accent color (except for Wild Horse Pass bridge barrier)	Frazee No. CLV1104N (Neretic) Hohokam Pottery Red
3.	River Rock pattern on piers, MSE panels, and wing walls	ADOT Standard Tan Sherwin Williams No. SW6159 (High Tea) Sherwin Williams No. SW6170 (Techno Gray)
4.	Wild Horse Pass bridge structure and barriers base field color	Frazee No. 5264d – Chestnut (Flat Finish)
5.	Wild Horse Pass bridge barrier accent color	Frazee No. AC144N – Black Deco (Semi-gloss Finish)
Note: Design-Builder may apply any paint color brand names or trademarks such as: Sherwin-Williams, Pittsburgh Paints, and Dunn-Edwards other than the Frazee Paint. Design-Builder shall demonstrate equivalent color effects for ADOT's approval.		

(3) Accessory Structures

Accessory structures shall be designed in materials and colors to match the area in which it is located. Accessory structures would include but not limited to screen walls.

(4) Individual Structure / Area**(a) Bridge Structure**

Design-Builder shall provide aesthetic patterns on all new bridge barrier walls, bridge piers, and bridge abutment walls in accordance with TPA 800-1 (*Structures Aesthetics DCR*). The final design shall match these details/graphics.

(b) Walls

Design-Builder shall provide aesthetic patterns on all new structure related walls in accordance with TPA 800-1 (*Structures Aesthetics DCR*). The final design shall match these details/graphics.

(c) Fencing

Design-Builder shall provide aesthetic patterns on the bridge fencing in accordance with TPA 800-1 (*Structures Aesthetics DCR*). The final design shall match these details/graphics.

- (i) Wild Horse Pass Blvd/Sundust Rd TI - "Hohokam Dancer Icons";
- (ii) Koli Rd TI - "Basket Icons";
- (iii) SR 347/Queen Creek Rd TI (except for the SR 347 EB to I-10 WB direct-connect ramp) - "Flying Bird Icons";
- (iv) Riggs Rd TI - "Roadrunner Icons"; and
- (v) Goodyear Rd - "Snake Icons".

(d) Slope Paving

Design-Builder shall extend slope paving under Wild Horse Pass Blvd/Sundust Rd TI to the north to correspond with the bridge widening. Slope paving concrete finish is to match existing.

Design-Builder shall provide aesthetic patterns on the new slope paving at SR 347/Queen Creek Rd TI and Goodyear Rd in accordance with TPA 800-1 (*Structures Aesthetics DCR*). The final design shall match these details/graphics.

(5) Landform Graphics

Design-Builder shall limit the extent of construction impacts to the landform graphics at the Wild Horse Pass Blvd/Sundust Rd TI to the maximum extent practical. Any construction activities that impact the landform graphics shall be restored by Design-Builder. Prior to disturbance of the slope, Design-Builder shall document the layout of the existing graphics, including survey of all layout points and photographing the graphics. Design-Builder shall remove and salvage the existing landscape rock on the slope for re-use. Design-Builder shall restore all portions of the landform graphic that are impacted to the preconstruction condition. Restoration activities will include layout of the graphic pattern to the new slope paving, any necessary grading, and installation of new and salvaged rock mulch and edging (to match existing). If new rock is used, it shall be blended with the salvaged rock to produce a uniform color.

(D) Landscape

(1) Landscape Design

The goal of the landscape design is to:

- (a) Restore the urbanized landscape at Wild Horse Pass Blvd/Sundust Rd TI impacted by Construction Work; and
- (b) Restore the natural environment using a native seed mix to all remaining areas within the Project area impacted by Construction Work.
- (c) Maintain the drainage function of channels, basins, and low flow structures including by not planting on the bottom two-thirds of these drainage structures slopes.
- (d) Planting the bottom of drainage basins (one acre or larger) with a wash seeding mix.

Restoration includes aesthetically grading the final transition between the cuts and fills and the existing ground plane so that there are no visible definitive lines.

Landscape details are provided for reference in TPA 800-2 (*Landscape Details*).

Design-Builder shall prepare a Preliminary Plant Availability List that includes a list of all the nursery grown plant species and quantities required for this Project and submit to ADOT in accordance with Table 800-12. Design-Builder shall prepare a Final Plant Availability List of all the nursery grown plant species and quantities required for this Project and submit to ADOT in accordance with Table 800-12. The list shall include the species name, size, and

estimated quantity of the proposed plant material. The list shall also include anticipated nursery source(s) for the planting stock.

(a) Wild Horse Pass Boulevard/Sundust Road

The existing plant palette is comprised of mesquite, palo verde, desert willow, saguaro, ocotillo, prickly pear, and creosote. The ground plane treatments include river rock, brick pavers, and concrete in the median islands and gold/tan 1-¼" minus decomposed granite in the planting areas. Design-Builder shall use this palette of materials to restore the landscape in this area impacted by Construction Work.

Design-Builder shall design and construct the new median islands to mimic the existing median islands, including landscape and irrigation in accordance with as-builts included in the RIDs. Materials in the existing crossroad median islands include concrete, concrete header, brick pavers, river rock, creosote, santa rita prickly pear, and drip irrigation components. Within the impacted areas, Design-Builder shall remove all existing vegetation within the medians and replace with new plants of the same type and maturity. Design-Builder shall construct new brick pavers in accordance with Std C-05.40 of the ADOT *Construction Standard Drawings*, except that Design-Builder shall not use stamped concrete in lieu of brick pavers. Brick pavers must be the approximate size, shape, pattern, finish, and color of the existing bricks. Design-Builder shall construct a new drip irrigation system to replace all existing components impacted by the Work, and all components within the new center median islands, in accordance with Section 800.03(D)(3). In the right turn islands beyond the sidewalk areas, Design-Builder shall construct brick pavers matching those used in the center medians.

Landscape components include the following:

- (a) Trees: 36 inches box minimum;
- (b) Creosote: five gallon minimum;
- (c) Santa Rita Prickly Pear: five gallon minimum
- (d) Ocotillo: 8 cane, 6'-8' min. height
- (e) Decomposed Granite: See Table 800-11;
- (f) River Rock: Match existing in color and gradation.

All plant material with the potential to reach a four-inch diameter trunk shall be in accordance with the ADOT clear zone requirements.

(b) Koli Road

The existing plant material in the area is comprised of mesquite, creosote, saltbush, and various grasses. All areas impacted by Construction Work, except for the medians and DDI islands, shall be seeded by Design-Builder with the native seed mixes identified in Table 800-5 and Table 800-6. Design-Builder shall construct desert pavement for the ground plane treatment for the new medians and DDI islands on Koli Rd, in accordance with Section 800.03(D)(7). No containerized plantings are to be installed at this location.

(c) SR 347/Queen Creek Road

The existing plant material in the area is comprised of mesquite, creosote, saltbush, and various grasses. All areas impacted by Construction Work, except for the medians and islands designated to receive other treatments, shall be seeded by the Design-Builder with the native seed mixes identified in Table 800-5 and Table 800-6. Design-Builder shall construct desert pavement in accordance with Section 800.03(D)(7) for the ground plane treatment for the new curbed medians. Design-Builder shall place concrete 4 inches in thickness within islands at right turn lanes except where sidewalk is specified. No containerized plantings are to be installed at this location.

(d) Riggs Road

The existing plant material in the area is comprised of mesquite, creosote, saltbush, and various grasses. All areas impacted by Construction Work, except for the medians, shall be seeded by the Design-Builder with the native seed mixes identified in Table 800-5 and Table 800-6. Design-Builder shall construct desert pavement for the ground plane treatment for the new medians on Riggs Rd, in accordance with Section 800.03(D)(7). No containerized plantings are to be installed at this location.

(e) Goodyear Road

The existing plant material in the area is comprised of mesquite, creosote, saltbush, and various grasses. All areas impacted by Construction Work shall be seeded with the native seed mixes identified in Table 800-5 and Table 800-6. No containerized plantings are to be installed at this location.

(2) Seeding

Design-Builder shall use seeding as the primary method of establishing revegetation at Koli Rd TI, SR 347/Queen Creek Rd TI, Riggs Rd TI, and Goodyear Rd as well as all areas impacted by Construction Work south of Wild Horse Pass Blvd/Sundust Rd TI. No native seeding is to occur at Wild Horse Pass Blvd/Sundust Rd TI.

Design-Builder shall seed with the two mixes shown in Table 800-5 and Table 800-6. Boundaries of the two mixes shall be shown in the aesthetics and landscape Plans.

Design-Builder shall provide H1 seed mix in the bottom of all retention basins and within the traffic clear zone/recovery areas. Design-Builder shall apply H1 seed mix within 20 feet behind guardrails/barrier walls, or within 20 feet of inlets and outlets of drainage facilities or to the flow paths of the inlets and outlets of drainage facilities. The H1 seed mix must be in accordance with Table 800-5.

Design-Builder shall apply H2 seed mix to revegetate areas beyond the traffic clear zone/recovery areas and all other unpaved disturbed areas, except maintenance roads. The H2 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. The H2 seed mix must be in accordance with Table 800-6.

(3) Irrigation

The Wild Horse Pass Blvd/Sundust Rd TI irrigation design shall distribute irrigation water to all existing protect-in-place plants, salvaged and replanted plants, and new nursery stock plants installed.

The existing irrigation system is to remain functional and continue to irrigate existing plant material within the system that is not impacted by Construction Work until the new irrigation system is functional. Once the new irrigation system is functional, the old irrigation system shall be removed.

Existing irrigation sleeves crossing I-10 mainline shall be extended through the median to be continuous. All existing irrigation sleeves crossing ramps and crossroads shall be extended to a minimum of one foot beyond outside edges of pavement. Design-Builder shall extend or shorten existing irrigation sleeves in the crossroad medians as required by the improvements.

Design Builder shall upgrade the Wild Horse Pass Blvd/Sundust Rd TI irrigation system as specified in the Technical Provisions and provide irrigation coverage throughout the TI. Design Builder shall install a new ADOT irrigation controller. Design Builder shall also replace the backflow preventer, master valve/flow meter, filter, and associated cabinets.

Design-Builder shall prepare an Irrigation System Zoning Plan that shows the irrigation zones for the irrigation system. Design-Builder shall submit the Irrigation System Zoning Plan to ADOT in accordance with Table 800-12.

The water supply for the irrigation system shall only be used for the landscape irrigation system and shall not be used for construction.

Design Builder shall use existing electrical service, modified to be a metered service if necessary, and water connections.

Design Builder shall design and construct the irrigation system in accordance with the following criteria:

- (a) Minimum design pressure is 65 pounds per square inch;
- (b) Maximum pipe water velocity is five feet per second;
- (c) Individual remote-control valve locations are to have a minimum operation pressure of 50 pounds per square inch;
- (d) Distribution uniformity is to be a minimum of 86%;
- (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 remotely;
- (h) Include low-flow drip emitter systems for all plantings;
- (i) Trees, shrubs, and cacti shall be valved separately;
- (j) All control valves, mainlines, and pressure regulator shall be placed, whenever site conditions allow, a minimum of:
 - (i) Outside of the roadway clear zone when located behind curb and gutter, or
 - (ii) Eight feet behind all barriers when along freeway mainline and ramps, or
 - (iii) Five feet behind sidewalks along cross streets, or
 - (iv) Or as approved by ADOT;
- (k) Irrigation pipes and equipment shall comply with all applicable health code requirements;
- (l) Irrigation controllers shall be Motorola:
 - (i) Include ICC PRO package Software Upgrade;
 - (ii) Motorola control system shall have the ability to monitor current watering and weather conditions; and
 - (iii) Irrigation control system shall have the ability to initiate, adjust, or cancel an irrigation cycle based on actual real-time rain bucket technology readings;
- (m) Conduit connections at the bottom of the new controller cabinets for ITS connections as specified in Section 738.03(M);
- (n) All existing irrigation controller equipment, back flow preventers, master valves, etc. that are removed or replaced shall be returned to ADOT;
- (o) All new pipe sleeves and pipe sleeve adjustments shall be in accordance with C-16.40 of the ADOT *Construction Standard Details*.

There are to be no irrigation system elements installed at Koli Rd TI, SR 347/Queen Creek Rd TI, Riggs Rd TI, or Goodyear Rd. Seed mixes at these locations will rely on nature. Supplemental irrigation may be required for germination. Design-Builder is responsible for 75% coverage of native seed mix.

(4) Rock Mulch

Rock mulch areas shall consist of and be placed in drainage swales, around drainage catch basin aprons, behind sloped retaining walls, behind box culvert headwalls, wingwalls and pipe end sections and along slope paving, in accordance with ADOT *Standard Specifications* and TPA 810-1 (Rock Mulch Protection). The color of rock mulch shall be harmonized with the natural surrounding rock/inert artificial existing ground cover material as approved by ADOT. Design-Builder shall prepare all Plans and details for these installations and provide them for review with the landscaping Submittals. Rock mulch shall be placed at a minimum depth of eight inches for drainage/erosion control applications.

(5) Decomposed Granite

Decomposed granite shall be placed in all planting areas and the landform graphic of the Wild Horse Pass Blvd/Sundust Rd TI and be in accordance with Section 803 Landscape Plating Material of the ADOT *Standard Specifications*. Decomposed granite colors proposed for the Project can be found in Table 800-11. Design-Builder shall prepare all Plans and details for the installation of decomposed granite and provide them for review with the landscaping Submittals. Decomposed granite shall be placed at a minimum depth of two inches in all planting area.

(6) Rip Rap

The color of rock riprap shall be harmonized with the natural surrounding rock/inert artificial existing ground cover material as approved by ADOT. Rip rap for erosion control shall comply with gradation requirements of the ADOT *Standard Specifications*. Rip rap for erosion control shall comply with installation requirements of Sections 913-3.03 through 913-3.07 of the ADOT *Standard Specifications*. Rip rap and rock mulch for drainage shall comply with Section 500.

