



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

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(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

Isolated Wetland General Permit Authorization

IDEM Number: IWGP 2020-154-49-JBT-A
Project Name: I-465 Reconfigure
Authority: 327 IAC 2
IC 13-18-22 and 327 IAC 17
Date of Issuance: March 24, 2020
Impacts must be completed by: November 19, 2024

Approved:

Brian Wolff, Branch Chief
Surface Water, Operations, and Enforcement
Office of Water Quality

Applicant and Permittee: Indiana Department of Transportation
Attention: Crystal Rehder
100 North Senate Avenue, IGCN 642-ES
Indianapolis, IN 46204

Agent: Parsons
Attention: Thomas Warrner
101 West Ohio Street, Suite 2121
Indianapolis, IN 46204

Project Location: Marion County
Two Sections of Interstate-465.
Section A/B extends from 0.30 mile west of U.S. Highway 31
(Latitude 39.7, Longitude -86.155) to Interstate-65 (Latitude
39.703, Longitude -86.11).
Section C extends from the south end of the Interstate-70
interchange (Latitude 39.71, Longitude -86.2645) to just west
of the Mann Road interchange (Latitude 39.6927, Longitude -
86.243).

Project Description: Placement of clean earthen fill, concrete, aggregate, riprap, and fiber optic conduit into 0.013 acre of isolated emergent wetland identified as Wetland 13, Wetland 19, and Wetland 46.

Authorized Impacts

| WETLAND IMPACT(S) | Area of Impact (acres) | | |
|---|------------------------|-------------|----------|
| | Emergent | Scrub/Shrub | Forested |
| Type of Impact: | | | |
| Placement of clean earthen fill, concrete, aggregate, riprap, and fiber optic conduit | 0.013 | | |

Project Mitigation

| MITIGATION BANKS AND IN-LIEU FEE | Wetland (Acres) | | |
|----------------------------------|-----------------|-------------|----------|
| | Emergent | Scrub/Shrub | Forested |
| Type of Purchase | | | |
| In-Lieu Fee Credits | 0.013 | | |

Mitigation Location: Upper White Service Area

Application Signed: March 2, 2020

Application Received: March 2, 2020

It is the judgment of this office the project is within the scope of the applicable State Isolated Wetland General Permit as described within IC 13-18-22 and 327 IAC 17-3. The project and the requisite wetland compensatory mitigation must be executed as per the information contained in your Notice of Intent and in compliance with the applicable provisions of IC 13-18-22 and 327 IAC 17.

Other Applicable Permits

If the land disturbance for the overall project will disturb one (1) acre or more, a construction site run-off general permit (327 IAC 15-5) is required for the project. Permit coverage must be obtained prior to the initiation of land-disturbing activities. Information related to obtaining permit coverage is available at www.in.gov/idem/stormwater or by contacting the IDEM, Stormwater Program at 317-233-1864 or via email at Stormwat@idem.IN.gov.

You must obtain any other permits or authorizations that may be required for this project or related activities from IDEM or any other agency or person. You may wish to contact

the Indiana Department of Natural Resources at 317-232-4160, or toll free at 877-928-3755, concerning the possible requirement of a Natural Freshwater Lake or Construction in a Floodway Permit.

The Isolated Wetland General Permit does not:

- (1) authorize impacts or activities outside the scope of this general permit;
- (2) authorize any injury to persons or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;
- (3) convey any property rights of any sort, or any exclusive privileges;
- (4) preempt any duty to obtain federal, state or local permits or authorizations required by law for the execution of the project or related activities; or
- (5) authorize changes in the plan design detailed in the Notice of Intent.

Failure to comply with the terms and conditions of the general permit may result in enforcement action against you. If an enforcement action is pursued, you could be assessed up to \$25,000 per day in civil penalties. You may also be subject to criminal liability if it is determined that the permit was violated willfully or negligently.

If you have any questions about the isolated wetland general permit, please contact James Turner, Project Manager, by email at JTurner2@IDEM.IN.Gov or by telephone at 317-234-6352.

Enclosures: Isolated Wetland General Permit (IWGP) Permit Conditions
Isolated Wetland General Permit (IWGP) Construction Report

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ISOLATED WETLAND GENERAL PERMIT CONSTRUCTION REPORT
Authority: 327 IAC 17-2-4(7)

Project Name: DES 18020785 I-465 Reconfiguration
Permittee: INDOT

I hereby certify the discharge of fill material into 0.013 acre of Class I non-forested isolated wetland has been executed as depicted and described in the Application for Authorization to Discharge Dredged or Fill Material to Isolated Wetlands and/or Waters of the State dated March 2, 2020, and in accordance with the terms and conditions of the Isolated Wetland General Permit.

The work was completed on: _____
(Date Work was completed)

The mitigation was constructed on: _____
(Date Wetland Mitigation was constructed)

IDEM Permit Number: 2020-154-49-JBT-A

(Signature of Permittee)

(Date)

(Printed Name)

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

***Indiana Department of Environmental Management
100 N. Senate Avenue
MC65-42 WQS IGCN 1255
Indianapolis, IN 46204***

Please note that your permitted activity is subject to compliance inspection(s) by IDEM. If you fail to comply with the general conditions of the permit, you are subject to permit suspension, modification, or revocation.

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327 IAC 17-2-4 General conditions of the Isolated Wetland General Permit

Authority: IC 13-18-3-1; IC 13-18-22-1; IC 13-18-22-7

Affected: IC 13-18-3; IC 13-18-4

Sec. 4. The recipient of the general permit shall comply with the following general conditions:

- (1) Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
- (2) Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date. The permittee shall deposit any dredged material in a contained upland disposal area to prevent sediment run-off to any water body. Sampling may be required to determine if the dredged sediment is contaminated.
- (3) No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the wetland, including those species that normally migrate through the area.
- (4) Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
- (5) The permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality.
- (6) No activity is authorized under this general permit where state endangered, threatened, or rare species are documented on a permanent or seasonal basis within a one-half ($\frac{1}{2}$) mile radius of the proposed project site by the Indiana Natural Heritage Data Center.
- (7) Upon completion of the wetland activity and any required mitigation, the permittee shall submit a signed certification to the department. The certification will include the following:
 - (A) A statement that:
 - (i) the authorized work was done in accordance with the department authorization, including any conditions; and
 - (ii) any required mitigation was completed in accordance with the permit conditions.
 - (B) The signature of the permittee certifying the completion of the work and mitigation.

- (8)** More than one (1) general permit provision may be used for a single and complete project to the extent applicable, provided that the acreage loss of SRWs authorized by all general permit provisions utilized does not exceed the acreage limit of the general permit provision with the highest specified acreage limit.
- (9)** No activity may occur in the proximity of a public water supply intake, except where the activity is for repair of the public water supply intake structures.
- (10)** No activity, including structures and work in SRWs or discharges of dredged or fill material, may consist of unsuitable material, for example:
- (A) trash;
 - (B) debris;
 - (C) car bodies; and
 - (D) asphalt;
- and material used for construction or discharged must be free from toxic pollutants in toxic amounts.
- (11)** When determining compensatory mitigation to reasonably offset the loss of wetlands allowed by the general permit, the commissioner will consider the following factors:
- (A) The commissioner will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.
 - (B) Permittees may propose the use of mitigation banks to meet the wetland mitigation requirements.
 - (C) In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing or complying, or both, with the mitigation plan.
- (12)** Activities in breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.
- (13)** Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.
- (14)** Critical resource waters include critical habitat for federally listed threatened and endangered species, state natural heritage sites, outstanding national resource waters, water pollution control board designated waters, for example, outstanding state or national resource waters, or both, exceptional use waters, outstanding state protected wetland, or other waters officially designated by the state as having particular environmental or ecological significance and identified by the

commissioner after notice and opportunity for public comment. Critical resource waters affect permitting as follows:

(A) Except as noted in clause (B), discharges of dredged or fill material into SRWs are not authorized by section 2(b)(7), 2(b)(8), or 2(b)(11) of this rule for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(B) For section 2(b)(1), 2(b)(9), 2(b)(10), and 2(b)(11) of this rule, the commissioner may authorize activities under these general permits only after it is determined that the impacts to the critical resource waters will be no more than minimal.

- (15)** For purposes of this general condition, 100-year floodplains will be identified through the existing Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps. Discharges of dredged or fill material into SRWs within the mapped 100-year floodplain, resulting in permanent abovegrade fills, are not authorized by general permit.
- (16)** The permittee shall clearly mark the construction limits shown in the plans at the tract during construction.
- (17)** The permittee shall allow the commissioner or an authorized representative of the commissioner (including an authorized contractor), upon the presentation of credentials to:
- (A) enter upon the tract;
 - (B) have access to and copy at reasonable times any records that must be kept under the conditions of the permit;
 - (C) inspect, at reasonable times any:
 - (i) monitoring or operational equipment or method;
 - (ii) collection, treatment, pollution management, or discharge facility or device;
 - (iii) practices required by the permit; and
 - (iv) wetland mitigation site; and
 - (D) sample or monitor any discharge of pollutants or any mitigation site.
- (18)** Any activity involving fill that is associated with additional impacts to waters of the state, such as dredging, excavation, or damming, is not authorized by a general permit unless the total area of wetland affected is less than or equal to the area allowed by the general permit.
- (19)** Execute the project as proposed in the notice of intent.
- (20)** Implement the mitigation plan submitted with the notice of intent.

- (21)** Complete all activities necessary to construct the mitigation wetland within one (1) year of the effective date of this general permit, unless the department grants a written extension upon request.
- (22)** Clearly identify, on the tract, all mitigation wetlands after construction of the mitigation wetlands. Install survey markers to identify the boundaries of the wetlands. If the mitigation wetlands being constructed are adjacent to or near existing wetlands, then the survey markers must distinguish the constructed wetland from the existing wetland.
- (23)** An applicant establishing a Class I, Class II, or Class III mitigation wetland must file a signed and recorded environmental notice, which describes the compensatory mitigation contained in the mitigation plan, with the department within sixty (60) days of the applicant's release from monitoring requirements.

Turner, James

From: Rehder, Crystal
Sent: Monday, March 09, 2020 4:54 PM
To: Turner, James
Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945

Jay,

Please see confirmation below that no asphalt will be used to fill wetlands. Sorry I didn't have this clarified in the application. Have a good night!

Crystal Rehder
(317) 233-2062

-----Original Message-----

From: Miller, Daniel J <Daniel.J.Miller@parsons.com>
Sent: Monday, March 09, 2020 4:31 PM
To: Kieffner, Jeremy <JKieffner@lochgroup.com>; Rehder, Crystal <CRehder@indot.IN.gov>
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

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Correct.

-----Original Message-----

From: Kieffner, Jeremy <JKieffner@lochgroup.com>
Sent: Monday, March 9, 2020 4:15 PM
To: Rehder, Crystal <crehder@indot.in.gov>; Miller, Daniel J <Daniel.J.Miller@parsons.com>
Subject: [EXTERNAL] RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

Crystal,

Wetlands 10, 11, 12, 14, 21, 22, and 36 will all be under the asphalt, but no asphalt will be in direct contact with the wetland soils.

There will be clean earthen fill placed on the wetland soil, covered by aggregate, and then the asphalt mix on top of the aggregate.

Dan please correct the above is I have this incorrect.

Sincerely,

Jeremy Kieffner. CPESC
Environmental Manager - Sr. Associate
Lochmueller Group
812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com

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-----Original Message-----

From: Rehder, Crystal <CRehder@indot.IN.gov>
Sent: Monday, March 9, 2020 10:59 AM
To: Kieffner, Jeremy <JKieffner@lochgroup.com>
Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945

Jeremy,

Please help me respond to Jay's email below.

Crystal Rehder
(317) 233-2062

-----Original Message-----

From: Turner, James <JTurner2@idem.IN.gov>
Sent: Monday, March 09, 2020 11:39 AM
To: Rehder, Crystal <CRehder@indot.IN.gov>; Deborah.D.Snyder@usace.army.mil <Deborah.D.Snyder@usace.army.mil>
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

The application describes the wetland fill as including asphalt. Asphalt is not considered clean fill by IDEM. Can you confirm that the asphalt will only be placed on top of the clean earthen fill and aggregate?

JTurner2@idem.in.gov | IDEM Office of Water Quality | Office: 317-234-6352

-----Original Message-----

From: Rehder, Crystal <CRehder@indot.IN.gov>
Sent: Monday, March 02, 2020 4:44 PM
To: Deborah.D.Snyder@usace.army.mil <Deborah.D.Snyder@usace.army.mil>
Cc: Turner, James <JTurner2@idem.IN.gov>
Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945

Deb,

Please see attached. Will they be sufficient? The updated applications will be sent tonight or tomorrow.

