Geotechnical Risk Allocation on Design-Build Construction Projects: The Apple Doesn't Fall Far From The Tree

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Unexpected geotechnical conditions (often referred to as "differing site conditions" or "DSCs") can have devastating consequences on a construction project.[1] Consequently, when contractors encounter what they consider to be a DSC, they inevitably will request contractual relief from the project owners for its impact. Predictably, many owners will deny these requests, arguing, among other things, that the situation was not unexpected and/or that the contractor bore the risk of the condition. DSCs have led to a substantial number of federal and state decisions addressing a myriad of issues and providing a thorough backdrop for the construction industry to understand and respond to the perils of such encounters.

For the most part, the vibrant history of DSC litigation has occurred on design-bid-build projects. With design-build gaining prevalence as a project delivery system, however, the natural question to ask is whether its use significantly influences the risks associated with geotechnical designs and conditions. This article systematically addresses this question. First, it reviews the history of DSCs, focusing largely on case law involving design-bid-build projects. Next, it compares the case law on design-build projects, concerning not only DSCs, but also the general geotechnical design process. This article concludes by examining some techniques to address and mitigate geotechnical risk on design-build jobs.

I. GEOTECHNICAL RISK, GENERALLY

On a design-bid-build project, the owner, through its design team, bears full responsibility for designing a structure's founda-

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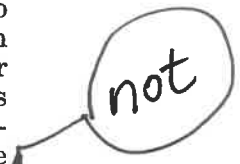
[1]Classic DSCs occur during excavation when rock is found much closer to the surface than represented in owner-furnished, pre-bid, soil borings. Another typical situation involves harder-than-expected rock that requires a change in excavation methods. Other examples include encountering saturated soils where the contractor reasonably expected dry or perched soil, or uncovering unforeseen, abandoned foundations or piles. Natural or manmade (such as unmarked utilities), DSCs all involve a nasty surprise.

ter, or a variety of artificial or manmade objects, such as pipelines, artifacts, or debris. Despite the prevalence of these common problems, a virtually limitless number of physical conditions qualify for recovery under the clause. Despite the wide latitude of Type 1 conditions, some contractors have tried to expand the scope of the DSC clause beyond physical conditions to include problems that simply increase the contractor's costs, such as the general unavailability of access to a work site, material or labor cost increases, and political, legal or governmental changes in circumstances. Not surprisingly, courts routinely reject extending the definition of DSC to these types of problems, as they are "physical conditions."[7] Likewise, efforts to extend the DSC clause to physical conditions not present at the time of contracting have met with a similar lack of success.[8]



The "at the site" requirement suggests that the project location is the only place where a DSC can occur. This geographic limit raises the question, however, of how to handle claims impacting the project work arising "off-site," such as at borrow pits, quarries and access roads. The few cases addressing this "at site" issue suggest that such off-site areas nonetheless can trigger a DSC remedy, if their use was so integral to a contractor's performance that the owner should be responsible for the conditions encountered off-site.[9]

Kaiser Indus. Corp. v. United States[10] allowed recovery for off-site, unexpected conditions under a DSC theory. There, the government owned the only two quarries in the area and made them available without charge to the contractor as approved sources of rock suitable for the project. Specific information was provided to bidders as to the type of rock and the amount of waste bidders could expect from each quarry. The contractor selected one of the two quarries, but it abandoned operations when it encountered over 60% waste and found it increasingly difficult to locate suitable rock. Once the contractor moved to the government's other quarry, it easily obtained the requisite quantity and quality of rock, experiencing only a waste factor of 10%. The government's rejection of the claim was overturned, with the court commenting that:

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[7] *See generally*, Michael C. Loulakis, Brian P. Waagner, Heather C. Splan, Differing Site Conditions, Construction Claims Deskbook, 136-37 (Robert S. Brams and Christopher Lerner, eds., Wiley Law Publications, 1996).

[8] Kiewit Const. Co. v. U.S., 56 Fed. Cl. 414, 423 (2003) (contractor constructing a cofferdam under performance specification held responsible for determining the necessity of supplementing the minimum dewatering system recommended by the government necessary to perform the work).