(7) Desert Pavement

Desert pavement shall be placed in the areas specified in Section 800.03(D)(1). Design-Builder shall prepare and submit a Desert Pavement Plan (DPP) to ADOT in accordance with Table 800-12. The DPP shall include a detailed identification and explanation of earthwork operations from clearing and grubbing through finished surface installation, including coordination of the desert pavement salvage, stockpiling of desert pavement, spreading the material, and equipment to be utilized. Prior to starting the earthwork, Design-Builder shall demonstrate their proposed procedures for placing the salvaged desert pavement. Several techniques (individually or in combination) may be required to achieve the desired finished construction.

A 500 square-foot (minimum) section of the Project area shall be used to demonstrate how Design-Builder intends to satisfy the DPP requirements. Earthwork activities shall not commence until ADOT has approved the methods to be used. During the demonstration, ADOT may request the use of alternative techniques for evaluation. After reviewing the demonstration activities, ADOT will then either approve the proposed methods or direct the use of alternative methods to achieve the intended results. The approved method(s) shall be used on all DPP surface areas. The DPP shall be updated to incorporate the changed procedures and re-submitted upon completion of the demonstration activities.

Design-Builder shall salvage and collect the top four inches of existing surface soil and rock within the work limits which will be spread in the identified areas. The salvaged material shall contain minimal amounts of cobble, aggregate, caliche, undesirable rock particles or other deleterious materials that are inconsistent with the intended appearance and use as described in this specification. Excessive amounts of such undesirable materials shall be removed from the desert pavement at the direction of ADOT. Particle sizes of the in-situ desert pavement shall be acceptable, except that no material particle greater than six inches in any dimension shall be evident in the finished

surface of the distribution area. To preserve the biological elements within the in-situ desert pavement, the salvaged material shall be stockpiled no higher than 6 feet.

Vegetative matter allowed to remain in the finished desert pavement installation includes leaves, twigs (less than one inch diameter), roots, small branches (less than one foot in length), tree bark, and other minor levels of debris generated during the clearing and grubbing operations, provided that the cumulative appearance of these components on the ground surface is not a visual contrast with the pre-construction condition or the surrounding undisturbed landscape. Stumps shall be removed or machine ground below grade.

If an insufficient quantity of desert pavement is salvaged for the final construction, Design-Builder may elect to cull, sort, select, crush, and/or stain soil or rock particles that are excavated from the project area to create an acceptable equivalent to the use of salvaged natural desert pavement as described herein. If materials are culled from the excavation, the observable particle sizes, color, texture, and composition mix of rock and soils shall be visually indistinguishable from equivalent to the natural desert pavement from a distance of 30 feet, at the sole discretion and determination of ADOT.

When the desert pavement Work is complete, the finished ground surface of the pavement areas shall appear nearly identical to the pre-construction condition or the undisturbed ground surface in the adjacent, undisturbed lands, particularly related to rock type, soils textures, and particle size and gradation, rock size distribution and patterns, color, and vegetative matter. Individual rocks larger than four inches in any dimension and allowed by ADOT, that, during placement, come to rest with their unoxidized surface(s) exposed shall be overturned or repositioned by hand so that the oxidized surface(s) are visible on the ground surface when the work is complete.

800.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all aesthetics, landscape, and irrigation Construction Work in accordance with the standards, manuals, and guidelines listed in Table 800-3.

Table 800-3: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	Arizona Nursery Association	Container Grown Tree Guide
2.	American Nursery and Landscape Association	Z60 American Standard for Nursery Stock
3.	ADOT	Approved Product List
4.	ADOT	Standard Specifications
5.	ADOT	Roadway Design Guidelines

(B) Aesthetics

(1) Formliners

(a) Design of Formliners

Prior to fabrication, Design-Builder shall provide photographic evidence that the selected formliner fabrication method, if such method is used, will produce the desired finished appearance and is suitable for the intended purpose of this Project. Photographs from at least three previous projects shall be included. Design-Builder shall

develop a sample of the formliner. The formliner developed for review must be full scale as detailed in the plans and specifications.

As part of this process, two ADOT representatives shall visit the formliner manufacturer's facility once during the production of the master molds and formliners. During the visit, the ADOT representatives will be given the opportunity to make decisions on the acceptability of the quality and character of aesthetic features produced from the fabrication molds. Design-Builder shall make modifications as directed by ADOT. Design-Builder shall identify the visit to the formliner manufacturer's facility in the Baseline Schedule.

(b) Formliner Fabrication

All materials used in the creation of the formliners shall be free from defects affecting the accuracy of shape, strength, rigidity, relief, and texture of the aesthetics treatments. Design-Builder shall prepare and submit Formliner Shop Drawings and Working Drawings for all formliner work to ADOT in accordance with Table 800-12. The Formliner Shop Drawings and Working Drawings shall show the location of construction joints; use of special forming materials, if required; type and location of form ties, layout, and repetition of custom formliners; location of background materials; patterns and seams; methods of sealing forms at formliner joints; and pour rates and form work pressures. All seams and cuts shall be located as noted on the approved Shop Drawings and Working Drawings. Design-Builder shall not create seams or cut through any pattern face unless approved by ADOT.

(2) Mockups

Design-Builder shall prepare full-size Mockups with proposed finish and paint colors of each identified aesthetic element. These include:

- (a) The Mockup size for each bridge barrier wall rustication (two total) must be a minimum of 10 feet long x 38 inches high;
- (b) Full size Mockup of each MSE panel (five total), as shown in TPA 800-1 (Structures Aesthetics DCR). If CIP retaining walls are used in lieu of MSE panels, Design-Builder shall provide a sample wall (15 feet tall x 30 feet wide) that incorporates the five aesthetic elements. Layout of elements to mimic that shown in TPA 800-1 (Structures Aesthetics DCR);
- (c) Full size Mockup of each bridge pier aesthetic band (two total). Full Mockup is classified as diameter of pier showing total number of full-size banding plus eight inch top and bottom of bands;
- (d) Full size Mockup of each pedestrian fencing aesthetic (Hohokam Dancer, Birds, Roadrunner, and Snakes); and
- (e) Full size Mockup of slope paving pattern for SR 347/Queen Creek Rd TI and Goodyear Rd, where applicable, the minimum size shall be 20 feet wide by the height at the respective location.

Design-Builder shall submit Mockups to ADOT in accordance with Table 800-12. The Mockups do not need to include the full cross section depth of the element on which it will be placed in the finished construction. Design-Builder shall place Mockups for each new rustication pattern within the Project limits, oriented in a similar manner as the final constructed structures they represent, which shall remain in place for the duration of the construction of the structures associated with the aesthetics.

Design-Builder is responsible for the design and adequacy of the formwork and any falsework or shoring required for support of the Mockups.

(3) Aesthetic Feature Construction

Design-Builder shall ensure that the minimum cover is maintained over reinforcing steel in accordance with Sections 600.03(C)(7) and 600.03(G). Cover is measured from the deepest point of the rustication to the outside of the nearest reinforcement bar. No twisted wire ties are permitted in areas with rustication. Changes to reinforcing or structural dimensions are not allowed.

(4) Paint

Design-Builder shall submit Paint Manufacturer Specifications that includes the name of the paint manufacturer along with the manufacturer's specifications for mixing and applying paint, to ADOT in accordance with Table 800-12. Paint shall be pigmented water-repellent acrylic paint or an equal that meets the requirements of Section 1002-28 2.04 of the ADOT *Standard Specifications* and is on ADOT *Approved Product List*.

(a) Paint Draw Downs

Design-Builder shall prepare Paint Draw Downs which include samples of each color to be used. There will be five colors:

- (i) The base color; and
- (ii) The accent colors.

Design-Builder shall submit Paint Draw Downs to ADOT in accordance with Table 800-12.

(b) Painting of Aesthetics

Design-Builder shall paint the exposed structural surfaces of existing and new walls as specified in Section 610-3.05 of the ADOT *Standard Specifications*. Paint shall extend to two feet below finished grade or to the top of foundations.

Existing and new wall painting shall conform to the color requirements in TPA 800-1 (*Structures Aesthetics DCR*) and to the following:

- (i) Concrete and masonry main structural surfaces: base color, flat finish; and
- (ii) Concrete and masonry accents: accent color, semi-gloss finish.
- (iii) Pedestrian fence metal aesthetic: powder coated with a semi-gloss finish.

(c) Paint Quality

All paint used in the Project area shall resist chipping, flaking, fading, staining, and chalking. All paint shall conform to the requirements of Section 1002-2.04 of the ADOT *Standard Specifications*.

Design-Builder shall be responsible for allowing block or concrete materials aesthetic elements a minimum of 60 Days to cure after construction to avoid efflorescence through the paint. Design-Builder shall be required to treat, prepare, and repaint all elements that show any sign of efflorescence up to Substantial Completion, at no additional cost to ADOT.

(C) Landscape**(1) Planting**

The Work under this section consists of furnishing and planting trees, plants, and salvaged cacti at the locations shown on the approved RFC Submittal for landscape Plans. This section shall also include the salvaging, transporting, and replanting of all designated trees, plants, and cacti (as defined in Section 800.02(A)) in accordance with Section 806-3 of the ADOT *Standard Specifications*, these Technical Provisions, and the approved Plant Salvage Operation Plan.

The Work shall also include the machinery, equipment, labor, and materials to install the plant materials at the final planting locations, including excavating and backfilling and the preparation, modifications, and implementation of the Plant Salvage Operation Plan and the Noxious and Invasive Species Control Plan.

The Work shall also include mixing and applying chemical solutions, herbicides, fertilizers, and amendments; the maintenance of the salvaged cactus; warranty of workmanship; the storage and protection of all planted and unplanted salvaged plant material and other materials; bracing; guying; staking; and wrapping; cleanup of the Project and nursery(ies) areas; and disposal of unwanted and deleterious materials.

(a) Planting General Requirements

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*.

Design-Builder shall be aware that there are often shortages of plant material in the Phoenix area. Contract growing is one allowable option for ensuring the plants needed for the Project are available at the time of construction.

Design-Builder shall review the Plant Availability List submitted under Section 800.03(D)(1) and provide confirmation of continued plant availability and anticipated nursery source(s) a minimum of 60 Days prior to the start of landscaping activities. Design-Builder shall prepare a Plant Availability Letter that confirms that plants required by the Contract Documents are available for use on the Project. Design-Builder shall submit the Plant Availability Letter to ADOT in accordance with Table 800-12. Design-Builder shall submit documentation from a minimum of five sources of unavailability and seek alternative means, including contract growing, for securing the required plant material as directed by ADOT. ADOT will provide Design-Builder with comments on the proposed alternatives and, following further discussion with Design-Builder, determine the approach preferred for implementation (including substitution, change of species, or deletion and redistribution of planting percentages).

ADOT's review and comment regarding the Plant Availability List by ADOT does not relieve Design-Builder of the responsibility for providing plantings that will pass the inspection required in Section 806 of the ADOT *Standard Specifications*. Prior to starting the irrigation trenching or plant pit excavation, Design-Builder shall lay out the planting pits in accordance with the approved landscape Plans. All plants scheduled to be salvaged shall be excavated, side boxed or bare rooted, and removed from their in-situ locations prior to initiation of clearing and grubbing or any other ground disturbing activities in the plant salvage locations.

Design-Builder shall install plants in such a manner as to provide optimum growth and health of the plants. Design-Builder shall plant all plants as specified in the landscape Plans prior to Substantial Completion.

Design-Builder shall attach a metal plant identification tag on all new plant material at the time of installation. This metal identification tag will help to differentiate after Project completion those plants installed with the Project versus those that were existing/protected in place.

Design-Builder shall repair, restore, or replace all existing landscape and aesthetic improvements that are damaged or disturbed to their existing condition prior to construction and in accordance with the approved landscape Plans.

Design-Builder shall maintain all existing landscaping and irrigation to remain in place in a manner as to provide optimum growth and health of the plants for the duration of the Work, including the Landscaping Establishment Period.

No planting shall occur until a complete, fully functioning irrigation system is installed, tested, and approved.

All planting areas shall be graded to facilitate proper watering of the plant materials.

All applicators of pesticides and herbicides shall have a current and valid applicator's card from the State of Arizona Structural Pest Control Commission.

Design-Builder shall dust all bare root cacti with 85-95% pure soil sulfur.

(2) Seeding

Seeding shall consist of furnishing all materials, preparing the soil, applying Class II seed, establishing, and maintaining the seeded areas along with final mulch cover.

Design-Builder shall seed all disturbed areas of the Project and any areas outlined in the SWPPP, unless otherwise stabilized by equivalent permanent stabilization measures, as proposed by Design-Builder and approved by IQF. If not seeded, the equivalent permanent stabilization measures shall be evaluated by a landscape architect and approved by the IQF. Unless otherwise prohibited by an Environmental Approval, seeding is required to stabilize unpaved, disturbed dry area within drainages. Seeding area within a drainage shall exclude any definable low-flow channel.

Seeding shall be accomplished in two stages. The first stage shall consist of tillage; furnishing and applying compost, chemical fertilizer, and sulfur; furnishing and planting the contract-specified seed mix; and furnishing, applying and affixing final mulch cover. The second stage, beginning after the first stage has been accepted by the IQF, shall be a 45 Day period during which time Design-Builder shall be responsible for maintaining and stabilizing the seeded and mulched areas, and restoring damaged or eroded areas.

Seeding used as part of a SWPPP shall be completed, before Final Acceptance (D&C), or sooner as required in the SWPPP. Seeding used as part of a landscape project shall be completed before Substantial Completion. When seeding is part of a landscape project, the maintenance activities described herein shall be in addition to the work specified in Section 800.04(C)(7) for landscape establishment. No time extension will be granted for seeding not completed as specified herein prior to Final Acceptance (D&C) or before Substantial Completion as applicable.

An on-site pre-activity seeding construction meeting shall be coordinated by the IQF's Landscape Architect. The necessity of half acre sample demonstrative area of Class II Seeding shall be verified for the seeded areas greater than five acres excluding shoulder build-up areas (edge of pavement build-up areas). Design-Builder shall guarantee in writing to furnish all suitable equipment for soil tillage, seeding, and mulching during pre-activity seeding construction meeting as evaluated by the IQF, as well as approved by the IQF.