Thanks!

Crystal Rehder
(317) 233-2062

-----Original Message-----

From: Miller, Daniel J <Daniel.J.Miller@parsons.com>
Sent: Monday, March 02, 2020 10:35 AM
To: Kieffner, Jeremy <JKieffner@lochgroup.com>; Rehder, Crystal <CRehder@indot.IN.gov>
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

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Good morning,

Attached are the figures Deb requested. One item of note, for the Lick Creek Crossing, she requested Wetlands 17, 18, and 19 be shown. However, Wetland 19 is a Water of the State. Wetland 20 is a WOUS (that UNT 5 to Lick Creek runs through) and is impacted. So I believe that is the wetland she meant to have shown. We used our format, but worked to match the examples shown.

Please let me know if either of you have any questions or comments?

Thanks,
Dan

-----Original Message-----

From: Miller, Daniel J
Sent: Friday, February 28, 2020 1:17 PM
To: Kieffner, Jeremy <JKieffner@lochgroup.com>; Rehder, Crystal <crehder@indot.in.gov>
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

We're working on getting the figures together and will forward them when they are ready.

Thanks,
Dan

-----Original Message-----

From: Kieffner, Jeremy <JKieffner@lochgroup.com>
Sent: Friday, February 28, 2020 11:43 AM
To: Rehder, Crystal <crehder@indot.in.gov>
Cc: Miller, Daniel J <Daniel.J.Miller@parsons.com>
Subject: [EXTERNAL] Re: Des. No. 1802075 I465 reconfiguration LRL-2019-945

Crystal,

Dave Duncan will be sending you the revised file in a few minutes.

Parsons will need to address the figures that Deb is requesting since they put the application together and created the figures.

Sincerely
Jeremy

Sent from my iPhone

> On Feb 28, 2020, at 9:52 AM, Rehder, Crystal <CRehder@indot.in.gov> wrote:

>

> Jeremy,

>

> I'm still waiting for the updates you referred to in your 2/21 email. Also, Deb requested figures for the public notice and detailed how she wants them in the attached email.

>

> Crystal Rehder

> (317) 233-2062

>
>
> -----Original Message-----
> From: Kieffner, Jeremy [mailto:JKieffner@lochgroup.com]
> Sent: Thursday, February 27, 2020 5:47 PM
> To: Rehder, Crystal <CRehder@indot.IN.gov>; Miller, Daniel J
> <Daniel.J.Miller@parsons.com>
> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945
>
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> ****
> _____
>
> Crystal,
>
> On page 13 of 18 of the application it states that mitigation is required for 6,744 linear feet of streams. This is the amount that will need to be purchased from the Indiana Stream and Wetland Mitigation Program as long as IDEM and the USACE are in agreement with the 2,224 linear feet of streams being restored onsite as identified in the application.
>
> Sincerely,
>
> Jeremy Kieffner. CPESC
> Environmental Manager - Sr. Associate
> Lochmueller Group
> 812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com
>
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>
> -----Original Message-----
> From: Rehder, Crystal <CRehder@indot.IN.gov>
> Sent: Thursday, February 27, 2020 1:52 PM
> To: Kieffner, Jeremy <JKieffner@lochgroup.com>; Miller, Daniel J
> <Daniel.J.Miller@parsons.com>
> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945
>
> Jeremy and Dan,
>
> Please see Deb's email attached. She has some additional requests for the updated application. Mimecast will be fine when you get this done.
>
> Thanks!
>
> Crystal Rehder
> (317) 233-2062
>
>
> -----Original Message-----
> From: Kieffner, Jeremy [mailto:JKieffner@lochgroup.com]
> Sent: Friday, February 21, 2020 5:53 PM
> To: Miller, Daniel J <Daniel.J.Miller@parsons.com>; Rehder, Crystal

> <CRehder@indot.IN.gov>
> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945
>
> **** This is an EXTERNAL email. Exercise caution. DO NOT open
> attachments or click links from unknown senders or unexpected email.
> ****
> _____
>
> Thanks Dan,
>
> I will replace the pages in the applications I already downloaded from TJ so you do not have to resend the entire
package.
>
> Crystal,
>
> I can send the revised application packages to you once I update them via Mimecast if you would like.
>
> Sincerely,
>
> Jeremy Kieffner. CPESC
> Environmental Manager - Sr. Associate
> Lochmueller Group
> 812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com
>
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information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended
recipient(s), please contact the sender by reply e-mail and destroy all copies of the original message. Thank you!
>
> -----Original Message-----
> From: Miller, Daniel J <Daniel.J.Miller@parsons.com>
> Sent: Friday, February 21, 2020 2:14 PM
> To: Rehder, Crystal <crehder@indot.in.gov>
> Cc: Kieffner, Jeremy <JKieffner@lochgroup.com>
> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945
>
> Good afternoon Crystal and Jeremy,
> I updated the application to reflect the changes. This required changes on 3 pages (attached):
> PDF pg 5 - Corps' form Block 18
> PDF pg 7 - Isolated Wetlands Purpose of Project PDF pg 37 - Supplemental information - 4.7 Compensatory Mitigation
Since the mitigation site had 1.7 acres of credit available, I split the mitigation needs utilizing that and 0.593 acre from
the Indiana Stream and Wetland Mitigation Program.
>
> Since the changes were minor, I've attached these 3 pages. If you'd like me to upload the entire revised application,
please let me know. Please note, due to the character limits in forms (which were both already at capacity), I had to
tweak the language a little here and there to get the summary to fit in both the Corps and Iso Wetland forms.
>
> Please let me know if you have any questions/comments.
>
> Thanks,
> Dan
>
> Daniel J. Miller
> Project Manager/Environmental Services Manager

> 101 West Ohio Street, Suite 2121 - Indianapolis, IN 46204
> Daniel.J.Miller@Parsons.com #317.616.4663 PARSONS – Envision More
> www.parsons.com | LinkedIn | Twitter | Facebook
>
>
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>
>
> -----Original Message-----
> From: Rehder, Crystal <CRehder@indot.IN.gov>
> Sent: Thursday, February 20, 2020 10:32 AM
> To: Flum, Sandra <SFlum@indot.IN.gov>; Miller, Daniel J
> <Daniel.J.Miller@parsons.com>
> Cc: Kieffner, Jeremy <JKieffner@lochgroup.com>
> Subject: [EXTERNAL] RE: Des. No. 1802075 I465 reconfiguration
> LRL-2019-945
>
> Actually, that's Sandra's realm.
>
> Sandra - are you good with going to ILF for the rest of the mitigation?
>
> Danny - If so, we'll need TJ's recent submittal amended slightly to reflect this.
>
> Thanks!
>
> Crystal Rehder
> (317) 233-2062
>
>
> -----Original Message-----
> From: Rehder, Crystal
> Sent: Thursday, February 20, 2020 10:20 AM
> To: Kieffner, Jeremy <JKieffner@lochgroup.com>; Flum, Sandra
> <SFlum@indot.IN.gov>
> Cc: Miller, Daniel J <Daniel.J.Miller@parsons.com>
> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945
>
> I'm going to talk to Jay when he gets in this afternoon. I'll let you know!
>
> Crystal Rehder
> (317) 233-2062
>
>
> -----Original Message-----
> From: Kieffner, Jeremy [mailto:JKieffner@lochgroup.com]
> Sent: Wednesday, February 19, 2020 2:11 PM
> To: Rehder, Crystal <CRehder@indot.IN.gov>; Flum, Sandra
> <SFlum@indot.IN.gov>
> Cc: Warrner, Thomas <Thomas.Warrner@parsons.com>

> Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945

>

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> attachments or click links from unknown senders or unexpected email.

> ****

> _____

>

> Dear Crystal and Sandra,

>

> Due to the increase in wetland mitigation required by the revisions to the 404/401 permit application due to the JD issue, we do not have enough wetland mitigation credits at the Indian Creek Landlocked Mitigation site to cover the 2.293 acres required for the I-465 Reconfig project.

>

> We only have 1.7 acres of wetland mitigation and 0.33 acre of Open Water mitigation available. How do you want to address the IDEM question below?

>

> Sincerely,

>

> Jeremy Kieffner. CPESC

> Environmental Manager - Sr. Associate

> Lochmueller Group

> 812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com

>

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>

> -----Original Message-----

> From: Turner, James <JTurner2@idem.IN.gov>

> Sent: Wednesday, February 19, 2020 12:46 PM

> To: Kieffner, Jeremy <JKieffner@lochgroup.com>; 'Deb Snyder'

> <Deborah.D.Snyder@usace.army.mil>

> Cc: Rehder, Crystal <CRehder@indot.IN.gov>; Warrner, Thomas

> <Thomas.Warrner@parsons.com>

> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

>

> The change to the application described below will change the mitigation amounts expected by IDEM, both for the IWGP and the WQC.

>

> For the WQC, it appears wetlands 14, 15, 21, 22, and 48 will require mitigation under the WQC at a 2:1 ratio.

>

> In regards to the IWGP, in the original application, INDOT proposed to claim a size exemption on several isolated wetlands. Not all of those wetlands can be claimed now that Wetland 21 is considered a water of the U.S.

>

> Let me know which wetlands you want to claim the size exemption on. If I'm looking at it correctly you should either claim the exemption on W 12 + W 16 or W 12 + W 16. If you choose either of those, it looks like the IWGP will require mitigation for 0.013 acre of impact, which I'd expect would be taken care of with 0.013 acre of ILF credit.

>

> Let me know how you want to proceed.

> Thanks,

> Jay

>

> JTurner2@idem.in.gov | IDEM Office of Water Quality | Office:

> 317-234-6352

>

>

> -----Original Message-----

> From: Kieffner, Jeremy [mailto:JKieffner@lochgroup.com]

> Sent: Thursday, January 30, 2020 11:23 AM

> To: 'Deb Snyder' <Deborah.D.Snyder@usace.army.mil>; Turner, James

> <JTurner2@idem.IN.gov>

> Cc: Rehder, Crystal <CRehder@indot.IN.gov>; Warrner, Thomas

> <Thomas.Warrner@parsons.com>

> Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

>

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>

> Deb,

>

> Per our discussion yesterday, it appears that Wetlands 14, 15, 21, 22, 43, and 48 do not have an AJD; therefore, all of these should be considered as jurisdictional wetlands and regulated by both USACE under Section 404 and IDEM under the 401 WQC.

>

> Per the permit application, Wetlands 43 does not have any impacts.

>

> Wetland 14 has 0.092 acre of impacts

> Wetland 15 has 0.073 acre of impacts

> Wetland 21 has 0.238 acre of impacts

> Wetland 22 has 0.001 acre of impacts

> Wetland 43 has 0.003 acre of impacts

> Wetland 48 has 0.001 acre of impacts

>

> Sincerely,

>

>

> Jeremy Kieffner. CPESC

> Environmental Manager - Sr. Associate

> Lochmueller Group

> 812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com

>

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>

> -----Original Message-----

> From: Rehder, Crystal <CRehder@indot.IN.gov>

> Sent: Wednesday, January 29, 2020 10:00 AM

> To: Warrner, Thomas <Thomas.Warrner@parsons.com>; Kieffner, Jeremy

> <JKieffner@lochgroup.com>

> Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945

> Importance: High

>

> Please address Deb's concerns below.

>
> Crystal Rehder
> (317) 233-2062
>
>
> -----Original Message-----
> From: Snyder, Deborah D CIV USARMY CELRL (USA)
> [mailto:Deborah.D.Snyder@usace.army.mil]
> Sent: Wednesday, January 29, 2020 10:55 AM
> To: Rehder, Crystal <CRehder@indot.IN.gov>
> Cc: Turner, James <JTurner2@idem.IN.gov>
> Subject: Des. No. 1802075 I465 reconfiguration LRL-2019-945
>
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> attachments or click links from unknown senders or unexpected email.
> ****

>
> Crystal,
>
> I just started going over this application. I noticed that the application does not discuss Wetlands 15, 30, 32, 33, or 43 in the text and they are absent from the summary table on pdf pg 23 of 26 of APPLICATION. There are wetlands on that table that have no impacts, so if there are no impacts to the Wetlands that I listed, why are they not mentioned in the text or included in the table?
>
> Please let me know what the impacts are to these wetlands, or if there are no impacts.
>
> Thanks,
>
> Deborah Duda Snyder
> Project Manager
> U.S. Army Corps of Engineers, Louisville District Indianapolis
> Regulatory Office
> 8902 Otis Avenue, Suite S106B
> Indianapolis, IN 46216
> Phone: (317) 543-9424
>
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>
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> <mime-attachment>

Turner, James

From: Rehder, Crystal
Sent: Thursday, February 20, 2020 10:19 AM
To: Turner, James
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

Hi J-Turn!