[9] *Kiewit*, 56 Fed.Cl. at 137.

[10] Kaiser Industries Corp. v. U. S., 169 Ct. Cl. 310, 340 F.2d 322 (1965).

5. Pre-Contract Execution Site Inspection

Most construction contracts require the contractor to investigate the site before bidding, to ascertain the project's conditions. For example, FAR § 52-236-3 provides:

> The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its costs, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

The site investigation clause goes hand-in-glove with the DSC clause, because if the contractor should have discovered the condition through a reasonable inspection, then it cannot recover. As the court in *McCormick Construction Co. v. United States* stated: "a contractor who knows or should have known the facts of the conditions at the site is estopped to claim a changed condition. Where he knows or has opportunity to learn the facts, he is unable to prove . . . that he was misled by the contract."[36]

The level of investigation required of the contractor in a pre-bid inspection is not excessively burdensome. It is not required to discover latent conditions by performing an inspection that would require more time or expertise than that possessed by a reasonable contractor. The limited nature of the contractor's responsibility comports with the holding in *Foster*, where the court found that the duty to investigate the site must be balanced against the contractor's right to rely on government-provided site information:

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condition, requirement of ~~required~~ notice meant more than contractor's mere expression that there "might" be a differing site condition); Gratech Co., Ltd. v. North Dakota Dept. of Transp., 2004 ND 61, 676 N.W.2d 781, 786 (N.D. 2004) (DSC claim denied for lack of written notice).

[36] 18 Cl. Ct. 259, 265 (1989) (*quoting* Vann v. U. S., 190 Ct. Cl. 546, 420 F.2d 968, 982 (1970)).

equitable adjustment because a ground-based inspection would not have disclosed the latent condition, either.[42]

In sum, a contractor, learning that the information provided by an owner is incorrect as a result of that contractor's pre-bid investigation, cannot claim a DSC—it did not reasonably rely upon the owner-supplied information.[43] Likewise, courts have rejected claims because contractor should have discovered during a reasonable site investigation the unforeseen condition.[44]

6. Disclaimers and Exculpatory Clauses

It is well-recognized that some owners have attempted to escape liability for DSC claims through disclaimers or exculpatory clauses. Generally, these attempts fail—particularly when the exculpatory language directly conflicts with the purpose and broad language of the DSC clause, which expressly puts the risk of unforeseen conditions on the owner. This subject was directly addressed in *Foster*, which stated:

> Even unmistakable contract language in which the government seeks to disclaim responsibility for drill hole data does not lessen the right of reliance. The decisions reject, as in conflict with the changed conditions clause, a "standard mandatory clause of broad application," the variety of such disclaimers of responsibility? that the logs are not guaranteed, not representations, that the bidder is urged to draw their own conclusions.[45]

Given the strong public policy behind DSC clauses, most courts have been reluctant to enforce disclaimers.[46] Allowing the owner to disclaim the validity of its pre-bid information essentially

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[42] *See also*, Appeal of Peabody N.E., Inc., A.S.B.C.A. No. 26410, 85-1 B.C.A. (CCH) ¶ 17867, 1985 WL 16582 (Armed Serv. B.C.A. 1985) (failure to inspect the site excused because the latent defect would not have been revealed); In re Southeast Asian Labor Services, A.G.B.C.A. No. 93-107-1, 94-3 B.C.A. (CCH) ¶ 27108, 1994 WL 469211 (Dep't Agric. B.C.A. 1994) (the Board noted a more thorough site investigation, even if possible, would not have revealed more).

[43] *See* Martin K. Eby Const. Co., Inc. v. Jacksonville Transp. Authority, 436 F. Supp. 2d 1276, 1310 (M.D. Fla. 2005), judgment aff'd, 178 Fed. Appx. 894 (11th Cir. 2006) (finding no evidence of reliance upon the misleading plans provided by the owner because the contractor undertook an exhaustive pre-bid investigation and obtained information contradicting owner's specifications).