Design-Builder shall conduct and promptly submit to the IQF photographic documentation of half acre sample demonstrative seeded/mulched area. The photographic documentation shall be the comparative standard representation (mandatory visual reference) for seeding acceptance as stated in Section 800.04(C)(2)(b) below.

Seeding areas shall not be watered after planting.

(a) Materials

At least 60 days prior to seeding activities, Design-Builder shall prepare a Seed Availability that includes written confirmation that the source(s) for the seed has been secured. Design-Builder shall submit the Seed Availability confirmation to ADOT and the IQF in accordance with Table 800-12. If any of the seed is expected to be unavailable prior to the time specified for seeding, Design-Builder shall notify the IQF at this same time. No materials shall be delivered to the site until the documentation has been approved by the IQF.

Design-Builder shall submit to the IQF the following information on seeds to be used on the Project.

(i) Unless otherwise specified, Design-Builder shall submit *Certificates of Compliance* to the IQF for all materials, conforming to the requirements of Section 106.05 of the ADOT *Standard Specifications*.

(ii) Design-Builder shall submit tests from accredited laboratories for all materials, as specified herein. Should Design-Builder perform its own testing, it shall submit such test results to the IQF.

(b) Seed

The species, variety, and strain of seed (DBA-specified seed) shall be as specific herein. The DBA-specified seed shall be obtained from seed suppliers through harvesting of wildland collections, or field grown seeds.

A *Certificate of Analysis* for each seed species shall be furnished to the IQF at least four weeks prior to the seeding operation. No seed shall be furnished to or delivered to the Project until the *Certificates of Analysis* have been reviewed by the IQF. The *Certificates of Analysis* shall contain the following information for each seed sample: the test results of the *Fifty States Noxious Weed* list; all seeds including weed seeds listed; purity and germination; tetrazolium test results, when used; and any pathology found to be present. The sample testing, when available for the native plant species, shall use the rules for testing seeds published by the Association of Official Seed Analysts or the Society of Commercial Seed Technologists. If the samples indicate species listed as noxious, restricted, or invasive, the lot will be rejected for use on the Project. The list of noxious, restricted or invasive species is located at the following website:

<http://www.azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development>

Design-Builder shall prepare *Seed Subcontractor and Supplier Information* that includes the name of the seeding subcontractor to be used, along with written confirmation from seed suppliers and/or collectors, on their letterhead, that the source(s) for the contract-specified seed has been secured. Design-Builder shall submit the *Seed Subcontractor and Supplier Information* to ADOT in accordance with *Table 800-12*. A minimum of three separate confirmation letters from seed suppliers, providers and/or collectors shall be presented for the IQF's evaluation within context from reliable sources. If any of the specified seed is expected to be unavailable prior to the time specified for seeding Design-Builder shall notify the IQF at this time.

The seed shall be delivered to the Project site unmixed in standard, sealed, undamaged containers for each seed species. Each container shall be labeled in accordance with the appropriate provisions of the Arizona Revised Statutes and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Labels must indicate the scientific genus, species, subspecies/varieties or strains of seed, the percentage of germination, purity, weed content, and testing information. Unless otherwise approved by the IQF, the date of analysis for Tetrazolium Test must not be more than 15 months prior to the delivery date from a seed provider/supplier. A *Certificate of Analysis* from an accredited seed-testing laboratory and conforming to subsection 106.05 of the ADOT *Standard Specifications*, must accompany each container of seed. The weed content of the DBA-specified seed mix must not exceed 0.5%. In addition to Federal Seed Act Regulations, unless otherwise approved by the IQF, the contamination of seed lots from the noxious/invasive plant species shown in *Table 800-4* shall not be permitted.

Table 800-4: Noxious/Invasive Weeds Watch List for the Contaminated Seed Lots

No.	Scientific Name	Common Name
1.	<i>Amaranthus retroflexus</i>	Redroot Amaranth / Redroot Pigweed / Red-Rooted Pigweed / Rough Pigweed
2.	<i>Bassia scoparia</i> (syn. <i>Kochia scoparia</i>)	Kochia / Fireweed
3.	<i>Bothriochloa bladhii</i> (syn. <i>Andropogon bladhii</i> / <i>Andropogon caucasicus</i> / <i>Andropogon intermedius</i> / <i>Bothriochloa caucasica</i> / <i>Bothriochloa intermedia</i>)	Caucasian Bluestem
4.	<i>Bothriochloa ischaemum</i>	Yellow Bluestem
5.	<i>Brassica tournefortii</i>	Sahara Mustard / Mediterranean Mustard / Prickly Turnip
6.	<i>Bromus tectorum</i>	Cheatgrass / Downy Brome / Broncoglass / Downy Chess / Soft Chess / Drooping Brome

No.	Scientific Name	Common Name
7.	<i>Cynodon dactylon</i> (syn. <i>Capriola dactylon</i>)	Bermudagrass / Devilgrass
8.	<i>Cenchrus spinifex</i> (syn. <i>Cenchrus incertus</i> / <i>Cenchrus pauciflorus</i> / <i>Cenchrus parviceps</i>)	Field Sandbur / Coastal Sandbur / Common Sandbur
9.	<i>Chorispora tenella</i>	Crossflower / Purple Mustard / Blue Mustard / Musk Mustard / Beanpodded Mustard / Tenella Mustard
10.	<i>Eragrostis lehmanniana</i>	Lehmann Lovegrass
11.	<i>Euphorbia esula</i>	Leafy Spurge / Green Spurge / Wolf's Milk
12.	<i>Euphorbia prostrata</i> (syn. <i>Chamaesyce prostrata</i> / <i>Euphorbia chamaesyce</i>)	Prostrate Spurge / Prostrate Sandmat / Ground Spurge / Blue Weed
13.	<i>Onopordum acanthium</i>	Scotch Thistle / Cotton Thistle
14.	<i>Pennisetum ciliare</i> (syn. <i>Cenchrus ciliaris</i>)	Buffelgrass / African Foxtail Grass
15.	<i>Salsola kali</i> subsp. <i>tragus</i> (syn. <i>Salsola iberica</i>)	Russian Thistle / Tumbleweed
16.	<i>Setaria faberi</i>	Japanese Bristlegrass / Giant Foxtail
17.	<i>Setaria pumila</i> (syn. <i>Chaetochloa glauca</i> / <i>Chaetochloa lutescens</i> / <i>Panicum glaucum</i> / <i>Setaria glauca</i>)	Yellow Foxtail / Pigeon Grass / Yellow Bristlegrass
18.	<i>Setaria viridis</i>	Green Bristlegrass / Pigeon Grass / Wild Millet / Green Foxtail
19.	<i>Solanum physalifolium</i> (syn. <i>Solanum physalifolium</i> / <i>Solanum sarachoides</i> / <i>Solanum villosum</i>)	Hoe Nightshade / Argentine Nightshade / Green Nightshade / Hairy Nightshade

Design-Builder shall submit all seed tag labels and *Certificates of Analysis* from all seed to be used on the Project to the IQF.

Both Design-Builder and the seed supplier shall store seed under dry conditions, at temperatures between 35°F and 120°F, and out of direct sunlight. Design-Builder and seed supplier shall both provide a certification letter to the IQF, verifying that the seed was stored as specified herein.

Legume seed shall be inoculated with appropriate bacteria cultures approved by the IQF, in accordance with the culture manufacturer's instructions.

Tetrazolium staining shall be acceptable to test for germination and hard seed. Cut or fill testing will not be allowed. Design-Builder shall retest seeds with an expiration date past the acceptable test date or not meeting the specified conditions for storage.

Application rates of seed as specified are for pure live seed. Pure live seed is determined by multiplying the sum of the percent germination of seeds, including hard or dormant seeds, by the percent purity.

Seed mix species and the pure live seed rates shall be in accordance with Table 800-5 and Table 800-6 below.

Design-Builder shall apply Seed Mix H1, in accordance with Table 800-5, in the following areas:

- (i) Unpaved disturbed Project areas within the traffic clear zone/recovery zones as defined in *ADOT Roadway Design Guidelines* (33.2 to 303.3 Roadside Recovery Area);

- (ii) Unpaved construction disturbed areas from the shoulder wedge to centerline of ditch along cuts or to the limits of the recovery area at fills, new shoulder build-up areas, and all unpaved disturbed soil areas not covered by Seed Mix H2; and
- (iii) Unpaved disturbed Project areas of new roadside ditches and unpaved disturbed areas within 50-foot radius of inlets and outlets of drainage facilities acceptable under the Environmental Approvals.

Table 800-5: Seed Mix H1

No.	Botanical Name	Common Name	PLS Rate (pounds per acre)
1.	<i>Aristida purpurea</i>	Purple Threeawn	4
2.	<i>Abronia villosa</i>	Sand Verbena	0.5
3.	<i>Bouteloua aristidoides</i>	Needle Grama	0.5
4.	<i>Bothriochloa barbinodis</i>	Cane Beardgrass	1
5.	<i>Bouteloua barbada</i>	Six Weeks Grama	1
6.	<i>Baileya multiradiata</i>	Desert Marigold	1.5
7.	<i>Castilleja exerta</i> ssp. <i>exerta</i>	Purple Owl's Clover	0.2
8.	<i>Calliandra eriophylla</i>	Fairy Duster	1.5
9.	<i>Distichlis stricta</i> (syn. <i>Distichlis spicata</i>)	Desert Saltgrass	1
10.	<i>Encelia farinosa</i>	Inciense Brittlebush	2
11.	<i>Encelia frutescens</i>	Button Brittlebush	1
12.	<i>Eschscholtzia mexicana</i>	Mexican Poppy	1
13.	<i>Hilaria berlandieri</i>	Curly Mesquitegrass	2
14.	<i>Kallstroemia grandiflora</i>	Arizona Poppy	0.5
15.	<i>Lesquerella gordonii</i>	Gordon's Bladderpod	1
16.	<i>Lupinus sparsiflorus</i>	Desert Lupine	1
17.	<i>Lupinus succulentus</i>	Arroyo Lupine	3
18.	<i>Phacelia crenulate</i>	Arizona Desert Bluebell	0.5
19.	<i>Plantago ovata</i>	Desert Indian Wheat	2
20.	<i>Sphaeralcea ambigua</i>	Desert Globemallow	1
21.	<i>Sporobolus airoides</i>	Alkali Sacaton	0.5

No.	Botanical Name	Common Name	PLS Rate (pounds per acre)
22.	Salvia columbariae	Desert Chia	1
23.	Senna covesii	Desert Senna	3.8
24.	Sporobolus cryptandrus	Sand Dropseed	0.2
25.	Thamnosma montana	Desert Rue	0.5

Design-Builder shall apply Seed Mix H2, in accordance with Table 800-6, to all unpaved disturbed soil areas not covered under Seed Mix H1. Design-Builder shall not apply Seed Mix H2 to the following areas:

- (i) Within the traffic clear zone/recovery area as defined in ADOT *Roadway Design Guidelines* (303.2 to 303.3 Roadside Recovery Area);
- (ii) Within 20 feet behind guardrails/barrier walls; and
- (iii) Within 50 feet of the inlets and outlets of drainage facilities.

Seed Mix H2 shall be applied to all unpaved disturbed dry areas within drainages and as directed by the IQF. Seed Mix H2 shall promote functional landscape ecological restoration of project site.

Table 800-6: Seed Mix H2

No.	Botanical Name	Common Name	PLS Rate (pounds per acre)
1.	Aristida purpurea	Purple Threeawn	3
2.	Abronia villosa	Sand Verbena	0.3
3.	Baileya multiradiata	Desert Marigold	0.5
4.	Bouteloua aristidoides	Needle Grama	0.2
5.	Bouteloua barbata	Six Weeks Grama	0.5
6.	Bothriochloa barbinodis	Cane Beardgrass	1
7.	Cercidium floridum	Blue Palo Verde	0.2
8.	Calliandra eriophylla Fairy Duster	Fairy Duster	3
9.	Chilopsis linearis	Desert Willow	0.2
10.	Distichlis stricta (syn. Distichlis spicata)	Desert Saltgrass	1
11.	Encelia farinose	Inciense Brittlebush	2.5
12.	Encelia frutescens	Button Brittlebush	1
13.	Eschscholtzia mexicana	Mexican Poppy	0.2

No.	Botanical Name	Common Name	PLS Rate (pounds per acre)
14.	Hilaria berlanderi	Curly Mesquitegrass	1
15.	Lesquerella gordonii	Gordon's Bladderpod	1
16.	Lupinus sparsiflorus	Desert Lupine	1
17.	Lupinus succulentus	Arroyo Lupine	3
18.	Olneya tesota	Desert Ironwood	3
19.	Phacelia crenulata	Arizona Desert Bluebell	0.3
20.	Plantago ovata	Desert Indian Wheat	2
21.	Prosopis pubescens	Screwbean Mesquite	0.5
22.	Sphaeralcea ambigua	Desert Globemallow	1
23.	Sporobolus airoides	Alkali Sacaton	0.5
24.	Salvia columbariae	Desert Chia	1
25.	Senna covesii	Desert Senna	4
26.	Sporobolus cryptandrus	Sand Dropseed	0.2
27.	Simmondsia chinensis	Jojoba	4

No substitution of the Technical Provision-specified seed will be allowed unless evidence is submitted documenting that Design-Builder has made a diligent effort to obtain the specified seed from either seed suppliers or collectors, and that the Technical Provision-specified seed will not become available prior to the time specified for seeding in the Project Schedule.

Should a substitution of the specified seed be requested, Design-Builder shall request such Deviation as outlined in DBA Section 8.03(A) (Deviations). The alternate seed will only be allowed when there is an insufficient quantity of the Technical Provision-specified seed for the areas to be seeded as called for herein or as required for erosion control. Design-Builder shall obtain and apply the alternate seed, as required, to all such remaining areas. The alternate seed will only be allowed until such time that Technical Provision-specified seed meeting the availability requirements specified herein can be provided.

(c) Seeding Packages

Design-Builder shall prepare a Seeding Packages that includes all of the items described in Sections 800.04(C)(3) through 800.04(C)(12). Design-Builder shall submit Seeding Packages to ADOT in accordance with Table 800-12.