Can we chat about this when you get in this afternoon?

Crystal Rehder
(317) 233-2062

-----Original Message-----

From: Turner, James
Sent: Wednesday, February 19, 2020 1:46 PM
To: Kieffner, Jeremy <JKieffner@lochgroup.com>; 'Deb Snyder' <Deborah.D.Snyder@usace.army.mil>
Cc: Rehder, Crystal <CRehder@indot.IN.gov>; Warrner, Thomas <Thomas.Warrner@parsons.com>
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

The change to the application described below will change the mitigation amounts expected by IDEM, both for the IWGP and the WQC.

For the WQC, it appears wetlands 14, 15, 21, 22, and 48 will require mitigation under the WQC at a 2:1 ratio.

In regards to the IWGP, in the original application, INDOT proposed to claim a size exemption on several isolated wetlands. Not all of those wetlands can be claimed now that Wetland 21 is considered a water of the U.S.

Let me know which wetlands you want to claim the size exemption on. If I'm looking at it correctly you should either claim the exemption on W 12 + W 16 or W 12 + W 16. If you choose either of those, it looks like the IWGP will require mitigation for 0.013 acre of impact, which I'd expect would be taken care of with 0.013 acre of ILF credit.

Let me know how you want to proceed.

Thanks,
Jay

JTurner2@idem.in.gov | IDEM Office of Water Quality | Office: 317-234-6352

-----Original Message-----

From: Kieffner, Jeremy [mailto:JKieffner@lochgroup.com]
Sent: Thursday, January 30, 2020 11:23 AM
To: 'Deb Snyder' <Deborah.D.Snyder@usace.army.mil>; Turner, James <JTurner2@idem.IN.gov>
Cc: Rehder, Crystal <CRehder@indot.IN.gov>; Warrner, Thomas <Thomas.Warrner@parsons.com>
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

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Deb,

Per our discussion yesterday, it appears that Wetlands 14, 15, 21, 22, 43, and 48 do not have an AJD; therefore, all of these should be considered as jurisdictional wetlands and regulated by both USACE under Section 404 and IDEM under the 401 WQC.

Per the permit application, Wetlands 43 does not have any impacts.

Wetland 14 has 0.092 acre of impacts
Wetland 15 has 0.073 acre of impacts
Wetland 21 has 0.238 acre of impacts
Wetland 22 has 0.001 acre of impacts
Wetland 43 has 0.003 acre of impacts
Wetland 48 has 0.001 acre of impacts

Sincerely,

Jeremy Kieffner. CPESC
Environmental Manager - Sr. Associate
Lochmueller Group
812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com

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-----Original Message-----

From: Rehder, Crystal <CREhder@indot.IN.gov>
Sent: Wednesday, January 29, 2020 10:00 AM
To: Warrner, Thomas <Thomas.Warrner@parsons.com>; Kieffner, Jeremy <JKieffner@lochgroup.com>
Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945
Importance: High

Please address Deb's concerns below.

Crystal Rehder
(317) 233-2062

-----Original Message-----

From: Snyder, Deborah D CIV USARMY CELRL (USA) [mailto:Deborah.D.Snyder@usace.army.mil]
Sent: Wednesday, January 29, 2020 10:55 AM
To: Rehder, Crystal <CREhder@indot.IN.gov>
Cc: Turner, James <JTurner2@idem.IN.gov>
Subject: Des. No. 1802075 I465 reconfiguration LRL-2019-945

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Thanks,

Deborah Duda Snyder
Project Manager
U.S. Army Corps of Engineers, Louisville District Indianapolis Regulatory Office
8902 Otis Avenue, Suite S106B
Indianapolis, IN 46216
Phone: (317) 543-9424

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Turner, James

From: Kieffner, Jeremy <JKieffner@lochgroup.com>
Sent: Thursday, January 30, 2020 11:23 AM
To: 'Deb Snyder'; Turner, James
Cc: Rehder, Crystal; Warrner, Thomas
Subject: RE: Des. No. 1802075 I465 reconfiguration LRL-2019-945

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Wetland 48 has 0.001 acre of impacts

Sincerely,

Jeremy Kieffner. CPESC
Environmental Manager - Sr. Associate
Lochmueller Group
812.759.4132 (direct) | 812.483.3754 (mobile) JKieffner@lochgroup.com

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Subject: FW: Des. No. 1802075 I465 reconfiguration LRL-2019-945
Importance: High

Please address Deb's concerns below.

Crystal Rehder
(317) 233-2062

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Sent: Wednesday, January 29, 2020 10:55 AM
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Deborah Duda Snyder
Project Manager
U.S. Army Corps of Engineers, Louisville District Indianapolis Regulatory Office
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Indianapolis, IN 46216
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Section 401 and State Regulated Wetlands Program
Wetlands and Stormwater Section
Office of Water Quality
Indiana Department of Environmental Management

Inspection Report

Purpose:

Summarize meeting discussion and decisions.

Date Distributed: August 15, 2019

Authority:

This inspection was conducted pursuant to Indiana Code (IC) 13-14-2-2 and is consistent with the requirements of IC 13-14-5.

Certified Mail Number:

Responsible Party and Location Information

Landowner: INDOT

Site Name: INDOT 1802075 I-465

IDEM Identification Number:

County: Marion

Incident No:

Date of Site Visit: August 15, 2019

Project Location/Address (Use for sites without ID Number):
I-465 SW from I-65 / Keystone to I-70 / Hanna Avenue

Contact Information (Use for sites without ID Number)
JClayton@indot.IN.gov

Inspected

Stream/River(s)

Wetland(s)

Open Water

Mitigation

Other:

Observations/Comments (Description of activities, impacts, violations, corrective action, dates):

- (1) Waterway features along the project were inspected to help determine jurisdictional status.
- (2) The Corps will issue a jurisdictional determination for some features.
- (3) Parsons will collect wetland data from the feature previously known as UNT 15 Lick Creek to establish wetland status.
- (4) The activities proposed at the site may result in land-disturbing activities of one (1) acre or more. Indiana Administrative Code, 327 IAC 15-5 requires permit coverage for all activities disturbing one (1) acre or more of land. 327 IAC 15-5 is a state regulation that governs the discharge of pollutants, principally sediment that is associated with run-off from construction activities.
- (5) Timely implementation and maintenance of stormwater quality measures is important in minimizing the discharge of sediment and other pollutants that are associated with land-disturbing activities. It is critical that appropriate stormwater quality measures are installed, monitored, and maintained. These measures must be implemented immediately and throughout active construction/land disturbance to reduce the discharge of sediment and other pollutants in stormwater run-off.

Inspection Distribution and Contact Information

Questions/Inquiries Concerning this Report Should be Directed to the Inspector at:

James B. Turner

Phone: 317-234-6352

E-Mail: JTurner2@idem.In.gov

IDEM Wetlands Project Manager

Toll Free: 1-800-451-6027

100 North Senate Avenue

Indianapolis, Indiana 46204

Present at Site: IDEM: J. Turner, USACE: Deborah Duda Snyder, INDOT: Juliana Clayton, Carson Hoogewerf, Parsons: Dan Miller, Greg Moushon

Copies Provided to:

U.S. Army Corps of Engineers:

IDEM Stormwater Program for assessment of compliance with 327 IAC 15-5:

DNR:

Agent:

Other:



CERTIFICATE OF APPROVAL

Application #: FW-30323-0

This Certificate of Approval is a Permit for Construction under the authority of the Indiana Flood Control Act, IC 14-28-1 with 312 IAC 10 and IC 14-29-1 with 312 IAC 6 as administered by the Department of Natural Resources.

Approval Issued To: Indiana Department of Transportation, Crystal Rehder, 100 North Senate Avenue, Room N642-ES, Indianapolis, IN 46204

Approval Issued By:

Markita Shepherdson

Mail Date: 7/8/2020

Markita Shepherdson, CFM, Division of Water

Permit Effective Date: 07/26/2020

Permit Expiration Date: 07/09/2025

Pursuant to 312 IAC 2-5-1, this Permit becomes Effective eighteen (18) days from the Mail Date to provide a stay period for a Petition for Administrative Review with the Indiana Natural Resources Commission, Division of Hearings. Initiating construction authorized in this Permit prior to the Permit Effective Date constitutes a violation. This Permit is only valid until the Permit Expiration Date.

This Permit may be renewed one (1) time if a written request is received at the DNR, Division of Water, prior to the Permit Expiration Date.

PROJECT INFORMATION:

Waterbody: McFarland Creek

County: Marion

Project Description Narrative: This project involves the reconfiguration of I-465 (Des. 1802075). The I-465 bridge over Lick Creek will be widened to accommodate two additional auxiliary lanes. The existing piers for each bridge will be widened 12'. The new bridges will have dimensions of 154' long by 152'-8" wide by 13'-6" high. The existing concrete slopewalls will be extended approximately 14' upstream and downstream along both banks with damaged portions of the wall repaired. Riprap will be installed along the entire length of both slopewalls, 133' along the west bank and 148' along the east bank. Riprap will be installed around piers No. 2 and 3 as well as around the bridge bents for scour protection. Two existing roadside ditches along the north and south side of I-465 will be encapsulated to accommodate the roadway widening. Riprap will be installed at the outlet of each culvert. The existing Carson Avenue overpass bridge will be replaced with a three-span continuous steel beam bridge that will have dimensions of 405'-1.5" long by 38'-8" wide by 28'-2" high. The existing Madison Avenue overpass bridge will be replaced with a three-span continuous steel plate girder bridge and will have dimensions of 327' long by 81'-2" wide by 32' high. Temporary impacts to the floodway include the use of pumparounds and cofferdams.

Project Location: Beginning at the I-465 and Carson Avenue Interchange and continuing approximately 250' south near Indianapolis

PERMIT CONDITIONS:

This Certificate of Approval is valid only if the construction project is in compliance with all Conditions in this Permit.

DNR PROJECT SPECIFIC PERMIT CONDITIONS

- 1) Do not place riprap or other streambed stabilization materials in the active stream channel above the existing streambed or flowline elevation (with the exception of the proposed replacement of scattered large cobbles and boulders that extend above the normal flow level to restore existing refugia) in order to prevent obstructions to the movement of aquatic organisms upstream and downstream of the crossing structure.
- 2) An entrenched silt fence must be installed around the work area. If work is to be conducted between November 1 and March 1, then the silt fence should be installed by the end of October. Any Kirtland's Snakes found within the work area shall be safely captured and moved unharmed to an area of similar habitat outside of the work zone.
- 3) Revegetate all bare and disturbed areas that are not currently mowed and maintained with a mixture of grasses, sedges, and wildflowers native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion; turf-type grasses (including low-endophyte, friendly endophyte, and endophyte free tall fescue but excluding all other varieties of tall fescue) may be used in currently mowed areas only.
- 4) Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds beyond those specifically detailed in the permit application.
- 5) Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
- 6) Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
- 7) Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
- 8) Do not use broken concrete as riprap.
- 9) Underlay the riprap with a bedding layer of well graded aggregate or a geotextile to prevent piping of soil underneath the riprap.
- 10) Minimize the movement of resuspended bottom sediment from the immediate project area.
- 11) Do not deposit or allow construction/demolition materials or debris to fall or otherwise enter the waterway.
- 12) Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
- 13) Seed and protect all disturbed streambanks and slopes not protected by other methods that are 3:1 or steeper with erosion control blankets that are heavy-duty, biodegradable, and net free or that use loose-woven / Leno-woven netting to minimize the entrapment and snaring of small-bodied wildlife such as snakes and turtles (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.
- 14) Except for the material used as backfill as shown on the plans submitted for the permit application, place all excavated material landward of the floodway*.
- 15) All work must conform with the existing bank at the upstream and downstream limits of the project site.
- 16) Do not leave felled trees, brush, or other debris in the floodway*.
- 17) All riprap placed for bank stabilization must conform to the bank.
- 18) Upon completion of the project, remove all construction debris from the floodway*.
- 19) Completely remove the temporary causeways and any related appurtenances from the floodway* upon the completion of the project.
- 20) * Note: For regulatory purposes, the floodway is defined on the attached Floodway Map.