[44] *See* Randa/Madison Joint Venture III v. Dahlberg, 239 F.3d 1264 (Fed. Cir. 2001) (DSC claim denied where contractor reviewed bidding logs, but failed to inspect available boring samples).

[45] Foster Const. C. A. & Williams Bros. Co. v. U. S., 193 Ct. Cl. 587, 435 F.2d 873, 888 (1970).

[46] *See* Fehlhaber Corp. v. U.S., 138 Ct. Cl. 571, 151 F. Supp. 817, 825 (1957) (Changes clause not altered by the broad disclaimer contained in specifications that geotechnical information was provided "for information only").

would render the DSC clause meaningless.[47] Given this perspective, a variety of cases treat disclaimers as invalid when they use clauses stating that: (a) geotechnical data is general information, and the contractor has responsibility to conduct its own investigation;[48] and (b) the contractor may encounter poor conditions.[49]

Consider *Syblon-Reid Co.*,[50] where the disclaimer stated both that the quantities in the contract documents were estimates only and that each bidder must determine the volume of material to be removed. The Interior Dept's. Board of Contract Appeals invalidated the disclaimer because it was impossible to accurately estimate the quantity of sediment to be excavated. In that uncertain situation, the contractor could safely base its bid on the government's "estimate."

Despite both the traditional reluctance of courts to accept disclaimers and the strong policy inherent in the DSC clause, several decisions still side with the government. The owner in *Frontier Foundations, Inc. v. Layton Construction. Co*,[51] provided boring logs from a representative area near the site, but expressly limited their use by stating that the logs were not part of the contract documents and were not a warranty of subsurface conditions. The contract also included a site inspection clause which specifically stated that the contractor's failure to become familiar with the prevailing work conditions would not relieve the contractor from responsibility for performing work at no additional cost to the owner. The court held that reliance on the logs was not reasonable because of the clear and specific disclaimer.[52]

Another case, *Millgard Corp. v. McKee/Mays*,[53] dealt with a disclaimer that data provided by the owner was: (a) only for the

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[47]*See* SAE/Americon-Mid Atlantic, Inc. v. General Services Admin., G.S.B.C.A. No. 12294, G.S.B.C.A. No. 12523, G.S.B.C.A. No. 12690, G.S.B.C.A. No. 12710, G.S.B.C.A. No. 12841, G.S.B.C.A. No. 12842, G.S.B.C.A. No. 12907, 98-2 B.C.A. (CCH) ¶ 30084, 1998 WL 753312 (Gen. Services Admin. B.C.A. 1998) (citations omitted).

[48]*See* Kaiser Industries Corp. v. U. S., 169 Ct. Cl. 310, 340 F.2d 322 (1965) (government's broad statements concerning no guarantee that designated quarries would yield sufficient rock of the required size or durability did not excuse government's liability).

[49]*See* Morrison-Knudsen Co. v. U. S., 184 Ct. Cl. 661, 397 F.2d 826, 841 (1968) (broad disclaimer provisions failed).

[50]Appeal of Syblon-Reid Co., I.B.C.A. 1313-11-79, 82-2 B.C.A. (CCH) ¶ 16015, 1982 WL 7792 (I.B.C.A. 1982).

[51]Frontier Foundations, Inc. v. Layton Const. Co., Inc., 818 P.2d 1040 (Utah Ct. App. 1991).

[52]*Frontier Foundations,* 818 P.2d at 1043.

[53]Millgard Corp. v. McKee/Mays, 49 F.3d 1070 (5th Cir. 1995).

bidders' information; (b) not a warranty of subsurface conditions and that the owner took no responsibility for the accuracy, true location and extent of soil tests prepared by others; and (c) not a part of the contract documents. The bidding instructions also contained a clause that the bidders were expected to perform their own, independent site investigation. In finding that the contractor could not establish a Type 1 DSC, the 5th Circuit Court of Appeals accepted that the soil report was not part of the contract documents, which meant that there was no indication of the site conditions in the contract. It also specifically rejected the idea that this finding would "gut" the DSC clause, because Type 2 DSCs were not impacted by the disclaimer.[54]

B. Alternative Theories of Risk Shifting in the Absence of a DSC clause

Despite the strong policy behind DSC clauses, some owners reject them and try to shift all risks to the contractor. Some contractors seeking recovery for unexpected site conditions in the absence of a DSC clause have argued successfully that the owner nevertheless should bear the risk of unknown or undisclosed subsurface conditions. winning theories generally consist of claims for breach of the implied warranty of specifications, misrepresentation, superior knowledge or mutual mistake.[55] Many contractors plead all of these theories, in the alternative.