(3) Tacking Agent

Tacking agent shall be a naturally occurring organic compound, and compound shall be non-toxic. The tacking agent shall be a product typically used for binding soil and mulch in seeding or erosion control operations. Approved types shall consist of mucilage or gum by dry weight as active ingredient obtained from guar or plantago. The tacking agent shall be labeled indicating the type and mucilage purity.

Design-Builder shall have the tacking agent swell volume tested by an approved testing laboratory using the USP method. The standard swell volume shall be considered as 30 milliliters per gram. Material shall have a swell volume of at least 24 milliliters per gram. Certified laboratory test results for homogenous consistency shall be furnished to ADOT for each shipment of tacking agent to be used on project areas. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser swell volume shall have the tacking agent rate increased by the same percentage of decrease in swell volume from the standard 30 milliliters per gram. Material tested with greater volume may reduce tacking agent rates by the same percentage of increase in swell volume from the standard 30 milliliters per gram. Tacking agent shall be pure material without starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.

Straw mulch including barley straw shall conform to the requirements of Subsection 805-2.03 of the ADOT *Standard Specifications*, except as modified herein, and shall be from the current season's crop. A letter of certification from the supplier shall be required stating that the straw was baled less than 12 months from the delivery date. Additionally, a bill of sale for straw material shall be presented for ADOT's evaluation within context from reliable sources through ADOT.

(4) Thermally-Refined Wood Fiber

Wood cellulose fiber mulch shall conform to the requirements of Subsection 805-2.03 of the ADOT *Standard Specifications*, except as modified herein, and shall be from thermo-mechanically processed wood, processed to contain no growth germination inhibiting factors. The mulch shall be from virgin wood manufactured and processed so the fibers will remain in uniform suspension in water under agitation to form homogenous slurry. Paper products will not be considered as virgin wood. The thermally-refined wood fiber mulch shall have the properties shown in Table 800-7.

Table 800-7: Thermally-Refined Wood Properties

No.	Property	Allowable Amount
1.	Virgin Wood Cellulose Fiber	90% min.
2.	Recycled Cellulose Fiber	10% max.
3.	Ash Content	0.8% +/-0.3%
4.	pH	4.5 +/-1.0
5.	Water Holding Capacity	10 : 1 (water : fiber) Min.

(5) Weed Free Straw Mulch

Straw mulch including barley straw shall conform to the requirements of Subsection 805-2.03 of the ADOT *Standard Specifications*, except as modified herein, and shall be from the current season's crop. A letter of certification from the supplier shall be required stating that the straw was baled less than 12 months from the delivery date. Additionally, a bill of sale for straw material shall be presented for the ADOT's evaluation within context from reliable sources through ADOT. All straw, including hydraulically applied straw, shall be free from noxious weeds in compliance with the standards and procedures of the North American Weed Management Association or the Arizona Crop Improvement Association. Design-Builder shall submit documentation, including a transit certificate, and appropriate labels and/or marking twine, from the North American Weed Management Association or the Arizona Crop Improvement Association that straw materials to be used for mulch are free of noxious weeds. The straw shall be accompanied by the certification, labels and/or marking twine at the time of delivery to the project site. Straw delivered to the Project without such information will be rejected, and promptly removed from the Project. Rye straw and oat straw will not be acceptable.

Hydraulically applied straw mulch shall be wheat, barley, or rice straw processed to various particle sizes, mixed with water and tacking material, and applied as a non-clogging slurry using a hydroseeder. A minimum of 70% of the wheat, barley, or rice straw in the mix shall be not less than a half inch \pm a quarter inch in length. Straw particles may be longer provided that the particles can be used with the selected hydroseeder without clogging. Hydraulically applied straw mulch, as furnished by the manufacturer, may contain up to 10% paper or cotton materials in dry weight. Hydraulically applied straw mulch shall also contain 20% of wood fiber in dry weight. The combined dry weight percentage of paper, cotton, and wood fiber materials together shall be not less than 15% nor more than 30% of the hydraulically applied straw mulch. The date of installation of hydraulically applied straw mulch cover shall be less than 12 months from the date of production. The date of production of hydraulically applied straw mulch material shall be presented for the IQF's verification through ADOT.

(6) Slow-release Chemical Fertilizer and Sulfur

Chemical fertilizer shall conform to the requirements of Subsection 805-2.06 of the ADOT *Standard Specifications* and shall be the kind hereafter specified. Fertilizer shall be composed of a mixture of one part sulfur-coated urea 25-4-8, one part monammonium phosphate 11-52-0, and one part methylene urea 38-0-0. The sulfur-coated urea, a blended fertilizer 25-4-8, shall have approximately 80% of the nitrogen defined as slow release, and contain 5% iron, 10% sulfur and trace amounts of zinc and manganese. The result shall be a 24-18-2 chemical blended fertilizer, as specified herein. In addition to the fertilizer mixture, agricultural sulfur compounds, comprised of between 80% and 96% sulfur, shall be applied at the rate specified in Section 800.04(C)(2)(b). Chemical fertilizer and sulfur shall not be applied for the seeding area below the ordinary high-water mark.

(7) Compost

Compost in bulk or furnished in containers or bags, shall consist of composted organic vegetative materials and may contain worm castings. No animal manures or city biosolids shall be used in the composting or added to the compost. Prior to being furnished on the Project, compost samples shall be tested for the specified microbiological and nutrient conditions, including maturity and stability, by a testing laboratory approved for testing of organic materials. Compost test results must be within nine months from the date of the official lab test and Design-Builder shall include such results in the Seeding Package.

Compost material shall be dark brown in color with the parent material composted and no longer visible. The structure shall be a mixture of fine and medium size particles and humus crumbs. The maximum particle size shall be within the capacity of Design-Builder's equipment for application to the constructed slopes. The odor shall be that of rich humus with no ammonia or anaerobic odors.

Bulk compost shall also meet the requirements shown in Table 800-8.

Table 800-8: Bulk Compost Requirements

No.	Property	Allowable Amount
1.	Cation Exchange Capacity (CEC)	Greater than 45 meq/100 g
2.	Carbon : Nitrogen Ratio (C : N)	Less than 20 : 1
3.	pH (of extract)	5.0 – 8.5
4.	Organic Matter Content	Greater than 30%
5.	Total Nitrogen (not added)	Greater than 1%
6.	Micronutrients (added)	S, Ca, Mg, Na, Fe, Al, Mn, Cu, Zn, B
7.	Maturity Index	Greater than 50% on Maturity Index at a 10 : 1 ratio

No.	Property	Allowable Amount
8.	Stability Indicator, CO ₂ Evolution: Biologically Available C (BAC)	Less than 4mg CO ₂ -C/g OM/day is desirable. From 4 through 8mg CO ₂ -C/g OM/day is acceptable. Greater than 8mg CO ₂ -C/g OM/day is not acceptable.
The CEC lab testing method shall refer to EPA9081 at the web link: http://epa.gov/osw/hazard/testmethods/sw846/pdfs/9081.pdf		

Bulk compost is preferred and shall be applied to areas designated for seeding at the specified rate of 15 cubic yards per acre prior to final tillage for incorporation into the soil seedbed. Unless otherwise approved by ADOT, bulk compost shall be engaged to all areas where equipment can be operated for final tillage to incorporate into the soil seedbed. Bulk compost may be substituted with hydraulically applied compost for small sized projects that cover less than five acres of Class II Seeding as evaluated by the IQF, as well as approved by ADOT.

The volume of bulk compost shall be measured and documented for the IQF's verification and approval through ADOT.

In areas where bulk compost cannot be applied by broadcast methods, compost shall be applied hydraulically as per the approval of ADOT. Hydraulically applied compost shall be applied at the rate of five cubic yards (or 135 cubic feet) per acre to mini-benched slopes or on other approved areas for incorporation into the soil seedbed. For seeding areas 3:1 and flatter where bulk compost cannot be employed, hydraulically applied compost shall be utilized at the rate of five cubic yards (or 135 cubic feet) per acre as per the approval of ADOT. Hydraulically applied compost may also be combined with seed, soil amendments and fertilizer in the same slurry prior to the final mulch cover with the approval of ADOT.

The volume of hydraulically applied compost shall be measured and documented for the IQF's verification and approval through ADOT.

Hydraulically applied compost shall meet the requirements of Table 800-9 below.

Table 800-9: Hydraulically Applied Compost Properties

No.	Property	Allowable Amount
1.	Cation Exchange Capacity (CEC)	Greater than 40 meq/100 g *
2.	Carbon : Nitrogen Ratio (C : N)	Less than 20 : 1
3.	pH (of extract)	5.0 – 8.5
4.	Organic Matter Content	Greater than 35%
5.	Total Nitrogen (not added)	Greater than 1%
6.	Micronutrients (added)	S, Ca, Mg, Na, Fe, Al, Mn, Cu, Zn, B
7.	Stability Indicator, CO ₂ Evolution: Biologically Available C (BAC)	Less than 4mg CO ₂ -C/g OM/day is desirable. From 4 through 8mg CO ₂ -C/g OM/day is acceptable. Greater than 8mg CO ₂ -C/g OM/day is not acceptable.

No.	Property	Allowable Amount
8.	Moisture Content by Weight	From 15% through 25%
Notes: * When CEC is from 50 meq/100 g through 55 meq/100 g, in order to be approved, Design-Builder may add 100 pounds additional Hydraulically Applied Compost per acre to compensate for the lower-than-standard CEC value. ** The CEC lab testing method shall refer to EPA9081 at the web link: http://epa.gov/osw/hazard/testmethods/sw846/pdfs/9081.pdf		

Compost shall not be applied for the seeding area below the ordinary high-water mark. The choice between bulk compost and hydraulically applied compost shall be evaluated, as well as coordinated by the IQF according to specific Project conditions with the approval of ADOT.

(8) Seeding Operations

At least two weeks prior to beginning seeding, Design-Builder shall complete and submit a batch mix and seed application form to ADOT for approval. The batch mix form will be supplied by ADOT.

After acceptance of the form stated above, ADOT and Design-Builder in coordination with the IQF shall determine a half-acre sample demonstrative area to be seeded and mulched prior to applying seed to the remainder of the Project. Both regular straw mulch and hydraulically applied straw mulch shall be applied to the sample demonstrative area, as determined during on-site pre-activity seeding construction meeting. Both straw mulches shall be representative of the materials proposed for use on the Project. If the seeding and mulching procedures, as well as outcomes are acceptable by the IQF, Design-Builder shall begin seeding operations as specified herein. Photographic documentation of half-acre sample demonstrative seeded/mulched area shall be recorded and submitted to the IQF, as comparative standard representation (mandatory visual reference) for seeding acceptance in accordance with Section 800.04(C)(14).

Design-Builder shall notify ADOT at least two Business Days prior to commencing any phase of seeding operations for the remainder of the Project.

The equipment and methods used to distribute seeding materials must provide an even and uniform application of seed, mulch, and other materials at the specified rates.

It is Design-Builder's responsibility to furnish all suitable equipment for soil tillage, seeding, and mulching incidental to the work in this Section 800.04(C).

Unless specified otherwise in the Technical Provisions, Design-Builder shall not perform seeding operations on undisturbed soil outside the clearing and grubbing limits of the Project.

Design-Builder shall coordinate the seeding operations with the grading operations to determine mobilization frequency as embankment and cut slopes are finished throughout the duration of the Project. Design-Builder shall perform seeding only during suitable weather and soil conditions (soil-water and soil-temperature regimes) for tillage and placement of materials. Design-Builder shall not perform seeding operations when wind exceeds 10 miles per hour or conditions would prevent uniform application of materials or would carry seeding materials into areas not designated for seeding.

Seeding shall be accomplished within 14 Days after slopes and disturbed areas have been completed. Seeding operations shall comply with the applicable portions of Section 203 of the ADOT *Standard Specifications*.

Frequent mobilizations may be required to accomplish seeding as specified herein.

(9) Tillage

Where equipment can operate, the area to be seeded shall be prepared with a ripper bar, chisel plow, or with other devices to provide thorough soil cultivation to the depth specified below. It is Design-Builder's responsibility to furnish all suitable equipment for soil tillage at no additional cost to ADOT.

Where equipment is not suitable for operation, hand tillage and/or other manual methods shall be utilized as approved by ADOT. Tillage depth shall follow the requirements specified herein in accordance with assessment/measurement from the IQF, as well as acceptance by ADOT.

For areas too steep to be prepared for seeding after the slope has been completed, as determined by ADOT, tillage shall be accomplished with appropriate equipment as the slope is being constructed. On slope areas, all tillage shall be horizontal and parallel to the contours of the areas involved in order to create a roughened surface condition to reduce stormwater runoff velocity and volume. All seeding areas suitable for tillage shall be pre-tilled to promote on-site stormwater infiltration and alleviate stormwater surface runoffs, as a part of stormwater peak flow and volume reduction approaches. All seeding areas suitable for tillage shall be adequately pre-tilled to minimize pollutant loads anticipated in nonpoint source stormwater runoffs. All Project areas eroded shall be restored to the specified condition, grade, and slope as directed prior to seeding.

Cut slopes shall be prepared with ridges and deep tillage or shall be mini-benched so as to detain rainwater/moisture close to its source. On fill slopes, the operations shall be conducted in such a manner as to form minor ridges thereon to assist in retarding runoff associated erosion/pollution and favor germination of the seed through detaining rainwater/moisture close to its source.

Cut slopes flatter than 3:1 (horizontal to vertical) shall be tilled a minimum of 12 inches in depth and fill slopes flatter than 3:1 shall be tilled to a six-inch minimum depth. All slopes steeper than 3:1, and areas which could potentially be affected by underground utilities, shall be tilled to a minimum six inches in depth, and left in a roughened surface condition as they are constructed.

Tillage shall be a minimum of two inches in depth for the first 10 feet from the toe of AC wedge including shoulder build-up areas (edge of pavement build-up areas) or from the outside edge of curb and gutter.

Tillage may require passing the equipment over the area several times to provide thorough soil cultivation. Furrows from tillage shall be no more than 12 inches apart. No work shall be done when the moisture content of the soil is unfavorable to tillage.