DNR PROJECT GENERAL PERMIT CONDITIONS

- 1) Any modifications or additional construction beyond what was shown on plans received at the Division of Water shall require an additional review and approval from the Department of Natural Resources.
- 2) This Permit must be posted and maintained at the project site until the project is completed
- 3) This Permit shall not be assigned or transferred without the prior written approval of the Department of Natural Resources.
- 4) If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and 29) requires that the discovery must be reported to the Department of Natural Resources within two (2) business days.
- 5) This Permit may be revoked by the Department of Natural Resources for violation of any condition or applicable statute or rule.
- 6) The Department of Natural Resources shall have the right to enter upon the site of the permitted activity for the purpose of inspecting the work authorized under this Permit.

Certificate of Approval Attachments: FW-30323_FloodplainMap.pdf

RIGHT TO ADMINISTRATIVE REVIEW:

A party may appeal this Department of Natural Resources Action through the administrative review procedures found in the Administrative Orders and Procedures Act, IC 4-21.5, and the rules promulgated thereunder 312 IAC 3-1. If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel at all stages of administrative review.

In order to obtain an administrative review, a written petition must be filed with the Division of Hearings within 18 days of the Mail Date of the Action. The petition must contain specific reasons for the appeal and indicate the portion or portions of the project to which the appeal pertains. The petition must be addressed to the Division of Hearings, Indiana Government Center North, Room N103, 100 North Senate Avenue, Indianapolis, Indiana 46204

SERVICE LIST:

Applicant(s):

Indiana Department of Transportation, Crystal Rehder, 100 North Senate Avenue, Room N642-ES, Indianapolis, IN 46204

Agent(s):

Parsons, Thomas Warmer, 101 West Ohio Street Suite 2121, Indianapolis, IN 46204

Adjacent Landowners and Interested Parties:

GLT Enterprise LLC, 1303 Crenshaw Boulevard, Torrance, CA 90501
Donald and Barbara Bush, 102 Tri Sab Lane, Indianapolis, IN 46217
Farh-Fox Lake Affordable Housing, 9000 North College Avenue, Indianapolis, IN 46240
PHI StoneLake LLC, PO Box 16506, Mobile, AL 36616
Indiana Department of Transportation, 32 South Broadway, Greenfield, IN 46140

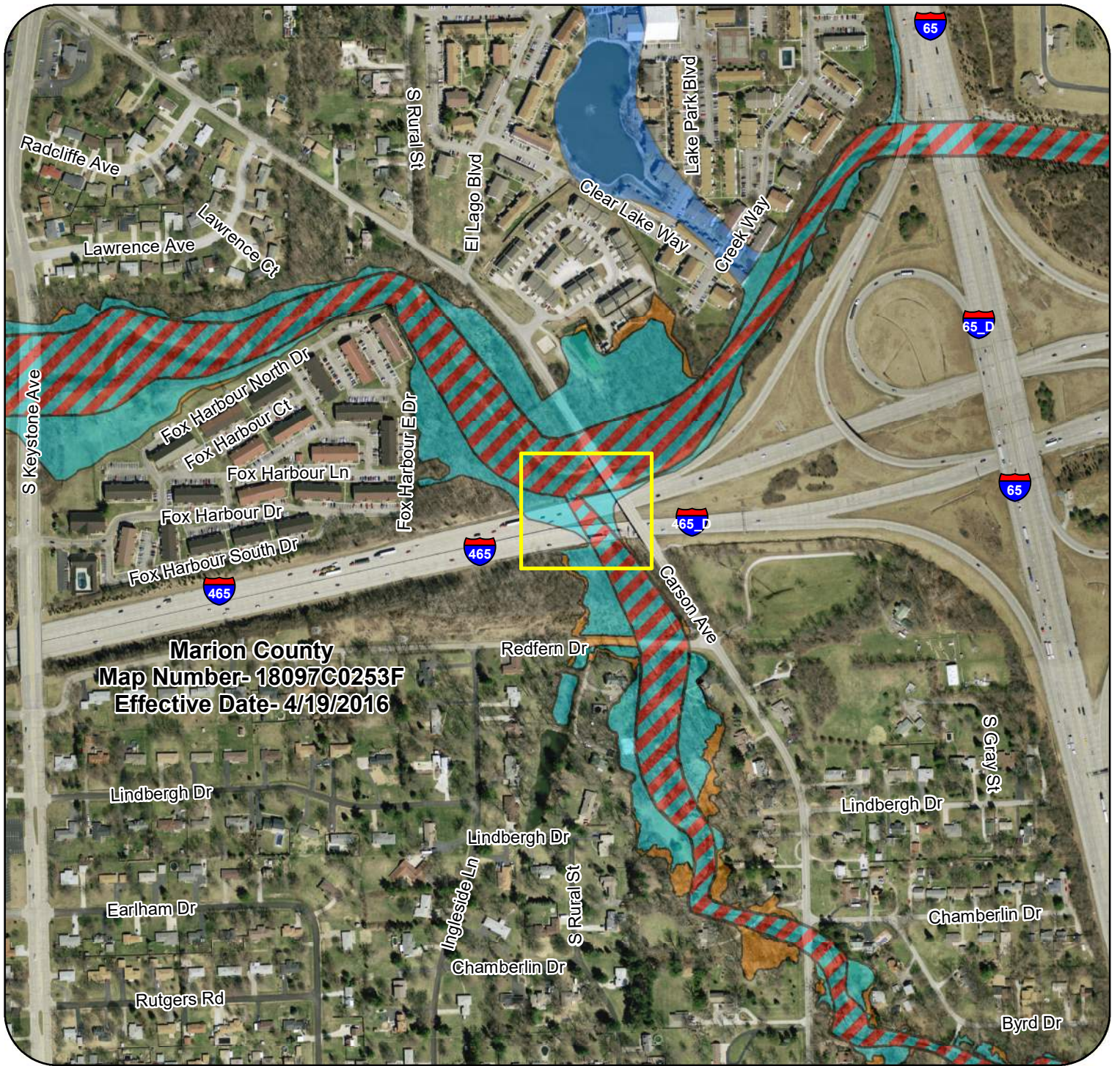
Courtesy Notification:

US Army Corps of Engineers, Louisville District, PO Box 59, Louisville, KY 40201
Marion County SWCD, 1200 South Madison Avenue, Suite 200, Indianapolis, IN 46225
Department of Business and Neighborhood Services, Donna Price, 1200 South Madison Avenue, Suite 100, Indianapolis, IN 46225
Indianapolis Department of Public Works, John Oakley, 1200 South Madison Avenue, Suite 200, Indianapolis, IN 46225

ADDITIONAL PERMITTING AGENCIES:

This is not a waiver of any local ordinance or other state or federal law and does not relieve the permittee of any liability for the effects which the project may have upon the safety of the life or property of others.

This does not relieve the permittee of the responsibility of obtaining permits, approvals, easements, etc. under other regulatory programs administered by, but not limited to, the U.S. Army Corps of Engineers, County Drainage Board, Indiana Department of Environmental Management and local, city, or county floodplain management, planning or zoning commissions.



The Special Flood Hazard Area was derived from the digital representation of FEMA Flood Insurance Rate Maps (FIRM). While this map is provided for information, the FIRMs as published by FEMA are the authoritative documents for the National Flood Insurance Program.

Copies of those maps can be found at <http://msc.fema.gov>

Map Source: FIRM
 File Number: FW-30323

Note
 This map does not reflect changes or amendments which may have been made subsequent to the effective date

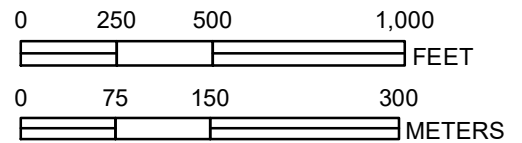


Legend

- Special Flood Hazard Area
- Special Flood Hazard Area/Floodway
- 0.2 Percent Annual Chance Flood Hazard
- Community Boundaries
- Tract Boundaries



MAP SCALE 1" = 500'





CERTIFICATE OF APPROVAL

Application #: FW-30322-0

This Certificate of Approval is a Permit for Construction under the authority of the Indiana Flood Control Act, IC 14-28-1 with 312 IAC 10 and IC 14-29-1 with 312 IAC 6 as administered by the Department of Natural Resources.

Approval Issued To: Indiana Department of Transportation, Crystal Rehder, 100 North Senate Avenue, Room N642-ES, Indianapolis, IN 46204

Approval Issued By:

Markita Shepherdson

Mail Date: 7/7/2020

Markita Shepherdson, CFM, Division of Water

Permit Effective Date: 07/25/2020

Permit Expiration Date: 07/08/2025

Pursuant to 312 IAC 2-5-1, this Permit becomes Effective eighteen (18) days from the Mail Date to provide a stay period for a Petition for Administrative Review with the Indiana Natural Resources Commission, Division of Hearings. Initiating construction authorized in this Permit prior to the Permit Effective Date constitutes a violation. This Permit is only valid until the Permit Expiration Date.

This Permit may be renewed one (1) time if a written request is received at the DNR, Division of Water, prior to the Permit Expiration Date.

PROJECT INFORMATION:

Waterbody: Lick Creek

County: Marion

Project Description Narrative: This project involves the reconfiguration of I-465 (Des. 1802075). The I-465 bridge over Lick Creek will be widened to accommodate two additional auxiliary lanes. The existing piers for each bridge will be widened 12'. The new bridges will have dimensions of 154' long by 152'-8" wide by 13'-6" high. The existing concrete slopewalls will be extended approximately 14' upstream and downstream along both banks with damaged portions of the wall repaired. Riprap will be installed along the entire length of both slopewalls 133' along the west bank and 148' along the east bank. Riprap will be installed around Piers No. 2 and 3 as well as around the bridge bents for scour protection. Two existing roadside ditches along the north and south side of I-465 will be encapsulated to accommodate the roadway widening. Riprap will be installed at the outlet of each culvert. The existing Carson Avenue overpass bridge will be replaced with a three-span continuous steel beam bridge that will have dimensions of 405'-1.5" long by 38'-8" wide by 28'-2" high. The existing Madison Avenue overpass bridge will be replaced with a three-span continuous steel plate girder bridge and will have dimensions of 327' long by 81'-2" wide by 32' high. Multiple existing pipes will have CIPP liner installed within the existing structure and riprap will be installed at the outlets for scour protection. A total of 1.069 acres will be permanently impacted. Temporary sheet pile cofferdams will be installed in the stream under the I-465 bridges. Dewatering behind the cofferdams will occur. Other temporary measures will be necessary, including pump arounds, in order to isolate the construction area.

Project Location: Beginning at the interchange to I-465 and Carson Avenue and continuing 12,300' west to the I-465 and Highway 31 interchange near Indianapolis

PERMIT CONDITIONS:

This Certificate of Approval is valid only if the construction project is in compliance with all Conditions in this Permit.

DNR PROJECT SPECIFIC PERMIT CONDITIONS

- 1) Implement the mitigation plan received at the Division of Water on June 5, 2020, by the end of spring 2022.
- 2) The mitigation site must be monitored for the survival of the plantings for a minimum of three years; a report must be submitted to the Central Region Environmental Biologist at the Division of Water, 402 W. Washington St., RM W264, Indianapolis, IN 46204-2641 by December 31 of each year to monitor the initiation, progress, and success of the mitigation site; the report must include appropriate pictures of vegetative plantings; a narrative must describe the activity accomplished to date, acres planted, number planted, list of species planted on site, and estimated survival; reports must be submitted each year, even if work has not been initiated on site, a minimum of three reports are required with additional reports until the mitigation site is complete or determined to be successful; if the mitigation site is not successful three years after work initiation, the permit will be considered in violation, and another plan must be submitted for approval.
- 3) The replacement habitat areas must have a minimum survival of 75% of planted material at the end of the monitoring period or additional trees and shrubs must be installed to meet the minimum survival; if the site fails to meet success in any year, replanting shall occur prior to the next monitoring period; an additional year of monitoring shall be required for each year of additional planting.
- 4) The species approved by the DNR in a mitigation plan or a planting plan become part of the permit. If modifications become necessary to the approved species, a Division of Fish and Wildlife biologist must approve all changes.
- 5) Post "Do Not Mow or Spray" signs or an approved equal along the boundary of the proposed mitigation area(s).
- 6) Revegetate all bare and disturbed areas that are not currently mowed and maintained with a mixture of grasses, sedges, and wildflowers native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion; turf-type grasses (including low-endophyte, friendly endophyte, and endophyte free tall fescue but excluding all other varieties of tall fescue) may be used in currently mowed areas only.
- 7) Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
- 8) Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
- 9) Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 5 inches dbh, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30.
- 10) Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
- 11) Do not use broken concrete as riprap.
- 12) Underlay the riprap with a bedding layer of well graded aggregate or a geotextile to prevent piping of soil underneath the riprap.
- 13) Minimize the movement of resuspended bottom sediment from the immediate project area.
- 14) Do not deposit or allow construction/demolition materials or debris to fall or otherwise enter the waterway.
- 15) Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
- 16) Seed and protect all disturbed streambanks and slopes not protected by other methods that are 3:1 or steeper with erosion control blankets that are heavy-duty, biodegradable, and net free or that use loose-woven / Leno-woven netting to minimize the entrapment and snaring of small-bodied wildlife such as snakes and turtles (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.
- 17) Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds beyond those specifically detailed in the permit application.
- 18) Completely remove the temporary cofferdam and pumparounds and any related appurtenances from the floodway* upon completion of the project.
- 19) Except for the material used as backfill as shown on the plans submitted for the permit application, place all excavated material landward of the floodway*.
- 20) All work must conform with the existing bank at the upstream and downstream limits of the project site.
- 21) Do not leave felled trees, brush, or other debris in the floodway*.
- 22) All riprap placed for bank stabilization must conform to the bank.
- 23) Upon completion of the project, remove all construction debris from the floodway*.
- 24) Do not allow the lowest portion of the new bridge to extend below the lowest portion of the existing bridge.
- 25) Anchor the bridge deck to prevent dislodging and/or flotation during high water events.