1. Implied Warranty of Specifications

The bedrock for contractors seeking recovery under an implied warranty of specifications is *United States v. Spearin,*[56] the venerable 1918 U.S. Supreme Court decision. *Spearin* established that a project owner impliedly warrants the suitability of its plans and specifications and the contractor is not responsible for the consequences of defects in those plans and specifications. Importantly, the fundamental dispute in *Spearin* was over which party bore the risk of a DSC, although the decision itself never mentions the term "differing site condition."

The case involved a federal contract to build a dry dock in a Navy yard in Brooklyn, New York. Part of the design included the diversion and relocation of a six foot sewer system. When the Navy furnished its design to bidders, the government knew that the sewer to be diverted had a history of capacity and overflow problems. While it relayed this information to some bidders, it

[54] *Millgard,* 49 F.3d at 1073.

[55] A comprehensive examination of these theories exceeds the scope of this article.

[56] U.S. v. Spearin, 54 Ct. Cl. 187, 248 U.S. 132, 39 S. Ct. 59, 63 L. Ed. 166, 42 Cont. Cas. Fed. (CCH) P 77225 (1918).

was the basis of the contractor's argument in *Spearin*). An owner breaches the second warranty when a contractor accurately follows the plans and specifications to completion, yet the construction either cannot be completed as directed or results in functional deficiencies. Therefore, *Spearin* is viable even without a DSC clause in the contract, as both implied warranties can support recovery for unexpected site conditions.[63]

Several cases address the nuances of raising *Spearin* for DSC claims. For example, in *Miami-Dade Water and Sewer Authority v. Inman, Inc.,*[64] a Florida state court examined whether a contractual disclaimer trumped the *Spearin* doctrine. After it completed the project, the contractor sued, alleging that the Authority's drawings were "in many instances in error as to the location of existing utilities or failed to show existing utilities, which resulted in [the contractor] incurring additional costs due to delay and extra work."[65] The Authority admitted the allegations, but denied liability, relying in part on the following terms: "[the drawings were] prepared from the most reliable data available to the Engineer. This information is not guaranteed, however, and it shall be this Contractor's responsibility to determine the location, character and depth of existing utilities."[66] Although the contractor argued that the *Spearin* doctrine invalidates similar exculpatory clauses and disclaimers, the court disagreed, holding that where there is no misrepresentation, a disclaimer or similar clause "may . . . negate the liability of the contracting authority."[67]

2. *Fraud—Misrepresentation*

Contractors confronted with a classic Type I DSC, but lacking a DSC clause, still may assert that the owner misrepresented information upon which the contractors detrimentally relied. This common law approach may include both intentional misrepresen-

[63]Not all states have fully endorsed the concepts of *Spearin*. The fifty-state guide to the applicability of *Spearin* is provided in the Appendix to the accompanying article, Buckner Hinkle, Robert J. MacPherson, and James F. Nagle, *Still Spearin After All These Years?*, Journal of the American College of Construction Lawyers, Summer 2017.

[64]Miami-Dade Water and Sewer Authority v. Inman, Inc., 402 So. 2d 1277 (Fla. 3d DCA 1981).

[65]*See Miami-Dade*, 402 So.2d at 1277.

[66]*Miami-Dade*, 402 So.2d at 1277.