All competitive vegetation shall be uprooted prior to seeding and the soil shall be left in a friable roughened surface condition free of clods or large stones over four inches in any dimension, and other foreign material that would interfere with the seeding operation. Exposed stones larger than four inches shall be removed and disposed of in an approved manner prior to grading and seeding. Invasive and non-native weed species shall be eradicated according to Section 800.02(B).

All disturbed soil areas covered with existing chipped wood materials and/or native plant residues, that will not interfere with the tillage operation, shall be tilled for incorporation into the soil along with chemical fertilizer, as well as soil amendments (sulfur and compost) prior to final tillage and seeding.

Regardless of the method of seeding application, all areas prepared with tilling shall have chemical fertilizer and soil amendments (sulfur and compost) uniformly applied and incorporated (disked) into the soil prior to final tillage and seeding.

Chemical fertilizer and sulfur shall be applied at the rate of 200 pounds each per acre. Bulk compost shall be applied at the rate of 15 cubic yards per acre.

Unless otherwise approved by ADOT, bulk compost shall be applied using broadcast methods to all areas where equipment can be operated. For areas where bulk compost cannot be applied by broadcast methods, as evaluated by the IQF and accepted by ADOT, compost shall be applied hydraulically at the rate specified in Section 800.04(C)(7).

Hydraulically applied compost shall not be combined with final mulch cover in the same slurry. However, seed, sulfur and fertilizer may be utilized together with hydraulically applied compost in the same slurry with the approval of ADOT. Final mulch cover shall be installed on top of all seeded areas as a separate construction sub-phase.

Slopes 3:1 and flatter shall have fertilizer, sulfur, and compost tilled/disked into a minimum of the top four inches of the surface. Slopes steeper than 3:1 shall have fertilizer, sulfur, and compost uniformly broadcast for incorporation into the soil as directed by ADOT. Unless otherwise operated together with hydraulically applied compost for the approved locations, fertilizer and sulfur shall not be applied hydraulically to areas for seeding.

Tillage shall not be applied for the seeding area below the ordinary high-water mark.

For mini-benched slopes, fertilizer, compost, and sulfur shall be applied at the specified rates with no tillage or incorporation.

Seeding shall not initiate until all tillage areas and/or mini-benched slopes are accomplished as approved by the IQF through ADOT.

(10) Hydroseed Method

Hydroseeding shall be considered as the preferred method of seed application. The contract-specified seed shall be applied in a slurry containing 200 pounds of thermally refined wood fiber and a minimum of 40 pounds tacking agent per acre. Seed shall not be in the slurry for more than 30 minutes. Hydroseeded areas shall have 100% coverage from all directions as evaluated by the IQF, as well as approved by ADOT. Hydroseeded areas shall also be mulched, as specified within 24 hours of application of the seed.

Seeds not suitable for hydroseeding methods shall be broadcast manually. Areas to be seeded manually shall be completed after the final soil tillage and prior to any hydroseeding. Design-Builder is responsible to guarantee intimate seed-soil contact. Seed application on top of straw mulch cover or hydraulically applied straw mulch cover shall be rejected. To guarantee intimate seed-soil contact, seed application on top of existing exposed chipped wood materials and/or plant residues ground cover shall be rejected. Final straw mulch cover or hydraulically applied straw mulch cover shall be applied on all seeded areas, as specified below, within 24 hours of seed application. Seeding application shall be accomplished prior to installation of straw mulch cover or hydraulically applied straw mulch cover. Combining the seed application process with the mulching process will not be acceptable. Design-Builder shall install final straw mulch cover or hydraulically applied final straw mulch cover to minimize raindrop splash erosion and wind erosion/dust, as close as possible at the source of disturbance to protect all seeded areas. Thermally-refined wood fiber shall not be utilized solely as final mulch cover to protect all seeded areas.

Design-Builder shall maintain and stabilize each area or sub-area, including edge of pavement build-up area(s), for a minimum period of 45 Days, after Substantial Completion, as evaluated by the IQF, as well as approved by ADOT. Any areas damaged from erosion, or those that have less than 90% of remaining final mulch cover, shall be re-seeded, re-mulched, and re-tacked at no additional cost to ADOT. The IQF shall assess the seeded area in comparison to the pre-established half-acre sample demonstrative area for Class II Seeding to determine the necessity of re-seeding, re-mulching, and re-tacking.

A new 45 Day maintenance period for an area is not required after re-seeding work; however the initial or original period remains in effect.

(11) Applying Straw Mulch as Final Mulch Cover on Top of Seeded Areas

Within 24 hours after each area is planted, straw mulch shall be uniformly applied at the minimum rate of 2.5 tons per acre for areas to be crimped and tacked, and minimum two tons per acre for tacked-only areas. Except for edge of pavement build-up areas, and unless otherwise specified by the IQF, straw mulch shall be applied to all seeded areas. Areas to receive hydraulically applied straw mulch, if directed by ADOT, shall be mulched in accordance with Section 800.04(C)(12).

During seeding and mulching operations, care shall be exercised to prevent drift and displacement of materials. Mulch material, which is placed upon trees and shrubs, roadways, structures, and upon any areas where mulching is not specified, or which is placed in excessive depths on mulching areas, shall be removed as directed. Mulch materials which are deposited in a matted condition shall be loosened and uniformly spread to the specified depth over the mulching areas. Any unevenness in materials shall be immediately corrected by Design-Builder. In addition, Design-Builder shall minimize production of dust or other airborne particulate matter during application of straw mulch, either by moistening the straw, modifying equipment with misters, or through other means approved by ADOT.

Except as specified in the next paragraph, straw mulch applied to seeded areas shall be immediately affixed by crimping and tacking after application. No mulch shall be applied to seeding areas which cannot be crimped and/or tacked by the end of each day. Any drifting or displacement of mulch before crimping and/or tacking shall be corrected by Design-Builder at no additional cost to ADOT.

Crimping shall not be required for areas that are steeper than 3:1. Crimping may also be waived, when specifically directed by ADOT, for areas with rocky conditions or other areas deemed unsuitable by ADOT for crimping. Straw mulch applied to such areas shall only be tacked, as specified in Section 800.04(C)(11)(b).

Prior to the application of a tacking agent, protective covering shall be placed on all structures and objects where stains would be objectionable. All necessary precautions shall be taken to protect the traveling public and vehicles from damage due to drifting spray.

(a) Anchorage by Crimping

Except as specified above in Section 800.04(C)(11), crimping shall be required for all straw mulched areas. Straw mulch shall be anchored into the soil with a heavy disc. Discs shall be flat and serrated, with at least a quarter inch thickness having dull edges, and spaced no more than nine inches apart. Straw mulch shall be anchored to a depth of at least two inches and shall not be covered with an excessive amount of soil. Anchoring operations shall be across the slopes where practical, with no more than two passes of the anchoring equipment. Immediately following the crimping operation, the crimped area shall be tacked as specified in Section 800.04(C)(11)(b).

(b) Anchorage by Tacking

Straw mulch shall be anchored by tacking, using a slurry consisting of a minimum of 150 pounds of tacking agent, 500 pounds of thermally refined wood fiber mulch, and 300 gallons of water per acre. Design-Builder may increase the quantities of components to ensure the stability of the straw mulch to provide erosion control during the 45 Day maintenance period at no additional cost to ADOT.

(12) Hydraulically Applied Straw Mulch with Tacking Agent as Final Mulch Cover on Top of Seeded Areas

Areas seeded but not practical for straw mulch, as determined by ADOT, shall have hydraulically applied straw mulch with tacking agent applied at the variable rates shown in Table 800-10.

Table 800-10: Tacking Agent Application for Hydraulically Applied Straw Mulch

No.	Slope (H:V)	Hydraulically Applied Straw Mulch (pounds per acre – dry weight)	Tacking Agent (pounds pure mucilage per acre – dry weight)	Thermally-Refined Wood Fiber (pounds per acre – dry weight)
1.	Flat to 6:1	2,000	150	400
2.	From greater than 6:1 to 3:1	2,500	150	500

No.	Slope (H:V)	Hydraulically Applied Straw Mulch (pounds per acre – dry weight)	Tacking Agent (pounds pure mucilage per acre – dry weight)	Thermally-Refined Wood Fiber (pounds per acre – dry weight)
3.	Greater than 3:1	3,000	200	600
4.	Erosive Soil Slopes or Highly Erosive Areas*	3,500	250	700
<u>Note:</u> * As determined by ADOT				

Design-Builder shall include a batch (tank) mix quantity schedule for mulch application as part of the Seeding Package and prior to mixing hydraulically applied straw mulch, thermally-refined wood fiber, and tacking agent in a slurry. Batch mixing and coverage will be monitored throughout the seeding operations. Design-Builder shall coordinate the mixing and application operations with ADOT in advance of all mixing. Fertilizer or seed shall not be mixed into any slurry for temporary erosion control mulch application. To guarantee intimate seed-soil contact, seed shall not be mixed into any slurry with hydraulically applied straw mulch as final mulch cover.

(13) Shoulder Build-up Areas — Edge of Pavement Build-up Areas

Seeding shall be applied to all new earthen and milled AC edge of pavement build-up areas. Edge of pavement build-up areas shall be tilled two inches deep from the toe of AC wedge to the toe of the edge of pavement build-up area prior to seeding.

After the two-inch tillage is complete, compost, fertilizer, seeding, and mulching shall be done in three separate steps. For the first step, fertilizer and compost shall be broadcast evenly over both types of edge of pavement build-up areas. For the next step, seed shall be applied by hydroseeding for both types of areas. For the third step, seeded edge of pavement build-ups comprised of milled AC shall have hydraulically applied straw mulch and tacking agent applied, and earthen edge of pavement build-up areas shall have straw mulch or hydraulically applied straw mulch applied, with a tacking agent in either case. No crimping shall be required.

The application rate of hydraulically applied straw mulch and tacking agent shall be as specified in Table 800-10.

(14) Seeding Acceptance

After application, ADOT will inspect seeded areas or sub-areas for conformance to the contract requirements. Design-Builder shall correct, to the satisfaction of ADOT, any areas not conforming to the specifications.

Design-Builder shall maintain and stabilize each area or sub-area, including edge of pavement build-up areas, until 90% coverage is attained and/or approved by the IQF, as well as approved by ADOT. Any areas damaged from erosion, or that have less than 90% of remaining final mulch cover, shall be re-seeded, re-mulched, and re-tacked at no additional cost to ADOT. The IQF shall assess the seeded area in comparison to the pre-established half-acre sample demonstrative area for Class II Seeding to determine the necessity of re-seeding, re-mulching, and re-tacking.

(15) Ground Treatment

Design-Builder shall install granite mulch and decomposed granite at all areas of the Wild Horse Pass Blvd/Sundust Rd TI impacted by the Work so that the installed material resists erosion (rilling of the slope).

Design-Builder shall prepare Color Samples of each ground treatment material proposed, in each color, and supplier proposed. The sample must be spread to a 10 foot by 10 foot area to a minimum depth of two inches to represent how the desert pavement will look. Materials include, but are not limited to, granite mulch, decomposed granite, and rock mulch. Design-Builder shall submit Color Samples to ADOT in accordance with Table 800-12.

The approved suppliers of granite mulch and decomposed granite are included in Table 800-11.

Table 800-11: Granite Mulch and Decomposed Granite Suppliers

No.	Color	Granite Name	Supplier
1.	Coral	Apache Pink	Kilauea Crushers
		Pink Coral	Red Mountain Mining
		Palomino Coral	Kalamazoo Materials
		Desert Coral	Kilauea Crushers
2.	Black	Black Hawk Basalt	Earth Stone Rock
		Ash	Rock Pros USA

(16) Landform Graphic Layout (Wild Horse Pass Boulevard/Sundust Road)

A portion of the landform graphics at Wild Horse Pass Blvd/Sundust Rd TI will need to be reconstructed due to construction impacts. The Landscape Architect must layout the landform graphic and prepare a written notification that layout is complete. Design-Builder shall submit the Landform Graphic Layout Written Notification to ADOT in accordance with Table 800-12. 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 satisfactory visual results to fit the site conditions and provide maximum visual appeal from the roadway, ramps, and bridge perspectives.

The graphic configurations must be laid out with flexible material and spray painted florescent along the centerlines of the graphics, for approval. Paint shall not conflict with Arizona 811 standard colors.

Design-Builder shall install rebar with safety caps and line string with polyvinyl chloride pipe to provide reference points and centerlines for subsequent paver and/or metal edging installation.

Spray paint shall be used to mark graphic beginning and ending points and other lines.

The Landscape Architect is responsible for, and must review, Design-Builder'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.

(17) Intentionally Left Blank**(18) Intentionally Left Blank****(19) Landscape Establishment**

Design-Builder shall maintain and establish the landscape elements at Wild Horse Pass Blvd/Sundust Rd TI for a period of 365 Days after Project Substantial Completion (the "Landscaping Establishment Period") to promote sustained growth and health of all plants and in accordance with Section 807 of the ADOT *Standard Specifications*. The Project ROW, excluding paved surfaces, shall be maintained in a condition free of noxious and invasive species at all times, including all unwanted plant growth, trash, debris, and litter, in accordance with the Noxious and Invasive Species Control Plan and the following list of activities.

The landscaping establishment Work must include the following:

- (a) Plant replacement in accordance with Section 800.04(C)(19)(d);

- (b) Care of all installed plant materials as part of the Project in accordance with accepted horticultural practices;
- (c) Supplying and applying irrigation water sufficient to keep the installed plants in a healthy condition;
- (d) Repairing, adjusting or replacing bracing;
- (e) Repairing public or weather damage to all landscape areas;
- (f) Furnishing and applying sprays, dust and/or cages to combat vandalism, disease, insects and other pests;
- (g) Noxious weed control;
- (h) Removal of trash, debris, and litter; and
- (i) Pruning.

Reconfiguring, modifying, maintaining, repairing, replacing and operating the temporary drip water distribution system as specified by Design-Builder, to meet the landscape establishment needs of the Project. Design-Builder has the option of maintaining the nursery during the Landscaping Establishment Period.