- 26) Keep the bridge waterway opening free of debris and sediment at all times.
- 27) * Note: For regulatory purposes, the floodway is defined on the attached Floodway Map.

DNR PROJECT GENERAL PERMIT CONDITIONS

- 1) Any modifications or additional construction beyond what was shown on plans received at the Division of Water shall require an additional review and approval from the Department of Natural Resources.
- 2) This Permit must be posted and maintained at the project site until the project is completed
- 3) This Permit shall not be assigned or transferred without the prior written approval of the Department of Natural Resources.
- 4) If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and 29) requires that the discovery must be reported to the Department of Natural Resources within two (2) business days.
- 5) This Permit may be revoked by the Department of Natural Resources for violation of any condition or applicable statute or rule.
- 6) The Department of Natural Resources shall have the right to enter upon the site of the permitted activity for the purpose of inspecting the work authorized under this Permit.

Certificate of Approval Attachments: FW-30322_FloodplainMap.pdf

RIGHT TO ADMINISTRATIVE REVIEW:

A party may appeal this Department of Natural Resources Action through the administrative review procedures found in the Administrative Orders and Procedures Act, IC 4-21.5, and the rules promulgated thereunder 312 IAC 3-1. If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel at all stages of administrative review.

In order to obtain an administrative review, a written petition must be filed with the Division of Hearings within 18 days of the Mail Date of the Action. The petition must contain specific reasons for the appeal and indicate the portion or portions of the project to which the appeal pertains. The petition must be addressed to the Division of Hearings, Indiana Government Center North, Room N103, 100 North Senate Avenue, Indianapolis, Indiana 46204

SERVICE LIST:

Applicant(s):

Indiana Department of Transportation, Crystal Rehder, 100 North Senate Avenue, Room N642-ES, Indianapolis, IN 46204

Agent(s):

Parsons, Thomas Warmer, 101 West Ohio Street Suite 2121, Indianapolis, IN 46204

Adjacent Landowners and Interested Parties:

- Phi Stonelake LLC, 2913 East Hanna Avenue, Indianapolis, IN 46227
- Daniel Annee, 4301 Carson Avenue, Indianapolis, IN 46227
- Farh-Fox Lake Affordable Housing IN, 4401 South Keystone Avenue, Indianapolis, IN 46227
- Charles F Laughner, 4400 Asbury Street, Indianapolis, IN 46227
- Mark and Deborah Belcher, 4401 Asbury Street, Indianapolis, IN
- Marlon L Baker, 2144 Redfern Drive, Indianapolis, IN 46227
- Jimmie Caldwell Trustee of Jimmie C, 2134 Redfern Drive, Indianapolis, IN 46227
- Jimmy and Sherry Flanagan, 2124 Redfern Drive, Indianapolis, IN 46227

Thomas and Tammie Sullivan, 2114 Redfern Drive, Indianapolis, IN 46227
Julia T Wood, 2052 Redfern Drive, Indianapolis, IN 46227
Harry C Kim, 4701 Madison Avenue, Indianapolis, IN 46227
K-F-M Partners, LP, 4701 Madison Avenue, Indianapolis, IN 46227
Anacostia Rail Holdings, 500 Willinger Lane, Jeffersonville, IN
Thoe Holdings LLC Indiana SERI, 4403 Madison Avenue, Indianapolis, IN 46227
Cross Roads Holding at Madison Park, 4725 Madison Avenue, Indianapolis, IN 46227
Abel Flores, 1245 Lick Creek Parkway South Drive, Indianapolis, IN 46227
Steve and Dawn Schenewark Pepper, 1227 Lick Creek Parkway South Drive, Indianapolis, IN 46227
Longacre Mobile Home Community LLC, 4701 Madison Avenue, Indianapolis, IN 46227
Jeremiah N Summers, 4708 Madison Avenue, Indianapolis, IN 46227
Dennis E Miller II, 4720 Shelby Street, Indianapolis, IN 46227
Indianapolis Christian Fellowship C, 4540 Madison Avenue, Indianapolis, IN 46227
Yorktown Homes South Inc, 4800 Chesterfield West Drive, Indianapolis, IN 46227
F David Bixler Trustee 1/2 Int and Lo, 605 Stover Avenue, Indianapolis, IN 46227
NSA Property Holdings LLC % Secureca, 551 Stover Avenue, Indianapolis, IN 46227
Northacre Investment Group, 1826 South Main Street, Akron, OH 44301

Courtesy Notification:

US Army Corps of Engineers, Louisville District, PO Box 59, Louisville, KY 40201
Marion County SWCD, 1200 South Madison Avenue, Suite 200, Indianapolis, IN 46225
Department of Business and Neighborhood Services, Donna Price, 1200 South Madison Avenue, Suite 100, Indianapolis, IN 46225
Indianapolis Department of Public Works, John Oakley, 1200 South Madison Avenue, Suite 200, Indianapolis, IN 46225
Indiana Department of Natural Resources, Division of Law Enforcement District 6 Headquarters 11 Durbin Street, Camp Atterbury, Edinburgh, IN 46124

ADDITIONAL PERMITTING AGENCIES:

This is not a waiver of any local ordinance or other state or federal law and does not relieve the permittee of any liability for the effects which the project may have upon the safety of the life or property of others.

This does not relieve the permittee of the responsibility of obtaining permits, approvals, easements, etc. under other regulatory programs administered by, but not limited to, the U.S. Army Corps of Engineers, County Drainage Board, Indiana Department of Environmental Management and local, city, or county floodplain management, planning or zoning commissions.

ATTACHMENT 7-3: Environmental Commitment Summary

| COMMITMENT NUMBER | COMMITMENT TEXT | RESPONSIBLE PARTY? |
|-------------------|---|-------------------------|
| 1 | FHWA and INDOT will provide funding and technical assistance to support a comprehensive effort to update the Interim Reports for Warrick, Gibson, Pike, Daviess, Martin, Monroe (excluding Bloomington), Morgan, Johnson, and Marion (Perry, Decatur and Franklin Townships only) counties. | IFA |
| 2 | INDOT will provide to permitting agencies and USEPA a tracking summary on an annual basis. The summary will identify the mitigation commitments and describe the status of the activities-to-date associated with each commitment. | IFA |
| 3 | INDOT will consider the following of property lines where possible to minimize farm splits. | IFA |
| 4 | INDOT will consider adjustment of cul-de-sac locations to avoid/minimize stream and wetland impacts. | Design-Build Contractor |
| 5 | Where reasonable and cost effective, local service roads will be used to maintain accessibility for residences, farm operations, businesses, churches, schools, and other land uses. The determination of whether local service roads to potentially landlocked parcels will be constructed or whether the landlocked parcels will be acquired due to the cost of providing access will be made during final design. | IFA |
| 6 | Efforts will be made to minimize the disruption of local crossroads and bicycle facilities, and minimize impacts to school bus and emergency provider routes. The alternatives were developed that avoid closure of local roads where possible: in some locations the Interstate will overpass the county roads, while in other instances the county roads will bridge the Interstate. Whether overpasses in these areas need wider shoulders or less steep grades will be investigated during the design phase of the project. | Design-Build Contractor |
| 7 | Any roads terminated at the Interstate will be provided a cul-de-sac or other means to allow large vehicles such as school buses, snow plows, or county maintenance vehicles sufficient turn around space. Appropriate signing will be placed at the nearest intersection to warn that the road does not provide for through traffic. | Design-Build Contractor |
| 8 | Efforts have been made and will continue to be made to minimize relocations. | IFA |
| 9 | All acquisitions and relocations required by this project will be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended, 49 CFR (Code of Federal Regulations) 24, and Title VI of the Civil Rights Act of 1964. INDOT will take required actions to ensure fair and equitable treatment of persons displaced as a result of this project up to and including providing replacement housing of last resort as defined in 49 CFR 24.404. Relocation resources for this project are available to residential and business relocatees without discrimination. Payments received are not considered as income under the provisions of the Internal Revenue Code of 1954; or for the purposes of determining any person's eligibility, or the extent of eligibility, for assistance under the Social Security Act or any other Federal law. | IFA |
| 10 | Advisory services will be made available to farms and businesses, with the aim of minimizing the economic harm to those businesses and farm establishments. | IFA |
| 11 | The final design of the selected alternative may include shifting the alternative both vertically and horizontally, wherever feasible, to minimize noise impacts where other factors are not prohibitive. | Design-Build Contractor |
| 12 | Consideration will be made to provide reasonable and feasible noise abatement, including noise barrier walls, early in construction for the added benefit of mitigating construction noise. Construction vehicles and equipment will be required to follow INDOT Standard Specifications and shall be maintained in proper mechanical condition. Proper maintenance of construction vehicles shall be performed to assist in controlling noise. | Design-Build Contractor |
| 13 | Erosion control devices will be used to minimize sediment and debris from leaving the project site in runoff. Erosion control measures will be put in place as a first step in construction and maintained throughout construction. | Design-Build Contractor |
| 14 | Wetlands within the right of way that are not within the construction limits will be delineated and protected from construction impacts. Protection measures may include silt fences and/or other erosion control measures. | Design-Build Contractor |


ATTACHMENT 7-3: Environmental Commitment Summary

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| 15 | Timely revegetation after soil disturbance will be implemented and monitored for coverage and viability. Revegetation will consider site specific needs for water quality and karst protection (where applicable). Unless specific needs are identified, revegetation of disturbed areas will occur in accordance with INDOT Standard Specifications. | Design-Build Contractor |
| 16 | Any riprap used below the high-water mark and outside of the highway clear zone will be of a large diameter in order to allow space for habitat for aquatic species after placement. | Design-Build Contractor |
| 17 | Slopes will be designed that resist erosion. If they exceed 2 to 1, they will include stabilization techniques. The extent of artificial bank stabilization (e.g. riprap, concrete) will be minimized and bioengineering techniques will be considered where situations allow. | Design-Build Contractor |
| 18 | Best Management Practices (BMP) will be implemented during construction to protect groundwater. To protect sources of potable water, especially in areas where groundwater from private, individual wells in the principal source of potable water; construct grassy swales to divert stormwater from the road to ditches and streams, and use construction methods to reduce turbidity that construction temporarily causes. Impacts will be mitigated on a case-by-case basis. If residential wells are encountered, they will be re-drilled as part of the right of way agreement with the property owner. If any identified well needs to be backfilled, that action will be performed according to 312 IAC 13-10 (see INDOT Standards & Specifications Section 202.02). | Design-Build Contractor |
| 19 | Fugitive dust generated during land clearing and demolition procedures will be controlled by proper techniques as documented in INDOT Standard Specifications. These include, but are not limited to, vegetative cover, mulch, spray-on adhesive, calcium chloride application, water sprinkling, stone, tillage, wind barriers, and construction of a temporary graveled entrance/exit to the construction site. | Design-Build Contractor |
| 20 | Prior to construction, planning for parking and turning areas outside the construction limits but within the right of way for heavy equipment will be located to minimize soil erosion, tree clearing, and impacts to other identified resources (such as karst). | Design-Build Contractor |
| 21 | All equipment servicing and maintenance will take place in a designated maintenance area away from environmentally sensitive areas such as streambeds, wetlands, karst features, sinkholes, areas draining into sinkholes, and historic resources. | Design-Build Contractor |
| 22 | To avoid any direct take of Indiana bats and northern long-eared bats, no trees with a diameter of 3 or more inches will be removed between April 1 and September 30. Tree clearing and snag removal will be kept to a minimum and limited to within the construction limits. | Design-Build Contractor |
| 23 | In the median, outside the clear zone, tree clearing will be kept to a minimum with woods kept in as much a natural state as reasonable. | Design-Build Contractor |
| 24 | Forested medians will be managed following IDNR State Forest timber management plan. | IFA |
| 25 | Woody vegetation will be incorporated into the revegetation plan where appropriate. Woody vegetation will only be used a reasonable distance beyond the clear zone to ensure a safe facility. In areas that contain water resources, low-growing shrubs will be considered for planting in the adjacent areas outside the clear zone, but within the right of way. | Design-Build Contractor |
| 26 | Revegetation of disturbed soils in the right of way and medians will utilize native grasses and native wildflowers as appropriate, such as those cultivated through INDOT's Roadside Heritage program. | Design-Build Contractor |
| 27 | A Traffic Management Plan (TMP) will be developed in design through coordination with local agencies, emergency responders and schools to ensure that appropriate access is maintained during construction with as little disturbance to emergency routes as possible. | Design-Build Contractor |
| 28 | Early notice of detour routes will be provided to the local communities. | Design-Build Contractor |
| 29 | Construction noise and vibration abatement measures may be required in areas where residences or other sensitive noise receivers are subjected to excessive noise from highway operations. Abatement measures will include those contained in INDOT Standard Specifications. Consideration will be given to providing reasonable and feasible noise abatement early in the construction phase to mitigate construction noise. Noise impacts could be controlled through the regulation of construction time and hours worked, using noise-controlled construction equipment, limitations of construction vehicles during evening and weekend hours and by locating equipment storage areas away from noise sensitive areas. | Design-Build Contractor |