[67]*Miami-Dade*, 402 So.2d at 1278.

eral years after-the-fact," to complain about the adequacy of its testing plan and methodology.[91] The Board disagreed, finding that because the DOS had notified Fluor that it did not believe there was a valid DSC, Fluor knew that its claim would be contested. In response to Fluor's argument that the DOS was obligated to investigate the site and provide direction once Fluor raised notice of the DSC, the board stated:

> The agency did provide direction, rejecting the conclusion that a differing site condition existed and permitting the contractor to proceed as it deemed appropriate under the design-build contract. The agency is not contending that the ultimate foundation design was improper; rather, the agency contends that it is not obligated to provide additional time and/or money under the contract because the contractor has not established the existence of collapsible soils (that is, no differing site condition has been demonstrated to have existed).[92]

Fluor Intercont'l., Inc. v. Department of State, in part, reiterates the fundamental point that every DSC claim requires proof of what the site condition actually was (as well as how it differed from either the contract documents or normal circumstances).

Another embassy case likewise found that the design-builder failed to demonstrate that it had a differing geotechnical site condition. In *Liquidating Trustee Ester du Val of KI Liquidation, Inc. v. United States*,[93] Kullman Industries, Inc. ("KI") contracted with the DOS for the design and construction of the Tajikistan embassy. KI ultimately was terminated for default and went bankrupt as a result of the project, in large measure because of the geotechnical costs it incurred.

The parties fundamentally disagreed over how geotechnical costs were to be treated within the fixed price contract. KI allocated very little money for foundation and geotechnical work, assuming that this work was an allowance, and that the contract price would be increased to reflect the actual costs. The DOS did not construe the foundations' price as open-ended, and it as-

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RESPONDENT., CBCA 1559, 13 B.C.A. (CCH) ¶ 35334, 2013 WL 3271335, *12 (U.S. Civilian BCA 2013).

[91] FLUOR INTERCONTINENTAL, INC., D/B/A J.A. JONES INTERNATIONAL, APPELLANT, v. DEPARTMENT OF STATE, RESPONDENT., CBCA 1559, 13 B.C.A. (CCH) ¶ 35334, 2013 WL 3271335, *13 (U.S. Civilian BCA 2013).

[92] FLUOR INTERCONTINENTAL, INC., D/B/A J.A. JONES INTERNATIONAL, APPELLANT, v. DEPARTMENT OF STATE, RESPONDENT., CBCA 1559, 13 B.C.A. (CCH) ¶ 35334, 2013 WL 3271335, *13 (U.S. Civilian BCA 2013).

[93] Liquidating Trustee Ester Du Val of KI Liquidation, Inc. v. United States, 116 Fed. Cl. 338 (2014).

- The design-builder is retained by the agency before the design has been significantly advanced.
- The design-builder is selected primarily, if not exclusively, on qualifications, and provides cost estimates on an open-book basis.
- The parties work collaboratively in making design decisions based on cost, operability and other considerations.

Under PDB, the design-builder performs its work in two phases. Phase 1 is often called the "Preliminary Services Phase." The design-builder works with the agency and its consultants to create or confirm the project's basis of design, and then advance that design. The design-builder provides ongoing cost estimates as that design develops, to ensure that the agency's budgetary requirements are being achieved. When the design has achieved an appropriate level of definition, the design-builder will provide a formal commercial proposal (including the overall contract price) for Phase 2 services. The proposal is often established when the design is approximately 50-75% complete, but it can occur anytime up to when the design is 100% complete, depending on the amount of control the owner desires to maintain over the design definition.

Phase 2 is often called the "Final Design and Construction Phase." Once the agency and design-builder agree upon commercial terms, the design-builder will complete the design and construct the facility in accordance with those commercial terms (i.e., the agreed-upon price and schedule). The design-builder also will be responsible for any testing, commissioning, and other services that have been agreed upon. If, for any reason, the parties cannot reach agreement on the Phase 2 commercial terms, then the agency has the right to exercise an "off-ramp"—where it can use the design and move forward with the project through a design-bid-build procurement, with another design-builder, or any other way it deems appropriate.

Several direct benefits to geotechnical risk allocation arise by using PDB. First, the parties may collaborate on the extent of the geotechnical investigation appropriate in Phase 1, before the design-build price is determined. Second, the parties can transparently address contingencies for geotechnical risk (i.e., DSCs) during negotiations for Phase 2 services. Finally, because of the flexibility of the process, owners and design-builders can determine jointly what foundation design makes the most sense during the design development stage.