Design-Builder shall remove the tree ties and stakes at the end of the Landscaping Establishment Period or as directed by ADOT. All trees must stand erect on their own without stakes when brought to the Site. If a tree cannot stand on its own upon removal of nursery stakes, Design-Builder shall remove and replace the tree. Design-Builder shall be responsible for keeping a log during the Landscaping Establishment Period. The log shall contain a record of the time and date of field inspections, watering time durations and dates, fertilizer applications, repairs, replanting's, and other operations conducted by Design-Builder. Design-Builder shall present the format for recording these activities to ADOT for approval at the pre-activity meeting prior to undertaking the work.

As part of its traffic control for the landscaping establishment work within the clear zone, Design-Builder shall provide a crash attenuator truck or other protection.

(a) Plant Protection

Design-Builder shall provide protections for all landscape plants, which protections must include eradication or control of insects, mites, fungi, and non-fungus diseases and protection from foraging animals. Design-Builder may only apply appropriate insecticide, miticide and fungicide with the prior approval of ADOT. Design-Builder shall not employ insecticides, fungicides and miticides during the D&C Period that cause the extermination of any landscape plant material, or cause damage to the growth characteristics such that plants might not be able to recover in a normal manner.

Design-Builder shall ensure that chemical stains do not cause damage to any portion of the Site or improvements including landscape plant materials. If staining or damage nevertheless occurs, Design-Builder shall make repairs or replacements at Design-Builder's expense and to the satisfaction of ADOT. Application of chemicals must be in such a manner to not cause injury to the personal health of anyone working on the Project, observing, or passing by. Design-Builder shall ensure that no puddles or pools of water that might contain toxic amounts of chemicals remain after completion of operations. Design-Builder shall not allow chemicals to fall on or migrate to areas other than the Work Site. Design-Builder shall follow all Laws and local codes regarding application methods and personnel.

(b) Establishment Inspections

ADOT will perform visual inspections in the presence of Design-Builder once every 30 Days during the Landscaping Establishment Period, unless ADOT and Design-Builder agree to other arrangements in writing. Design-Builder shall modify the maintenance practices and water delivery to the plants to maintain optimum growing conditions.

During the Landscaping Establishment Period, Design-Builder shall provide the necessary care to keep all plant material equal in health and vigor under the use of standard horticultural practice to combat detriments, including rodents, mammals, pest, disease, bacteria, mites, fungi, nutrient deficiency, harmful exposure to sunlight, and drought conditions. ADOT will also inspect the new plant material for symptoms that indicate poor health. Poor health symptoms include items such as the following: wrinkled, loose or damaged cambium layers; evidence of transplant 'shock' (i.e. leaf drop and discolored foliage); no observable improvement to the condition of the new plant material after it has received adequate irrigation or rain; change in color not consistent with color changes to identical species existing in the given area; and failure to leaf out when identical specie of the existing area are consistently found in leaf. ADOT will use the foregoing criteria to determine if new plant material is in close conformity in health and/or vigor and determined unacceptable. Within the cure period set forth in TPA 105-1 (Maintenance During Construction), Design-Builder shall replace the unacceptable or dead stock plant materials per Section 800.04(C)(19)(d).

Transporting any plant materials for the Landscaping Establishment Period activities must comply with all State and local requirements. Design-Builder shall be responsible for obtaining all necessary permits and tags for transporting plant materials on public roadways; ADOT will not make any separate payment to Design-Builder for the permits. Design-Builder shall make permits and tags available to ADOT upon request.

(c) Planted Stock and Seeding Establishment

Design-Builder shall apply approved pre-emergent herbicide in all unseeded areas 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 as depicted on the project plans, and as directed by ADOT.

The application shall first be completed midway through the Landscaping Establishment Period and the second application shall be completed 30 Days prior to completion of the Landscaping 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.

Design-Builder shall maintain the existing seeded areas on the Project, including any erosion repair, reseeding and/or restoration, as directed by ADOT.

(d) Plant Replacement

Every 60 Days during the Landscaping Establishment Period, Design-Builder shall provide, where required, plant replacements. The replacement size must be at least 36" box for trees; five gallon for creosotes; ocotillos at six or more canes and six- to eight-feet tall; six inches minimum to two feet high for barrels; and six feet high for saguaros, unless otherwise required by ADOT. Design-Builder acknowledges that the D&C Work includes plant material replacement.

Design-Builder shall remove and replace all dead or unhealthy plant stock as directed within 21 Days from the date of inspection. Design-Builder shall notify ADOT in writing when Design-Builder has completed the replacement work.

(e) Plant Survivability

Nursery stock is to be in a healthy and viable condition and must have a survivability rate of 100% at the end of the Landscaping Establishment Period. Health and viability of nursery stock is at the sole discretion of ADOT. The replacement size must be as shown in Section 800.04(C)(19)(d).

Salvaged stock is to be in a healthy and viable condition and must have a survivability rate of 90% at the end of the Landscaping Establishment Period. Health and viability of salvaged stock is at the sole discretion of ADOT. The replacement size must be as shown in Section 800.04(C)(19)(d).

Seeding must have an average coverage rate of 75% of seeded ground at the end of the Landscaping Establishment Period. If 75% coverage of seeded areas is not attained, Design-Builder is to reseed all deficient areas until 75% coverage is attained.

(f) Establishment Irrigation

During each watering cycle during the Landscaping Establishment Period, Design-Builder shall supply water to a minimum depth of 12 inches to all saguaros and trees (regardless of species). Design-Builder shall provide adequate water to each installed plant to maintain optimum health through the completion of its applicable Landscaping Establishment Period.

800.05 Submittals

Table 800-12 reflects a list of Submittals identified in this Section 800 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 800-12: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Preliminary Plant Salvage Operation Plan</u>	3	At the same time as the Preliminary Design Submittal for the landscape Plans	800.02(A)
2.	<u>Final Plant Salvage Operation Plan</u>	3	Not less than 40 Business Days prior to commencing salvage operations	800.02(A)
3.	<u>Noxious and Invasive Species Control Plan</u>	3	Not less than 15 Business Days prior to any ground disturbance	800.02(B)
4.	<u>Noxious and Invasive Species Site Inspection Report</u>	4	Not later than 10 Business after the noxious and invasive species site inspection	800.02(B)
5.	<u>Aesthetics and Landscape Master Plan</u> ^B	3	Prior to the first pre-design coordination meeting	800.02(C)
6.	<u>Irrigation Water Use and Conservation Plan</u>	3	At the same time as the Preliminary Design Submittal for the landscape Plans	800.02(D)
7.	<u>Irrigation System Inventory</u>	3	Prior to issuance of NTP 2	800.02(E)
8.	<u>Preliminary Plant Availability List</u> ^B	3	At the same time as the Preliminary Design Submittal for the landscape Plans	800.03(D)(1)
9.	<u>Final Plant Availability List</u> ^B	3	At the same time as the Final Design Submittal for the landscape Plans	800.03(D)(1)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
10.	<u>Irrigation System Zoning Plan</u>	3	Prior to the Preliminary Design Submittal for the irrigation plans	800.03(D)(3)
11.	<u>DPP</u>	3	Not less than 60 Days prior to earthwork activities	800.03(D)(7)
12.	<u>Formliner Shop Drawings and Working Drawings</u> ^B	3	Prior to fabrication	800.04(B)(1)(b)
13.	<u>Mockups</u> ^B	3	Not less than 40 Business Days prior to construction of the associated Element	800.04(B)(2)
14.	<u>Paint Manufacturer Specifications</u> ^B	3	Not less than 40 Business Days prior to painting	800.04(B)(4)
15.	<u>Paint Draw Downs</u> ^B	3	Not less than 40 Business Days prior to painting	800.04(B)(4)(a)
16.	<u>Plant Availability Letter</u> ^B	3	Not less than 60 Days prior to landscape activities	800.04(C)(1)(a)
17.	<u>Seed Availability</u> ^B	3	Not less than 60 Days prior to landscape activities	800.04(C)(2)(a)
18.	<u>Seed Subcontractor and Supplier Information</u>	4	At the same time as the Preliminary Design Submittal for the landscape Plans	800.04(C)(2)(b)
19.	<u>Seeding Packages</u>	3	Not less than 60 Days prior to landscape activities	800.04(C)(2)(c)
20.	<u>Color Samples</u>	3	Not less than 60 Days prior to construction of associated element	800.04(C)(15)
21.	<u>Landform Graphic Layout Written Notification</u> ^B	3	Upon completion of landform graphic layout	800.04(C)(16)

Notes:**A. Levels of Review**

1. Sole discretion approval (DBA Section 3.01(B)(1))
2. Good faith discretion approval (DBA Section 3.01(B)(2))
3. Review and comment (DBA Section 3.01(B)(3))
4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))

B. Community review required, ADOT will coordinate review.

810 Erosion Control**810.01 General Requirements**

Design-Builder shall perform all erosion control Work in compliance with the requirements in Section 810 of ADOT *Standard Specifications*.

810.02 Intentionally Left Blank**810.03 Design Requirements****(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all erosion control Design Work in accordance with the standards, manuals, and guidelines listed in Table 810-1.

Table 810-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADEQ	Fact Sheet for the Issuance of an AZPDES Construction General Permit
2.	ADOT	Erosion and Pollution Control Manual for Highway Design and Construction, 2020
3.	ADOT	Erosion/Sediment & Water Quality Protection Best Management Practices Details and Stored Specification
4.	ADOT	Standard Specifications for Road and Bridge Construction 2021

(B) General

Design-Builder shall provide erosion control details in accordance with TPA 810-1 (Rock Mulch Protection) and any additional ADOT erosion/sediment and water quality protection best management practices details that may apply. These details are shown at the following website: <https://azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development>. Design-Builder shall provide a detail specifying a 4'-0" wide x 1'-0" deep (minimum) band of rock riprap/rock mulch adjacent to the edges of existing to remain and proposed slope paving, and at the ends of walls where concentrated flows are conveyed down the slope, in accordance with the requirements of Section 810-2.03 of the ADOT *Standard Specifications for Sieve Size Gradation A and/or Gradation C*. Erosion control improvement features shall comply with the aesthetic requirements in Section 800.

810.04 Construction Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all erosion control Construction Work in accordance with the standards, manuals, and guidelines listed in Table 810-2.

Table 810-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	ADOT	Post-Construction Best Management Practices Manual for Water Quality, 2013

810.05 Submittals

Table 810-3 reflects a list of Submittals identified in this Section 810 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

Table 810-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	See TP Section 104.17 for erosion control related Submittals			
Notes: A. Levels of Review 1. Sole discretion approval (DBA Section 3.01(B)(1)) 2. Good faith discretion approval (DBA Section 3.01(B)(2)) 3. Review and comment (DBA Section 3.01(B)(3)) 4. Submit/receive and file or comment/no hold point (DBA Section 3.01(B)(4))				

End Section

DIVISION IX INCIDENTALS

925 Land Surveying**925.01 General Requirements**

Design-Builder shall perform all land surveying Work in compliance with the requirements in this Section 925. Design-Builder shall provide all surveying, construction staking, and layout required to complete the Work in accordance with the Contract Documents.

925.02 Administrative Requirements

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

(A) Survey Data Provided

The existing survey and mapping data from ADOT is contained in the RIDs. Design-Builder shall review existing survey and mapping data and determine the requirements for updating or extending the survey and mapping data. Design-Builder shall be responsible for the precision, accuracy, and comprehensiveness of all survey and mapping data. Design-Builder shall be responsible for all surveys necessary for the Work.

925.03 Design Requirements**(A) Standards, Manuals, and Guidelines**

Design-Builder shall perform all land surveying Design Work in accordance with the standards, manuals, and guidelines listed in Table 925-1. Design-Builder shall meet the Community's additional land surveying Design Work requirements for areas within the Community's property boundary.

Table 925-1: Design Standards, Manuals, and Guidelines

No.	Organization	Name
1.	Arizona State Board of Technical Registration	Arizona Revised Statutes Title 33
2.	Arizona State Board of Technical Registration	Arizona Boundary Survey Minimum Standards
3.	ADOT	Intermodal Transportation Division Engineering Technical Group, Engineering Survey Section Manual of Field Surveys
4.	ADOT Right-of-Way Plans Section	Right-of-Way Corridor Survey & Analysis Guidelines
5.	ADOT Engineering Survey Section	General Specifications for Photogrammetric Mapping
6.	United States Department of the Interior Bureau of Land Management Cadastral Survey	Manual of Surveying Instructions

No.	Organization	Name
7.	Gila River Indian Community	Land Surveying Minimum Standards
8.	United States Department of the Interior Bureau of Land Management Cadastral Survey	Geographic Coordinate Database (GCDB) Naming Conventions

(B) Units of Measure

Design-Builder acknowledges and agrees as follows:

- (1) The unit of linear measurement is international feet;
- (2) Linear measurements and station/offsets must be expressed to two places to the right of the decimal point;
- (3) Coordinates must be expressed to three places to the right of the decimal point;
- (4) Angular measurement units must be in degrees, minutes, and seconds expressed to the nearest second; and
- (5) Directional units must be in bearings expressed in degrees, minutes, and seconds expressed to the nearest second.

(C) Survey Control

Design-Builder shall establish Project survey control by utilizing those primary horizontal control points depicted on the *Results of Survey for Project No. 010 MA 161 F0252*, by EPS Group Inc and the *Results of Survey for Project No. 010 PN 176 F0336*, by Geomatics Consulting Group, both included in the RIDs. Design-Builder shall verify survey control information contained in the above mentioned results of surveys and shall immediately, before proceeding with any land surveying Design Work, shall notify ADOT of any discrepancies. Design-Builder shall establish secondary survey control points throughout the Project alignment at horizontal intervals not to exceed 2,500 feet. These points must include horizontal and vertical data sufficient to control construction. These survey control points and benchmarks must be shown on the Plans and expressed in northing, easting, elevation, station, and offset.

(1) Survey Control Datum

Design-Builder shall base the horizontal coordinate system on North American Datum 1983 (HARN 92), Arizona State Plane Coordinate System, Central Zone. Design-Builder 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 Project No. 010 MA 161 F0252*, by EPS Group Inc and the *Results of Survey for Project No. 010 PN 176 F0336*, by Geomatics Consulting Group. Design-Builder shall base the vertical control on North American Vertical Datum 1988, originating and terminating at a First Order Benchmark.