ATTACHMENT 7-3: Environmental Commitment Summary

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| 30 | Construction in a Floodway permit(s) will be applied for with the IDNR Division of Water before or during the design phase of this project for all areas that require a "Construction in a Floodway" permit. | IFA |
| 31 | Construction work within floodplains will be carefully controlled to minimize impacts to stream, wetlands, and wildlife habitat. | Design-Build Contractor |
| 32 | The undersides of existing bridges that must be removed for construction of I-69 will be visually surveyed and/or netted to determine their use as night roosts by Indiana bats and northern long-eared bats during the summer. | Design-Build Contractor |
| 33 | Design and construction will adhere to the Wetland MOU (dated January 28, 1991). The primary purpose of the Wetland MOU is to fulfill water resource permitting requirements. In so doing, the Wetland MOU serves to minimize impacts to the Indiana bat and northern long-eared bat by mitigating for wetland losses and creating bat foraging areas at greater ratios than that lost to the project. | IFA |
| 34 | BMPs will be used in the construction of this project to minimize impacts related to borrow and waste disposal activities. | Design-Build Contractor |
| 35 | Solid waste generated by clearing and grubbing, demolition or other construction practices will be removed from the location and properly disposed. | Design-Build Contractor |
| 36 | Contractors are required to follow safeguards established in INDOT Standard Specifications (Section 203.08 Borrow or Disposal). Prior to their use, borrow and waste sites will be assessed for impacts to resources such as archaeological resources, wetlands, etc. Requirements include avoiding impacts, obtaining required permits, and/or mitigating all impacts for borrow/disposal sites that contain these resources. | Design-Build Contractor |
| 37 | Special Provisions will prohibit the filling and damaging of wetlands located outside the construction limits within the right of way by delineating and protecting these areas from construction use and secondary construction impacts. Note that this does not include isolated ponds such as farm ponds or those developed from old borrow sites. These are exempt from regulation because they are manmade bodies of water constructed from uplands. | Design-Build Contractor |
| 38 | Burning of construction related debris will be monitored and will be conducted in accordance with all local, State, and Federal regulations. All burning will be conducted a reasonable distance from all homes and care will be taken to alleviate any potential atmospheric conditions that may be a hazard to the public. All burning will be monitored. | Design-Build Contractor |
| 39 | All I-69 engineering supervisors, equipment operators, and other construction personnel and INDOT maintenance staff will attend a mandatory environmental awareness training that discloses where known sensitive Indiana bat, northern long-eared bat, and bald eagle sites are located in the project area, addresses any other concerns regarding bats and bald eagles, and presents a protocol for reporting the presence of any live, injured, or dead bats (any species) or eagles (bald or golden) observed or found within or near the construction limits or right of way during construction, operation, and maintenance of I-69. Should any live, injured, or dead bats or eagles be located; all work shall stop within 200 feet until further notice from the USFWS. Project personnel will also be instructed about the terms and conditions of the Incidental Take Statement and the restrictions imposed by them before construction and operation begins. | Design-Build Contractor |
| 40 | INDOT and FHWA will keep track of all known bald eagles killed or injured from vehicle collisions to ensure that the anticipated amount of incidental take, 3 killed/injured bald eagles during any five-year period for I-69 from Evansville to Indianapolis, is not exceeded. | Design-Build Contractor |
| 41 | INDOT and FHWA will keep track of all known Indiana bats killed from vehicle collisions to ensure that the anticipated amount of incidental take, 21 killed per calendar year for I-69 from Evansville to Indianapolis, is not exceeded. | Design-Build Contractor |
| 42 | Prepare a marketing plan for dissemination of the cultural and natural resources audio tour developed per the Section 106 MOA. | IFA |
| 43 | A Phase Ia archaeological survey and any other subsequent surveys will be conducted for any final right of way adjustments which were not covered under the original Phase Ia survey. | IFA |
| 44 | Prior to construction, Phase Ic, Phase II, and/or any other subsequent survey's will be conducted for previously identified archaeological sites identified in the Section 106 MOA. | IFA |

ATTACHMENT 7-3: Environmental Commitment Summary

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| 45 | FHWA and INDOT will assist the SHPO to develop its GIS capability to facilitate Tier 2 consultation and to support historic preservation reviews for other transportation projects in southwest Indiana. | IFA |
| 46 | FHWA and INDOT will provide financial and technical assistance to the SHPO for the further development of GIS-based tools for identifying and recording archaeological sites. | IFA |
| 47 | Appropriate cleanup of hazardous materials and/or removal of underground storage tanks (USTs) and aboveground storage tanks (ASTs) may be required if a contaminated site is purchased. INDOT will coordinate with the appropriate agencies and property owners to see that proper cleanup of any contaminated sites are completed. All tanks will be removed in accordance with applicable state and federal laws and regulations. As part of the removal of the USTs, an impact assessment consisting of soil and/or groundwater testing will be performed. |  |
| 48 | Where construction would require the removal/relocation of buried fuel (oil, natural gas, and diesel) pipelines, coordination will occur with pipeline owners, per INDOT Standard Specifications. Also, stipulations in the Standard Specifications will be followed to ensure safe removal/relocation of the pipelines and associated appurtenances, and appropriate remediation of soils and groundwater impacts, should such be necessary. In addition, the procedure will include advance notification of IDEM regarding the potential for contamination of groundwater and need for remediation. | Design-Build Contractor |
| 49 | INDOT will be responsible for proper closing of any improperly abandoned well discovered during construction within the project right of way, according to INDOT Standard Operating Procedures for closing wells that are to be abandoned. In addition, the procedure will include advance notification of IDEM regarding the potential for contamination of groundwater and need for remediation. The IDNR shall be contacted to ensure any located abandoned wells are properly capped. If an abandoned or dry petroleum well is encountered during construction, proper closure methods shall be implemented through coordination with the IDNR, Division of Oil and Gas, and IDEM. | Design-Build Contractor |
| 50 | Wetlands determined to be "waters of the U.S." will be replaced in accordance with the MOU between INDOT, USFWS, and IDNR as dated January 28, 1991, or any successor agreement entered into by these agencies. While not signatory to the agreement, USACE typically follows the mitigation ratios within the MOU. Under the 1991 MOU, wetlands would be mitigated as follows: Farmed 1 to 1; Scrub/shrub and palustrine/lacustrine emergent 2 - 3 to 1 depending upon quality; Bottomland hardwood forest 3 - 4 to 1 depending upon quality; Exceptional, unique, critical (i.e. cypress swamps) - 4 and above to 1 depending upon quality. As required for Section 404/401 permitting, Wetland Mitigation and Monitoring Plans will be prepared. | IFA |
| 51 | If appropriate, wetland mitigation may include wetland banking. Wetland banking is an effort to build a large wetland mitigation site(s) to mitigate for a number of smaller impacts from potentially a number of projects typically in the same watershed. This typically results in a much more functional and valuable replacement wetland. | IFA |
| 52 | All 404/401 permit requirements shall be implemented in design and construction. Construction limits in final design shall remain within the construction limits outlined in the 404/401 permits and applications. Any locations where construction limits extend outside the permitted construction limits, and may result in additional impacts to wetlands or streams, shall be evaluated to ensure permit requirements are met. | Design-Build Contractor |
| 53 | Where woody vegetation, wetlands, wildflowers, karst, water bodies, riparian habitat, or environmentally sensitive areas occur outside the construction limits but within the right of way; permanent "Do Not Mow or Spray" signs will be posted to alert construction and maintenance staff. This will assist in prevention of disturbance, clearing, and/or herbicide treatment both during and after construction. | Design-Build Contractor |

ATTACHMENT 7-3: Environmental Commitment Summary

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| 54 | Tree clearing and snag removal will be kept to a minimum and limited to within the construction limits and calendar requirements. Minimize tree clearing and snag removal near streams and rivers. [Note: Providing approximately 20 feet of cleared space around a bridge would be permitted to allow sufficient room for bridge maintenance and inspection.] Environmentally sensitive locations (e.g., wetlands, streams, historic structures, archaeology sites, sinkholes) in the general area will be clearly shown on construction plans. Sites outside the construction limits within the right of way will be delineated. These sites will not be permitted for use as staging areas, borrow, or waste sites. (Note: due to sensitive nature of the resource, archaeological sites shall be labeled strictly as avoidance areas with no reference to archaeology.) Post "DO NOT DISTURB" signs at the construction zone boundaries prior to and during construction to prevent disturbance to these areas. | Design-Build Contractor |
| 55 | Where reasonable, the selected alternative follows existing property lines and minimizes dividing or splitting of large tracts of farmland to reduce the creation of point rows and uneconomic remnants. This will continue to be incorporated into final right of way development. | IFA |
| 56 | Where providing access to farm parcels is not deemed reasonable from an economic standpoint (i.e., it would cost more to provide new access than to acquire the property), the disposition of landlocked parcels and uneconomic remnants will be addressed during final design and right of way acquisition. | IFA |
| 57 | The NRCS has been contacted and appropriate analyses has been conducted in accordance with the Farmland Protection Policy Act. Coordination will continue with the NRCS to determine the feasibility of participating in the Farm and Ranch Lands Protection Program (formerly known as the Farmland Protection Program). | IFA |
| 58 | INDOT and FHWA will incorporate local and regional farmland protection strategies into the I-69 Community Planning Program. | IFA |
| 59 | Upland forest impacts will be mitigated at a ratio of 3 to 1 for the I-69 Evansville-to-Indianapolis project as a whole, through the preservation and/or replacement of forested lands within Southwest Indiana. Mitigation goals are to replace direct forest impacts at a 1 to 1 ratio and provide an additional 2 to 1 ratio of forest preservation. All forest mitigation lands will be protected in perpetuity by conservation easements and/or deed restrictions. It is anticipated that all mitigation for forest impacts caused by each I-69 section will be located within the study area for each section. However, forest mitigation is being developed on a project-wide basis, and may include large tracts that serve as mitigation for multiple Tier 2 sections. The 3 to 1 mitigation ratio may not necessarily be provided within each Tier 2 section; however, the total mitigation for all forest impacts will be 3 to 1. | IFA |
| 60 | INDOT will consult with appropriate resource agencies regarding forest mitigation measures. Potential forest mitigation sites are identified in the Revised Tier 1 Conceptual Forest and Wetlands Mitigation and Enhancement Plan. The plan provides a list of possible replacement sites. | IFA |
| 61 | Riparian forest impacts were calculated by identifying plant communities within 100 feet of a stream, measured from the stream's center. Riparian forest impacts (if non-wetland forests) will be mitigated at a ratio of 1:1 on a linear feet basis in consultation with IDEM and USACE. If these riparian forests are identified as wetland forests, the impacts will be mitigated according to the Wetland MOU. If the riparian forests are identified as non-wetland forests in a floodway, impacts will be mitigated according to IDNR ratios: 2:1 replanting or 10:1 preservation. All other non-wetland riparian forest replacement will be included as part of the 3 to 1 upland forest mitigation. Riparian forest impacts are not additional impacts, but will be addressed as either a non-wetland or wetland forest. | IFA |
| 62 | The realignment of surface streams or impacts to riffle-pool complexes and natural stream geomorphology will be avoided where reasonable. Stream impacts have been minimized through alignment planning and unavoidable relocations will be mitigated. | Design-Build Contractor |
| 63 | Where reasonable, below-water work will be restricted to placement of piers, pilings and/or footings, shaping of spill slopes around the bridge abutments, and placement of riprap. Any in-stream construction timing restrictions will be addressed during permitting. | Design-Build Contractor |
| 64 | If riprap is utilized for bank stabilization, it shall be of appropriate size and extend below the low-water elevation to provide for aquatic habitat. | Design-Build Contractor |
| 65 | Where reasonable, channel work and vegetation clearing shall be restricted to within the width of the construction limits. | Design-Build Contractor |
| 66 | Culverts and other small structures will be placed so that they do not preclude the movement of fish and other aquatic organisms. | Design-Build Contractor |
| 67 | Culverts and other small structures will be used to preserve existing drainage patterns. | Design-Build Contractor |