C. Geotechnical Baseline Reports (GBRs)

GBRs are documents developed to define the baseline conditions on which contractors will base their bids and select their means, methods and equipment, and that owners will use to

determine the merits of contractor claims for DSCs.[142] They are used on many civil projects, particularly tunnels, and often contain information about: (a) the amounts and distribution of different materials along the selected alignment; (b) the description, strength, compressibility, grain size, and permeability of the existing materials; and (c) groundwater levels and expected groundwater conditions.

A GBR establishes geotechnical data and then converts it to expected behavior and design assumptions, as opposed to leaving such information open for interpretation among the parties. This approach creates an excellent way for the owner to define baselines for bidding and then use them to assess DSC claims.

D. Dispute Review Boards (DRBs)

DRBs operate as a matter of course on many complex, design-build projects, particularly when the risk of DSCs are high—such as tunnels and major bridges. Simply stated, the DRB is a group of three experts appointed at the outset of the project to consider disputes that the parties present to them and provide recommendations for resolution. DRBs can effectively resolve DSC issues in a cost-effective and timely manner by providing real-time assessments of the parties' positions. In moving projects forward, DRBs have earned wide-spread recognition.

V. CONCLUSION

Geotechnical issues arise on design-build projects, just as they do on design-bid-build jobs. Accordingly, many of these issues arise from both types of contracts, especially disputes over the sufficiency or accuracy of pre-award information, the materiality of the differences between the data provided and actual site conditions, notice of discrepancies, and the impact of disclaimers. Conflicts unique to design-build focus on the development of the foundation design and the scope of the geotechnical investigation associated with the design process—neither of which concern a general contractor under design-bid-build.

While a healthy body of federal case law on design-build has developed, few state court cases address design-build disputes of any type, let alone those directly associated with geotechnical risk and DSC claims. The federal design-build case law, as well as DSC cases under design-bid-build, most likely will serve as the precedent used by state courts confronted with a geotechnical and/or DSC claim on a design-build project.

It is appropriate to close with some thoughts on disclaimers of

[142] Douglas D. Gransberg and Michael C. Loulakis, Geotechnical Information Practices in Design-Build Projects, National Cooperative Highway Research Program Synthesis 429 (2012).

geotechnical risk for design-build projects. At bid time, design-builders have no more clairvoyance or "smarts" about geotechnical conditions than do geotechnical engineers and contractors working on design-bid-build projects. Consequently, little can justify an owner in disclaiming the ability of a bidder to reasonably rely upon geotechnical pre-bid information provided by that owner. The *Metcalf* case addressed this dilemma directly, and owners that attempt to create a more airtight disclaimer likely will remain unsuccessful—particularly with a DSC clause in the contract.

On the other hand, design-build does offer some unique ways to openly and efficiently allocate geotechnical risk. Because of the integrated design and construction process, the owner can shift the risk of inherent in foundation design to the design-builder through a performance specification. Depending on the procurement process, the owner may be able to reward the design-build proposer with the most efficient/effective foundation design. Also, if the owner uses progressive design-build, it can be directly involved in geotechnical investigation programs, foundation designs, and contingencies for DSCs. In other words, owners should be looking at the design-build process as a way to reduce geotechnical risk—and not try to shirk responsibility by using disclaimers that likely will fail and, perhaps most importantly, be unfair.

APPENDIX
EXTRACT

General Conditions of Contract between the Virginia Department of Transportation and Design-Builder (2016)

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2.2 Scope Validation and Identification of Scope Issues

2.2.1 Scope Validation Period. The term "**Scope Validation Period**" is the period of time that begins on Design-Builder's receipt of Department's Notice to Proceed and extends for one hundred twenty (120) days from such date of receipt, unless otherwise stated in Exhibit 1. During the Scope Validation Period, Design-Builder shall thoroughly review and compare all of the then-existing Contract Documents, including without limitation the RFP Documents and the Proposal, to verify and validate Design-Builder's proposed design concept and identify any defects, errors, or inconsistencies in the RFP Documents that af-