(2) Survey Control Adjustments and Accuracy

Design-Builder 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 $0.035 \times$ square root of miles in accordance with the ADOT *Intermodal Transportation Division*

Engineering Technical Group Engineering Survey Section Manual for Field Surveys;
and

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

After achieving these accuracy levels, Design-Builder shall apply a least squares adjustment to the secondary survey control points. Design-Builder shall also proportionately apply vertical control errors to established elevations.

(D) Design Survey Records and Reports

Design-Builder shall maintain neat, accurate, and complete documentation in connection with all land surveying Design Work. This documentation must include all calculations, mapping, staking and field crew daily diaries. Design-Builder 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:

- (1) All survey calculations related to control survey and design survey data;
- (2) Documentation of the information and rationale used to perform the land surveying Work;
- (3) Field notes;
- (4) Data collection downloads;
- (5) Research information, including deeds, title reports, assessors' data, plats, records of surveys, etc.;
- (6) Maps; and
- (7) CADD files.

The Survey Manager must sign and seal the Design Survey Report. Design-Builder shall submit the Design Survey Report to ADOT in accordance with Table 925-3.

925.04 Construction Requirements

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all land survey Construction Work in accordance with the standards, manuals, and guidelines listed in Table 925-2. Design-Builder shall perform all land surveying Construction Work under the supervision of the Survey Manager. Design-Builder shall meet the Community's additional land surveying Construction Work requirements for areas within the Community's boundary.

Table 925-2: Construction Standards, Manuals, and Guidelines

No.	Organization	Name
1.	Arizona State Board of Technical Registration	Arizona Revised Statutes Title 33
2.	Arizona State Board of Technical Registration	Arizona Boundary Survey Minimum Standards

No.	Organization	Name
3.	ADOT	Intermodal Transportation Division Engineering Technical Group, Engineering Survey Section Manual of Field Surveys
4.	ADOT	Construction Manual
5.	ADOT	Standard Specifications
6.	ADOT Right-of-Way Plans Section	Right-of-Way Monumentation Procedures & Standards
7.	United States Department of the Interior Bureau of Land Management Cadastral Survey	Manual of Surveying Instructions
8.	Gila River Indian Community	Land Surveying Minimum Standards
9.	United States Department of the Interior Bureau of Land Management Cadastral Survey	Geographic Coordinate Database (GCDB) Naming Conventions

(B) Perpetuation of Survey Monuments

Design-Builder shall locate and maintain all existing survey monuments, including section line, right-of-way, and roadway monuments. Design-Builder shall re-establish all disturbed monuments in accordance with the construction standards listed in Table 925-2. Design-Builder shall ensure that the referencing and re-setting of any impacted monumentation is signed and sealed by the Survey Manager and shall be recorded in the office of the appropriate County Recorder within 90 Days of completing the survey according to *Arizona Revised Statutes Title 33 Chapter 1*. Design-Builder shall prepare a Corner Recordation Package that includes a copy of the corner recordation documentation, including applicable land corner record with the corner's surface northing and easting coordinates. Design-Builder shall submit the Corner Recordation Package to ADOT in accordance with Table 925-3. Documentation along with Corner Record for corners falling within the Community's property boundary shall also be provided to the Community for their review and recordation. Design-Builder shall submit Copies of all field notes, computation sheets and calculations that relate to the boundary surveys to ADOT and to the Community, if applicable, in accordance with Table 925-3.

(C) Construction Surveys

Design-Builder shall verify Project right-of-way boundaries and location as parcels become available for Design-Builder's use, prior to construction staking at such parcels.

Unless specifically defined to be performed by the ADOT, tasks within or referenced within, the ADOT *Construction Manual*, Section 1150 Contractor Construction Surveying shall be conducted by Design-Builder.

Design-Builder shall stake all locations on the Site prior to and during all Construction Work. Design-Builder shall place control stakes containing station, offset, and elevation, along each geometrical alignment and replace if disturbed. These control stakes shall be located every 100 feet along each alignment and no more than 50 feet away from all Construction Work.

Design-Builder shall prepare a Written Outline as required by Section 925 of the ADOT *Standard Specification* and Section 1150-1 General Instructions of the ADOT *Construction Manual*. Design-Builder shall submit the Written Outline to ADOT in accordance with Table 925-3.

If Design-Builder proposes to replace any procedures in this Section 925 or in the ADOT *Construction Manual*, it must be included with the Written Outline and as a Deviation Request.

(D) Construction Survey Records, As-Built Surveys and Reports

Design-Builder shall maintain accurate and complete documentation for all land surveying Construction Work. These records shall include all calculations, mapping, staking notes, cut sheets, corner records, and field crew daily diaries. Design-Builder shall perform as-built surveys for the Project in accordance with ADOT *Construction Manual*. Design-Builder shall compile and prepare a Construction Survey Report that includes the materials listed in the ADOT *Construction Manual* and the following:

- (1) All survey calculations related to control survey and design survey data;
- (2) Documentation of the information and rationale used to perform the land surveying Construction Work;
- (3) Field notes;
- (4) Cut sheets;
- (5) Data collection downloads;
- (6) Maps;
- (7) Corner records;
- (8) CADD files; and
- (9) As-built survey.

The Construction Survey Report must be sealed by a land surveyor registered in the State. Design-Builder shall submit the Construction Survey Report to ADOT in accordance with Table 925-3.

925.05 Submittals

Table 925-3 reflects a list of Submittals identified in this Section 925 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT and the Community, if applicable, in the formats described in Section 113.02 and required by the Community:

Table 925-3: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Design Survey Report</u>	4	Prior to submitting the first <u>Preliminary Design Submittal</u>	925.03(D)
2.	<u>Corner Recordation Package</u> ^B	4	Not later than 10 Business Days of recordation and as condition of Substantial Completion	925.04(B)

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
3.	<u>Copies of all field notes, computation sheets and calculations</u>	4	Concurrent with the Record Drawings Submittal	925.04(B)
4.	<u>Written Outline</u>	2	Prior to issuance of NTP 2	925.04(C)
5.	<u>Construction Survey Report</u>	4	At the same time as the <u>Record Drawings</u> Submittal	925.04(D)
<p><u>Notes:</u></p> <p>A. Levels of Review</p> <ol style="list-style-type: none"> 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>) <p>B. Community review required, ADOT will coordinate review.</p>				

926 Project Office and Facilities**926.01 General Requirements**

Design-Builder shall perform all Project Office Work in compliance with the requirements in this Section 926.

Design-Builder shall post the following items at the Project Office:

- (A) Name and telephone number of Design-Builder's EEO policy enforcement officer;
- (B) Emergency contact telephone numbers; and
- (C) OSHA postings and other Project safety and security information, as identified in the Safety Management Plan. Additional office requirements for the Project are identified in other sections of the Technical Provisions.

Requirements for space and equipment in this Section 926 is intended only to convey the requirements of the space reserved for ADOT's exclusive use. Design-Builder shall determine facilities and equipment requirements for Design-Builder's counterpart spaces.

(A) Standards, Manuals, and Guidelines

Design-Builder shall perform all Project Office Work in accordance with the standards, manuals, and guidelines listed in Table 926-1.

Table 926-1: Standards, Manuals, and Guidelines

No.	Organization	Name
1.	NFPA	National Electrical Code
2.	IEEE	National Electrical Safety Code (ANSI Standard C2)
3.	ANSI/TIA/EIA	568-B - Commercial Building Telecommunication Cabling Standard
4.	ANSI/TIA/EIA	569-D - Telecommunications Pathways and Spaces
5.	ANSI/TIA/EIA	606-C - Administration Standard for Telecommunications Infrastructure
6.	ANSI/TIA/EIA	607-C - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
7.	BICSI	Telecommunications Distribution Methods Manual
8.	BICSI	Network Design Reference Manual
9.	BICSI	Telecommunications Cabling Installation Manual

926.02 Project Office Requirements

Design-Builder shall provide and maintain in good operating condition and repair the Project Office and other building space, including office space for ADOT, and all facilities, equipment, and parking for vehicles necessary to design and construct the Project. The Project Office shall be fully functional and compliant with all requirements in this Section 926.02 and be available for occupancy at least 14 Days prior to issuance of NTP 2. The ADOT office space in the Project Office shall accommodate a staff size of approximately 60 people composed of ADOT, ADOT representatives, and guests. Design-Builder shall provide sufficient office space in Design-Builder's office in the Project Office for simultaneous occupancy by both design and construction personnel.

(A) Location

Except where noted elsewhere in the Contract Documents, Design-Builder shall continue to be collocated with ADOT in the Project Office until 90 Days after Substantial Completion 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 five miles of the Project ROW. The Project Office may be further than five miles from the Project ROW if approved by ADOT. ADOT's facilities area shall be a separate area than Design-Builder's facilities area, unless otherwise specified in the Contract Documents.

(B) Office Facilities and Equipment

Design-Builder shall comply with the following for the ADOT facilities area:

- (1) General: Design-Builder 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.
- (2) Code requirements: Design-Builder shall comply with all applicable building and fire code requirements.
- (3) Access and security: Design-Builder shall provide a separate ADOT entrance(s)/exit(s) to and from the building, secured with a multi-zone alarm with electronic door lock(s) plus a deadbolt lock(s). The ADOT and Design-Builder office facilities shall utilize separate alarm zones. Design-Builder 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 and offices). Design-Builder shall provide software for maintaining access to ADOT office spaces. Design-Builder shall not access the ADOT office space without ADOT's prior authorization.
- (4) Lighting and electricity: Design-Builder 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-footcandles of light at 30 inches above finish floor). Design-Builder shall provide each office space with at least four duplex receptacles, with minimum circuit capacity of 20 amperes.
- (5) Flooring: Design-Builder shall provide carpeted flooring with non-static flooring in server room.
- (6) Window coverings: Design-Builder shall provide blinds (no drapes) for all windows.
- (7) Power circuits. Design-Builder 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.
- (8) Network/electrical outlets: Design-Builder shall provide each office and conference room with a minimum of two wall plates (comprising three RJ-45 jacks; two data and one voice if required in the space) per room, and one modular furniture plate (comprising three RJ-45 jacks; two data and one voice if required in the space) 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). Design-Builder shall install all data/voice outlets near power outlets. All data and voice cabling shall use Category 6 unshielded twisted pair with plenum rating. Design-Builder shall place a minimum of two duplex NEMA 5-15 or 5-20 outlets within six feet of each work surface.
- (9) Network/data network: Each of the data outlets shall provide a minimum of 1,000 megabits second (Mbps) switched ethernet connection. ADOT will provide switches to connect all

networked outlets for the ADOT workstations in the Project Office. Design-Builder shall provide patch cables long enough to safely reach from the data network outlets to the designated computer(s) and printer(s). Design-Builder 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 shall allow for ADOT-provided computer equipment to be installed and operated. Maximum length for horizontal cabling shall be 295 feet, with an additional 30 feet for patch cables. Patch cables from workstation jack to phone or computer shall be a minimum of 15 feet. As-built drawing of the network with floor plan, workstation jack numbers, and no hand-drawn red lines shall be provided in electronic format and minimum 24-inch by 24-inch hard copy in the server room.

(10) Code standards. Each location shall allow for ADOT-provided computer equipment to be installed and operated. Maximum length for horizontal cabling shall be 295 feet, with an additional 30 feet for patch cables. Patch cables from workstation jack to phone or computer shall be a minimum of 15 feet. As-built drawing of the network with floor plan, workstation jack numbers, and no hand-drawn red lines shall be provided in electronic format and minimum 24-36 inch by 24-inch hard copy in the server room.

(11) Janitorial and trash services: Design-Builder 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 shall include sweeping and mopping floors, vacuuming of carpeted areas, cleaning restrooms and break rooms, emptying wastebaskets, weekly dusting, and replenishment of Design-Builder-furnished toilet paper, paper towels and/or hand dryer, soap, and other restroom/kitchen supplies.

(12) Recycling services: Design-Builder shall provide recycling receptacles for paper, cardboard, plastic bottles, and aluminum cans., including recycling pickup service for the ADOT office space.

(13) Exterior maintenance: Design-Builder shall maintain the exterior areas of office spaces, including access to parking areas and landscaping.

(14) Accessibility and licensing: All facilities shall 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). Design-Builder shall obtain approval of the Project Office Layout Plan from all applicable Governmental Entities;

(15) Restrooms and entry space: Design-Builder shall provide access to women's and men's restrooms and building entry space; these spaces may be shared with Design-Builder's office space/staff. All office space shall be accessible 24 hours a day, 7 days a week, including holidays. If restrooms are not directly accessible from a common building entry/lobby, Design-Builder may provide separate restrooms for the ADOT office space. If it is necessary to locate restrooms within the ADOT office space, Design-Builder shall increase the ADOT office space allocation to accommodate these spaces.

(16) HVAC: Design-Builder shall provide electrical, and heating, ventilation, and air-conditioning (HVAC) systems capable of maintaining temperatures between 65°F and 75°F in all spaces, 24 hours a day, 7 days a week, including holidays. The server room shall have dedicated air-28 conditioning/cooling system capable of maintaining temperatures between 70°F and 76°F and 20-60% relative humidity at all times.

(17) Utilities: Design-Builder shall obtain all permits and approvals and provide all installation, maintenance, and utility service costs throughout the Work.

- (18) Emergency contacts: Design-BUILDER shall provide a 24-hour emergency contact telephone number for Design-BUILDER.
- (19) Emergency equipment: Design-BUILDER shall provide emergency equipment, such as first aid kits and defibrillators. Design-BUILDER 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.
- (20) Insurance: Design-BUILDER shall obtain and maintain insurance covering the Project Office in accordance with DBA Exhibit 14 (Insurance Coverage Requirements).
- (21) Disposal and removal: Design-BUILDER shall dispose of and remove all Project Office facilities, including Design-BUILDER's facilities, and provide any Site restoration Work needed to return the Site to the original condition, and as directed by ADOT.