ATTACHMENT 7-3: Environmental Commitment Summary

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| 68 | Consideration will be given to oversized culverts to allow for the passage of small fauna at locations where it is determined to be appropriate and reasonable, and natural bottoms will be preserved when feasible, thereby also reducing impacts to flow rate. The culverts should be of sufficient size to prevent upstream bed instability and erosion of downstream banks. | IFA |
| 69 | Erosion control devices such as burlap, jute matting, erosion control blankets, grading, seeding, and sodding, as well as other temporary erosion and sediment control devices shall be used to minimize sediment and debris from leaving the project site in runoff and minimize sediment and debris in tributaries crossed by the project. | Design-Build Contractor |
| 70 | In mitigation sites and within the proposed right of way for I-69, INDOT will use appropriate herbicides and/or physical mechanisms to control invasive plants, such as purple loosestrife, reed canary grass, kudzu, Japanese knotweed and others. | IFA |
| 71 | Coordination with the USFWS will continue pursuant to the Migratory Bird Treaty Act of 1918. | IFA |
| 72 | Wildlife crossings, if applicable, will be determined and designed considering size, placement, substrate, vegetative cover, moisture, temperature, light, and human disturbance; roadway warning signs and flashers; and potential for planting unpalatable species near roadway to reduce likelihood of wildlife attraction. | Design-Build Contractor |
| 73 | Where reasonable, the selected alternative will cross rivers and streams at their narrowest floodway width, reduce the number of stream relocations and floodplain encroachments, and utilize existing stream crossings where appropriate. | IFA |
| 74 | Floodplain bridging has been incorporated at multiple locations to reduce floodplain impacts. Where backwater exceeds the specified limits identified in the Flood Control Act, flood easements will be secured to address the potential effects. All structures will be designed to meet FHWA allowable backwater limits. | Design-Build Contractor |
| 75 | Return disturbed in-stream habitats to their original condition, when possible, upon completion of construction in the area. | Design-Build Contractor |
| 76 | Where appropriate, especially in karst areas, construct roadside ditches that are grass-lined and connected to filter strips and containment basins. Avoidance of infiltration features within wellhead protection areas (WHPAs) is the preferred approach to minimize groundwater impacts. During the design phase, specific coordination will be conducted with IDEM for any detention/retention facilities planned in WHPAs. | Design-Build Contractor |
| 77 | Make every effort to minimize the amount of salt used on the bridges and roads. Use alternative substances or low salt (e.g., sand) as much as possible. | IFA |
| 78 | Where reasonable and appropriate, floodplains and oxbows will be bridged to protect environmentally sensitive areas. | IFA |
| 79 | Efforts will be made to locate Interstate alignments so they avoid transecting forested areas and fragmenting core forest where reasonable. | IFA |
| 80 | In areas with suitable summer habitat for the Indiana bat and northern long-eared bat, mist net surveys will be conducted between May 15 and August 15 at locations determined in consultation with USFWS as part of Tier 2 studies. If individuals of these species are captured, some will be fitted with radio transmitters and tracked to their diurnal roosts for at least five days unless otherwise determined by USFWS. | IFA |
| 81 | The undersides of existing bridges that must be removed for construction of I-69 will be visually surveyed and/or netted to determine their use as night roosts by Indiana bats during the summer. | Design-Build Contractor |
| 82 | If feasible and appropriate, I-69 and frontage road bridges (including the Patoka River and East Fork of the White River bridges) will be designed to provide suitable night roosts for Indiana bats and other bat species in consultation with USFWS. | IFA |
| 83 | Where feasible and appropriate, bridges will be designed with no or a minimum number of in-span drains. To the extent possible, stormwater flow will be directed towards the ends of the bridge and to the riprap drainage turnouts. | Design-Build Contractor |
| 84 | Indiana bat and northern long-eared bat summer habitat will be created and enhanced in the Action Area through wetland and forest mitigation focused on riparian corridors and existing forest blocks for habitat connectivity. In selecting sites for summer habitat creation and enhancement, priority will be given to sites located within a 2.5-mile radius from a recorded capture site or roost tree. If willing sellers cannot be found within these areas, other areas may be used as second choice areas as long as they are within the Action Area and close enough to benefit the maternity colonies, or are outside the Action Area but accepted by USFWS. | IFA |
| 85 | Where appropriate, mitigation sites will be planted with a mixture of native trees that is largely comprised of species that have been identified as having relatively high value as potential Indiana bat roost trees. | IFA |

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| 86 | Tree plantings at mitigation sites will be monitored for a minimum of five years after planting to ensure establishment and will be protected in perpetuity via conservation easements and/or deed restrictions. Some mitigation sites will be monitored for a minimum of 10 years, as specified in the mitigation and monitoring plans for each site. | IFA |
| 87 | Investigations will be coordinated with the USFWS on purchasing lands in the Action Area from “willing sellers” to preserve summer habitat. Any acquired summer habitat area would be turned over to an appropriate government conservation and management agency for protection in perpetuity via conservation easements and/or deed restrictions in coordination with USFWS. | IFA |
| 88 | A work plan for surveying, monitoring, and reporting of bats will be developed and conducted in consultation with and approved by USFWS. This mist netting effort will be beyond the Tier 2 sampling requirements. Fifty mist netting sampling sites are anticipated. Monitoring surveys focused at each of the 16 known maternity colonies will be completed the summer before construction begins in a given section and will continue each subsequent summer during the construction phase and for at least five summers after construction. If Indiana bats are captured in any section, or if northern long-eared bats are captured in I-69 Section 6, radio transmitters will be used in an attempt to locate roost trees, and multiple emergence counts will be made at each located roost tree. These monitoring efforts will be documented and summarized within an annual report prepared for USFWS. | IFA |
| 89 | Total funding of \$25,000 will be provided for the creation of an educational poster or exhibit and/or other educational outreach media to inform the public about the presence and protection of bats in Indiana, particularly the Indiana bat. Funding would be provided after a Notice to Proceed is issued for the first section of the project. | IFA |
| 90 | GIS maps and databases developed and compiled for use in proposed I-69 planning will be made available to the public. Digital data and on-line maps are being made available from a server accessed on the Indiana Geological Survey (IGS) website at Indiana University http://igs.indiana.edu/arcims/statewide/index.html . Confidential information is not being made available to the public. | IFA |
| 91 | FHWA and INDOT intend to comply, as appropriate, with the Bald and Golden Eagle Protection Act permit requirements established by FWS prior to construction. This includes the completion/incorporation of the previously developed Section 7 Consultation Conservation Measures associated with the bald eagle. | IFA |
| 92 | In coordination with USFWS, an herbicide use plan will be developed for locations within the Indiana bat maternity colony areas. | IFA |
| 93 | INDOT will consult IDNR to determine appropriate measures during tree clearing to address concerns about the emerald ash borer. INDOT and contractors shall comply with the requirements of 312 IAC 18-3-18 and Title 312 Natural Resources Commission Emergency Rule (LSA Document #12-195(E)) in regards to handling and transportation of cleared trees to prevent the spread of the emerald ash borer. | Design-Build Contractor |
| 94 | INDOT and FHWA will provide USFWS with a written annual report detailing all Indiana Bat, Bald Eagle, and Fanshell Mussel conservation measures, mitigation efforts, and monitoring that have been initiated, are on-going, or completed during the previous calendar year and the current status of those yet to be completed. The report will be submitted to the Service’s Bloomington Field Office (BFO) by 31 January each year and reporting will continue until completion of monitoring on all I-69 mitigation sites or until otherwise agreed to with the Service. | IFA |
| 95 | INDOT and FHWA will develop a program that establishes a regional strategy for managing growth and economic development associated with I-69. | IFA |
| 96 | Efforts will be made to locate Interstate alignments beyond 0.5 miles from known Indiana bat hibernacula. | IFA |
| 97 | A plan for hibernacula surveys (caves and/or mines) will be developed and conducted with and approved by USFWS during Tier 2 studies. | IFA |
| 98 | Variable-width medians and independent alignments will be used where appropriate to minimize impacts to sensitive and/or significant habitats. Context sensitive solutions will be used, where possible. This may involve vertical and horizontal shifts in the Interstate. | IFA |
| 99 | Total funding of \$50,000 will be provided to supplement the biennial winter census of hibernacula within/near the proposed Winter Action Area. Funding will be made available as soon as practical after Notice to Proceed given to construction contractor for the applicable Tier 2 Section. | IFA |

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| 100 | Total funding of \$125,000 will be provided for research on the relationship between quality autumn/spring habitat near hibernacula and hibernacula use within/near the Action Area. This research should include methods attempting to track bats at longer distances such as aerial telemetry or a sufficient ground workforce. A research work plan will be developed in consultation with the USFWS. Funding will be made available as soon as practical after Notice to Proceed given to the construction contractor for the applicable Tier 2 Section (or earlier). | IFA |
| 101 | Rest areas will be designed with displays to educate the public on the presence and protection of sensitive species and habitats. Attractive displays near picnic areas and buildings will serve to raise public awareness as they utilize the Interstate. Information on the life history of the Indiana bat, the bald eagle, the fanshell mussel, protecting karst, and protecting water quality will be included in such displays. | IFA |
| 102 | INDOT will closely coordinate with IDNR biologists regarding the locations of bald eagle nests near and within the Action Area. Alignments will be shifted away from bald eagle nests when feasible. | IFA |
| 103 | Standard operating procedures will be employed to remove carrion from the Interstate in a timely manner to reduce the potential for vehicle/eagle collisions. Appropriate INDOT Maintenance Units in Districts where proposed I-69 crosses or comes near to the Patoka River, East Fork of the White River, and West Fork of the White River will be given notice for special attention to this measure, especially in winter. | IFA |
| 104 | Where feasible and appropriate, a vegetative screen (i.e., trees) will be maintained within INDOT owned R/W between any nearby bald eagle nests and the Interstate to minimize visual and auditory disturbances during and after construction. | IFA |
| 105 | In regards to bald eagle habitat restoration/replacement, wetland and forested mitigation sites will be considered in areas near the Patoka River bottoms, Beanblossom Bottoms, East Fork of the White River, White River (Elnora), White River (Gosport), White River (Blue Bluff), and possibly others. Purchasing of lands for habitat preservation shall be considered within the Patoka River bottoms, East Fork of the White River, and Lake Monroe. Any acquired habitat would be turned over to the appropriate government conservation and management agency for protection in perpetuity via conservation easements and/or deed restrictions. | IFA |
| 106 | In regards to bald eagle habitat restoration/replacement, where tree planting is part of forest mitigation near large water bodies and rivers, native tree species that form large, open-branched crowns (e.g. eastern cottonwood and sycamore) will be included in the species mix. | IFA |
| 107 | Mitigation sites will be evaluated for inclusion of bald eagle nesting platforms and artificial perch sites. | IFA |
| 108 | Total funding of \$25,000 will be provided for the creation of an educational pamphlet and/or other educational materials to inform the public about the recovery, presence, and protection of bald eagles, including measures to reduce harm, harassment risks, and water quality. | IFA |
| 109 | Surveys (e.g., braille, crowfoot bar, and/or scuba diving) will be conducted in consultation with the USFWS at all major river crossings along the corridor to determine the presence of mussels. | IFA |
| 110 | If stream crossings cannot be realigned to avoid a mussel bed(s), adverse effects will be minimized by relocating mussels following all appropriate federal and state guidelines. | IFA |
| 111 | Heavy equipment that had previously (within the last two weeks) been utilized in waters infested by zebra mussels will be thoroughly cleaned and left to dry for at least 2 weeks prior to use in proposed I-69 construction to prevent the spread of this invasive species. | Design-Build Contractor |
| 112 | In regards to fanshell mussel habitat restoration/replacement, where reasonable, wetland mitigation will be completed adjacent to the Patoka River, East Fork of the White River, White River (Gosport), and possibly other river areas. Plans will include planting trees to enhance the riparian buffer and restore wetlands to create habitat and protect water quality. Such measures would enhance the opportunity for mussels to colonize the area by improved water quality conditions. All mitigation land would be protected in perpetuity via conservation easements and/or deed restrictions. | IFA |
| 113 | Total funding of \$20,000 will be provided to the USFWS for research on federally listed mussel populations in streams in the Ohio River Valley to be used for the project entitled "Culture and propagation of imperiled mussel species in the Ohio River drainage." Federally listed species selected for propagation include the pink mucket, orange-footed pimpleback, ring pink, fanshell, fat pocketbook, and rough pigtoe. | IFA |
| 114 | Total funding of \$25,000 will be provided for the creation of an educational pamphlet and/or other educational materials to inform the public about the occurrence and protection of the eastern fanshell in Indiana, including measures to minimize harm, and water quality issues. | IFA |
| 115 | No work shall be performed within a jurisdictional stream from April 1 through June 30 without prior written approval of the IDNR Division of Fish and Wildlife. | Design-Build Contractor |