(C) Offices, Rooms, and Areas

Although actual spaces may vary, the following nominal size requirements apply for ADOT areas, offices, and rooms:

- (1) General: Design-BUILDER shall wire all offices, cubicles, conference rooms, and work areas for power, telephone, Wi-Fi, and network connectivity. Design-BUILDER shall equip the reception area, offices, cubicles, and work areas with lighting, trash receptacles, desks, chairs, and multi-line telephones.
- (2) Offices:
- (a) Design-BUILDER shall provide six enclosed office rooms of 12 feet by 12 feet (144 square feet) each with walls extending full height to the ceiling. All offices shall have a desk, desk chair, small round meeting table with two chairs, two extra chairs for visitors, three foot by six foot wall mounted whiteboard with dry erase markers and eraser, a file cabinet, a five-shelf book shelf, and individual lockable doors and keys.
- (b) Design-BUILDER shall provide 12 enclosed office rooms of 10 feet by 10 feet (100 square feet) each with walls extending full height to the ceiling. All offices shall have a desk, desk chair, two extra chairs for visitors, three foot by six foot wall mounted whiteboard with dry erase markers and eraser, a file cabinet, a five-shelf book shelf, and individual lockable doors and keys.
- (c) Work surface area in all office rooms shall be a minimum of six linear feet with a 40 linear inch depth to allow for the installation of two monitors and still have room for spreading out books, reports, plans, or maps.
- (3) Cubicles: Design-BUILDER shall provide 40 total cubicle area spaces (nominally 42 square feet each). Each cubicle area shall have a desk chair and lockable storage with keys. Two administrative cubicles shall be located adjacent to one of the 144 square foot office rooms. Work surface area in all cubicles shall be a minimum of seven linear feet with and 24 inch depth to allow for the installation of two monitors and still have room for spreading out books, reports, plans or maps.
- (4) Conference rooms: Design-BUILDER shall provide the ADOT office space with three enclosed conference rooms with walls extending full height to the ceiling. All conference rooms shall have dimmable lighting. Each conference room shall be equipped with a four foot by eight foot wall mounted whiteboard with dry erase markers and eraser.
- (a) One conference room shall be equipped with a table and chairs at the table to seat at least 24 people and accommodate at least 50 people in the room.

- (b) Two conference rooms shall be equipped with a table and chairs at the table to seat at least 12 people and accommodate at least 24 people in each.
- (5) Additional chairs: Design-Builder shall provide 30 stackable rolling chairs in addition to the desk chairs required in offices and cubicles and required at each table in the conference rooms.
- (6) Reception area: Design-Builder shall provide an approximately 150 square foot total receptionist space with a waiting area with seating for at least three visitors, arranged with a reception cubical at a nominal seven feet by six feet (42 square feet) and visitors' waiting area at a nominal eight feet by 12 feet (96 square feet). Design-Builder and ADOT will jointly determine other furniture. The reception area shall include a receptionist desk and desk chair.
- (7) Work room: Design-Builder shall provide one open work area (nominally 150 square feet) with 30-inch high wall-mounted counters (15 lineal feet of counter-top space, 36 inches deep). Design-Builder shall provide six additional six-foot portable tables. Design-Builder shall locate the workroom near the center of the ADOT office space.
- (8) Storage and filing: Design-Builder shall provide one lockable space for storage and filing, nominally 10 feet by 15 feet (150 square feet). Design-Builder shall provide two five-drawer lateral filing cabinets.
- (9) Server room: Design-Builder 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 shall be accessible via a hallway entry not sharing any walls with the exterior of the building and shall 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. Rack mounted 10 outlet surge/power strips shall be provided per rack. Design-Builder shall locate all patch panels (phone and data) within the designated server room. Floor-mounted seven foot racks shall be bolted to the floor, and 12-inch rack to wall kits. A Panduit vertical and horizontal wire management system shall be included. Backboard shall consist of ¾-inch AC grade plywood backboard, fire rated with white paint and one square not painted to show the fire rating on the backboard. Design-Builder shall maintain server room temperature with a dedicated air-conditioning/cooling system, as described above. Design-Builder shall provide uninterruptable power supply (UPS) system in the server room capable of providing spike and brown out protection for all Design-Builder and ADOT server room equipment.
- (10) Kitchen/break room: Design-Builder shall provide ADOT with access to a common break room/kitchen with a 21 cubic foot refrigerator with freezer compartment, ice machine, sink with hot and cold running water, including waste disposer, and 2.0 cubic foot microwave oven on an individual circuit. Tables and chairs for 40 staff shall be provided. Design-Builder shall provide two electric water coolers with hot and cold dispenser, with a minimum of 25 five-gallon bottles of purified water per week and water cups as needed. The break room/kitchen shall have a storage closet (minimum of 22.5 square feet) and cabinets with drawers and countertops. The kitchen/break room space may be shared with Design-Builder's office space/staff. If it is necessary to locate the kitchen/break room within the ADOT office space, Design-Builder shall increase the ADOT office space allocation to accommodate these spaces.
- (11) Parking area: Design-Builder shall provide a parking area for ADOT for at least 50 vehicles (35 staff/15 visitors). The parking area shall be reasonably level (all-weather surface and all-weather access). The parking area shall include an additional lockable fenced parking area to accommodate five ADOT vehicles. The fence shall be at least six feet high with three-strand barbed wire. All gates shall be 12 feet wide and lockable.

- (12) Exterior lighting: Design-Builder shall provide sufficient exterior security lighting that is automatically activated at low light levels to maintain two footcandles of lighting within the building and parking areas.

(D) Office Condition

The ADOT office space shall be in good and serviceable condition, at least of the same quality as that of Design-Builder's counterpart office space and available for occupancy as specified in Section 926.02. Design-Builder and ADOT will participate in a facility condition survey prior to and at the completion of occupancy. ADOT will return possession of Design-Builder-provided ADOT office space to Design-Builder 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 Design-Builder-Related Entity.

(E) Losses or Damage

If ADOT office space in the Project Office, related facilities, or fixtures is destroyed, damaged, or stolen then, except as provided below, Design-Builder shall, at its cost and within 10 Business Days after the occurrence of such Loss, repair the items to their original condition or replace them. However, in the case of lost, damaged, or stolen office equipment (e.g., computers, facsimile machines, copy machines, and printers), replacement shall occur within two Business Days. Notwithstanding the foregoing, however, if the Loss occurs as a direct result of the willful misconduct of ADOT or its personnel or consultants and such Loss is not covered by insurance actually carried, or deemed to be carried pursuant to DBA Section 19.02 (Claims Prosecution; Use of Insurance Proceeds), by Design-Builder, then Design-Builder shall repair or replace the affected items within the timeframes specified herein, and ADOT will reimburse Design-Builder for the actual reasonable documented costs incurred to repair or replace, including the amount of any deductible.

(F) Project Office Layout Plan

Design-Builder shall prepare a Project Office Layout Plan that includes the layout of the offices, cubicles, conference rooms, kitchen/break room, etc. specified in Section 926. Design-Builder shall work collaboratively with ADOT in regard to any options of layout and configuration that may be available in the development of the Project Office Layout Plan. Design-Builder shall submit the Project Office Layout Plan to ADOT in accordance with Table 926-2.

926.03 Computers and Equipment

(A) General Requirements

Design-Builder shall use:

- (1) Commercial off-the-shelf equipment when available;
- (2) New and suitable original equipment manufacturers (OEM) hardware components for the purposes specified herein; and
- (3) Hardware of the OEM's current design and equipped with the current revisions, manuals, and equipment updates at the time of issuance of NTP 1. Hardware shall comply with all applicable quality control (QC) standards of the OEM.

Design-Builder shall provide, install, and maintain the following for all ADOT workstations in the Project office, unless otherwise specified below:

- (1) Telephone: ADOT will provide telephones.
- (2) File server: ADOT will provide any file servers necessary.
- (3) Internet: ADOT will provide for ADOT network. GEC will provide for GEC network.

- (4) Printer services. Design-BUILDER shall provide the following printers with a maintenance contract to include paper, toner, and next Business Day maintenance service at the Project Office:
- (a) Two high-speed ethernet network color duplex printers capable of 11-inch by 17-inch output with a print quality up to 600 by 600 dpi and at least one tray with a 500 sheet capacity with operable finishing (staple, collate, hole punch). One printer shall be connected to the network for ADOT use and one shall be connected to the Guest network.
- (5) Copier services. Design-BUILDER shall provide maintain the following multifunction devices with a maintenance Design-BUILDER to include paper, toner, and next Business Day service at the Project Office:
- (a) Two high-speed ethernet network color duplex multifunction devices capable of printing, scanning, and copying 11-inch by 17-inch media with a print quality up to 1,200 x 1,200 dpi, copy resolution of 600 x 600 dpi, and scan resolution up to 600 dpi and at least one tray with a 500 sheet capacity with operable finishing (staple, collate, hole punch). One device shall be connected to the network for ADOT use and one shall be for the Guest network.
- (6) Wide area network: ADOT will provide wide area network.
- (7) IT Equipment: Design-BUILDER shall provide rack space, cooling, power, and cable management to allow for the installation and operation of additional network equipment supplied by ADOT. Design-BUILDER 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. Design-BUILDER shall provide 120 VAC power for the additional network equipment with a minimum of four power outlets of style NEMA 5-20R for the client's equipment. Design-BUILDER shall provide cable management systems to support running patch cabling from the floor cabling patch panels to each of the cabinets. Design-BUILDER shall maintain a secure equipment room with controlled and restricted access for use in operating all the IT. The equipment room shall be climate controlled and capable of maintaining an ambient temperature range of 70°F to 76°F with a relative humidity between 20-60% at all times. Design-BUILDER shall terminate all Category 6 unshielded twisted pair cable in data patch panels in the server room and any additional telecommunications room(s).
- (8) Wide local area network (WLAN): ADOT will provide a WLAN for ADOT users. Utilizing the most current industry 802.11 standard, Design-BUILDER shall provide a WLAN in the Project Office. Each WLAN shall provide a unique service set identification (SSID) and be protected using current WLAN best practices, with one WLAN for guest users.
- (9) Conference rooms: Design-BUILDER shall provide an audio-visual solution to support the Project Office conference rooms. Design-BUILDER shall provide video teleconferencing facilities and either a projector and screen or at least 90-inch monitor with video teleconferencing connections in each conference room. Design-BUILDER shall provide a conference telephone for each conference room facility.
- (10) Disaster recovery: Design-BUILDER 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 shall outline the data backup scenario used to ensure proper backup of all Project data. Design-BUILDER shall submit the Computer Disaster Recovery Plan to ADOT in accordance with Table 926-2.

(11) Non-disruptive operations: During normal business hours, network downtimes shall not be due to hardware or software system improvements and/or repairs. Design-Builder shall provide a minimum of one Day's advance written notice to ADOT for all scheduled routine maintenance. In case emergency maintenance (e.g., equipment failure, virus detection, malware, etc.) cannot be scheduled during non-peak hours, Design-Builder shall notify ADOT immediately. Design-Builder shall, within two Days after any emergency maintenance, prepare an Action Report that includes an explanation of the root cause, the solution employed, and a prevention plan to prevent future re-occurrence of the cause of the emergency maintenance. Design-Builder shall submit the Action Report to ADOT in accordance with Table 926-2.

(B) Network Administration Plan

Design-Builder shall prepare a Network Administration Plan that describes all computer elements described in Section 926.03. Design-Builder shall submit the Network Administration Plan to ADOT in accordance with Table 926-2.

(C) IT Equipment Demobilization Plan

Design-Builder shall prepare an IT Equipment Demobilization Plan that includes Design-Builder's strategy for the methods and processes to discontinue the use of all computer and related equipment, and how Design-Builder shall erase Project-sensitive information from the equipment. Design-Builder shall submit the IT Equipment Demobilization Plan to ADOT in accordance with Table 926-2.

(D) Project Vehicles

Project vehicles used by Design-Builder shall comply with all vehicle registration, load restriction, and vehicle delineation requirements when used on roads open to the public. Design-Builder shall establish adequate parking for Project staff personal vehicles as needed at the Project Office location. Design-Builder may provide parking specific staging areas away from work activities within Project ROW that shall be directly accessible from public roads as approved by ADOT. Parking specific staging areas shall be constructed of a hard surface temporary asphalt pavement, or AC millings and parking stalls defined with pavement markings. Parking specific staging areas shall be maintained through Substantial Completion as required for work activities.

Storage of construction vehicles and parking of personal vehicles belonging to Design-Builder staff will not be permitted on public roadway, shoulders, or private parking lots without the owner's approval. Non-marked vehicles, including personal vehicles, belonging to Design-Builder staff will not be permitted to be in use or parked in any work zone.

926.04 Construction Yards

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

926.05 Submittals

Table 926-2 reflects a list of Submittals identified in this Section 926 and is not intended to be an all-inclusive listing of Submittals. Unless otherwise indicated, Design-Builder shall submit all Submittals in electronic format. At a minimum and unless otherwise specified in the Contract Documents, Design-Builder shall submit the following to ADOT in the formats described in Section 113.02:

1

Table 926-2: Submittal Summary

No.	Submittal	Level of Review ^A	Submittal Schedule	TP Section Reference
1.	<u>Project Office Layout Plan</u>	2	Not later than 120 Days after the issuance of NTP 1	926.02(F)
2.	<u>Computer Disaster Recovery Plan</u>	4	Not later than 120 Days after the issuance of NTP 1	926.03(A)
3.	<u>Action Report</u>	4	Not later than 2 Days of the emergency maintenance	926.03(A)
4.	<u>Network Administration Plan</u>	2	Not later than 120 Days after the issuance of NTP 1	926.03(B)
5.	<u>IT Equipment Demobilization Plan</u>	3	Not less than 30 Business Days prior to Substantial Completion	926.03(C)
Notes: A. Levels of Review 1. Sole discretion approval (<u>DBA Section 3.01(B)(1)</u>) 2. Good faith discretion approval (<u>DBA Section 3.01(B)(2)</u>) 3. Review and comment (<u>DBA Section 3.01(B)(3)</u>) 4. Submit/receive and file or comment/no hold point (<u>DBA Section 3.01(B)(4)</u>)				

2

End Section

DIVISION X MATERIALS

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