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| 116 | Changes in roads used by school bus routes will be discussed with the school systems well in advance of when they actually take place so the school systems can adjust routes in a timely manner. Where roads are severed, provisions for turnarounds will be included during the final design phase of the project. | Design-Build Contractor |
| 117 | Strict blasting specifications will be followed. Blasting will be performed in accordance with INDOT Standard Specifications 203.15 for roadway construction or other blasting specifications developed for the project. Consideration will be given to the timing of blasting in order to minimize noise impacts to sensitive receivers during periods of occupancy. | Design-Build Contractor |
| 118 | Detailed mitigation and monitoring plans will be developed before or during final design to meet the permitting requirements of the USACE, IDEM, and IDNR when details exist to support such plans. Additional measures to minimize impacts to specific wetland sites will be considered, including narrowing the right of way; installing drainage features such as swales to ensure that roadway runoff does not enter wetland areas; and designing culverts to maintain the flow of water to a wetland area otherwise cut off from its existing water source. | Design-Build Contractor |
| 119 | Consideration will be given in the design phase to planting trees and shrubs along relocated streams along the outside edge of the right of way and outside of the clear zone. | Design-Build Contractor |
| 120 | Continued efforts will be made during final design to identify design features that would minimize impacts at stream crossings, including identifying measures to keep channel and bank modifications to a minimum and, where feasible, avoid channel alterations below the ordinary high water mark elevation. | Design-Build Contractor |
| 121 | During the design phase, consideration will be given to using alternative armoring materials and including portions of dry land under the bridge opening that is not armored with riprap. The use of bio-engineering techniques to provide natural armoring of stream banks will be considered and implemented where practicable. Installation of riprap will be limited to areas necessary to protect the integrity of structures being installed. If riprap is required, it will be installed outside the thalweg and between the toe of slope and the ordinary high water mark (OHWM) where possible. In some instances, such as culvert inlets and outlets, riprap may need to be placed within the thalweg to prevent scour. Riprap will be installed at the same elevation as the thalweg to avoid fish passage issues. Riprap may also be needed above the OHWM to protect bridge piers and abutments from scour where bio-engineering will not suffice. | Design-Build Contractor |
| 122 | All bituminous and Portland cement concrete proportioning plants and crushers will meet the requirements of IDEM. For any portable bituminous or concrete plant or crusher, the contractor must apply for and obtain a permit-to-install from the Permit Section, Air Quality Division of IDEM. Dust collectors must also be provided on all bituminous plants. Dry, fine aggregate material removed from the dryer exhaust by the dust collector must be returned to the dryer discharge unless otherwise directed by the project engineer. | Design-Build Contractor |
| 123 | Efforts have been made to limit interchanges in karst areas, thereby limiting access and discouraging secondary growth and impacts. In Tier 2, further consideration will be given to limiting the location and number of interchanges in karst areas. | IFA |
| 124 | Since most of the proposed project would be located on existing roadway, there is limited potential for local officials and developers to minimize adverse noise impacts. With regard to currently undeveloped land, the creation of a "buffer zone" or locating noise sensitive developments a reasonable distance away from the project would help minimize future noise impacts. Local planning authorities will be provided with information that generally identifies the limits of where 66 dBA and 71 dBA noise levels are predicted relative to the proposed facility and can be utilized to direct noise compatible land uses outside the 66 dBA and 71 dBA buffer zones along the highway. | IFA |
| 125 | As part of the construction plan required under 327 IAC 15-5 (Rule 5), an erosion control plan and storm water pollution prevention plan (SWPPP) will be developed and approved by INDOT and IDEM prior to construction. As part of the erosion control plan and SWPPP, BMPs and erosion and sediment control measures will be in place in accordance with Chapter 205 of the INDOT Design Manual and/or the IDEM Storm Water Quality Manual, whichever is more stringent for each situation. | Design-Build Contractor |
| 126 | INDOT will complete contractor compliance inspections on a regular basis to help control erosion and sediment on the project | Design-Build Contractor |
| 127 | Mitigation measures may include vegetative screening and roadside ditch enhancements with wetland and wildflower plantings. | Design-Build Contractor |

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| 128 | Wetlands and wetland complexes will continue to be avoided as much as possible. If unable to be avoided completely, wetland impacts will be minimized by shifts in the alignment. INDOT and FHWA are committed to mitigating for unavoidable wetland losses. | Design-Build Contractor |
| 129 | Coordination with all regulatory agencies has been initiated and will continue throughout the development of the proposed mitigation sites that will be offered for compensatory mitigation. Natural channel stream designs for perennial and larger intermittent stream relocation located within the Indiana bat and northern long-eared bat maternity colony areas and the WAA may include but will not be limited to stream designs that incorporate riffle/run/pool/glide or step/pool sequences and sinuosity to replicate natural channel geomorphology, in stream natural structures (log and rock vanes) to help prevent streambank erosion, and riparian buffer plantings outside the clear zone of the roadway. Off-site channel restoration for compensatory mitigation will also be completed including the same natural channel design features | IFA |
| 130 | Site-specific plans for stream relocations will be developed in design considering the needs of sensitive species and environmental concerns. Plans will include the planting of woody and herbaceous vegetation to stabilize the banks. Such plantings will provide foraging cover for many species. Stream Mitigation and Monitoring plans will be developed for stream relocations, as appropriate. | IFA |
| 131 | FHWA and INDOT will work with property owners within the proposed right of way who plan to harvest trees on their property. FHWA and INDOT propose to develop a voluntary agreement with the interested landowners, such as a "right of entry" agreement or other type of covenant, to pay the landowner to limit the time of year in which they harvest their property; this time period would be limited to the late fall and winter when Indiana bats are not present in the forested areas. | IFA |
| 132 | Signs will be used to notify the traveling public of road closures, detours, and other pertinent information, and the local news media will be notified in advance of road closings and other construction-related activities that could excessively inconvenience the community, so that motorists can be advised and plan alternative travel routes. | Design-Build Contractor |
| 133 | INDOT has committed to include Context Sensitive Solutions (CSS) measures such as plantings, "gateways", and other enhancements, within constraints of available right of way, impacts, and cost, as further discussed with city and county agencies during design. | Design-Build Contractor |
| 134 | Existing local service roads are being reconnected at many locations to minimize residential, business, and farm impacts that would be associated with the construction of I-69 Section 6. | Design-Build Contractor |
| 135 | Designs will consider the accommodation of bicycle and pedestrian traffic at new interchanges and grade separations, with further consideration of these accommodations where existing infrastructure is reused. | Design-Build Contractor |
| 136 | Sidewalks to accommodate pedestrians and bicyclists will be included on the overpass from South Street and along Grand Valley Boulevard to the commercial areas east of SR 37. | IFA |
| 137 | Coordination with local officials from the City of Martinsville resulted in I-69 Section 6 passing over SR 252 at the proposed interchange to provide a southbound gateway and allow for a more scenic view traveling south into the city. | IFA |
| 138 | Based on public comment and emergency responder input, an overpass is included at Waverly Road with a connector road to Whiteland/New Whiteland Road. | IFA |
| 139 | A local service road originally proposed on a portion of Old SR 37 west of I-69 north of Stones Crossing Road is shifted to an alignment immediately adjacent to I-69 on the west side of SR 37 from Stones Crossing Road in order to avoid bisecting the Greenwood Mobile Home Park. | IFA |
| 140 | A local service road is included along the west side of I-69 to connect SR/CR 144 to Wicker Road, based on public input and input from the local agricultural community. Portions of this local service road include Old SR 37. | IFA |
| 141 | Public and school district concerns regarding east/west connectivity in Perry Township resulted in most existing crossings of SR 37 remaining, with two interchanges (County Line Road and Southport Road) and four grade separations (Wicker Road, Banta Road, Edgewood Avenue, and Epler Avenue) in the township to provide east-west connectivity. | IFA |
| 142 | Based on input from businesses along Harding Street near I-465, a connection from I-69 to Harding Street is provided via Epler Avenue in addition to maintaining the existing Harding Street exit on I-465. | Design-Build Contractor |
| 143 | INDOT will continue to apply CSS principles as the project moves forward. Further local public input will be received during the final design stage. Other CSS may be incorporated as the development process continues for this project while constraining all the alternatives to the general SR 37 location and elevation to reduce overall impacts and traffic disruptions. | Design-Build Contractor |
| 144 | INDOT will continue to coordinate with emergency and law enforcement agencies as the project progresses into final design, construction, and operation. | Design-Build Contractor |
| 145 | INDOT will work with emergency and law enforcement agencies and township and county governments regarding potential intergovernmental agreements for managing response based on I-69 Section 6 access changes. | Design-Build Contractor |

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| 146 | Median emergency crossover locations will be confirmed by INDOT during final design, in coordination with emergency and law enforcement agencies. | Design-Build Contractor |
| 147 | INDOT will work with fire departments regarding the location, design, and construction of access doors within noise barrier walls for water hydrant access. | Design-Build Contractor |
| 148 | The project will include an interchange and overpass at Ohio Street connecting to Mahalassville Road. Sidewalks and bicycle lanes to accommodate pedestrians and bicyclists will be included within the interchange from Holden Street to Mahalassville Road. This has been proposed to accommodate individuals currently crossing existing SR 37 and the proposed U.S. Bicycle Route 235. | IFA |
| 149 | The project includes an overpass at Grand Valley Boulevard connecting to South Street near Martinsville High School. Sidewalks and bicycle lanes will be included on the overpass to east to Birk Lane to serve the commercial shopping area east of SR 37. This has been proposed to accommodate individuals currently crossing existing SR 37 to access the Walmart and shopping area. Safer access across SR 37 is supported by the City of Martinsville. The western end of the Grand Valley Boulevard sidewalk will be extended north to York Street along the western edge of the Martinsville High School property. | IFA |
| 150 | The City of Martinsville has proposed the Martinsville Bike-Pedestrian Bypass near the I-69 Section 6 project area. This proposed trail would use existing county roads and city streets, and would not intersect I-69 Section 6. Coordination with Morgan County will be ongoing during project design to accommodate future plans for this trail to the extent practical. | IFA |
| 151 | The project includes an interchange and overpass at Hospital Drive/SR 252. Sidewalks and bicycle lanes will be included to accommodate pedestrians and bicyclists. | IFA |
| 152 | The RPA includes an interchange and underpass at Reuben Drive / SR 44. Bicycle lanes will be included to accommodate pedestrians and bicyclists. A bicycle lane will be provided along Reuben Drive and through the SR 44 interchange. | IFA |
| 153 | The Indianapolis Department of Parks and Recreation has proposed a portion of the White River Greenway within the I-69 Section 6 project area. A segment of the proposed White River Greenway Trail would be located along the White River and under the I-465 bridge within the I-69 Section 6 project area. The I-69 Section 6 project would replace and widen the bridge deck and widen the substructure. This bridge work is not anticipated to affect future trail construction under the bridge. Coordination with the Indianapolis Department of Parks and Recreation will be ongoing during project design to accommodate future plans for this trail to the extent practical. | Design-Build Contractor |
| 154 | Morgan County has proposed the White River Greenway Trail within the I-69 Section 6 project area. The proposed White River Greenway would be located west of SR 37 along the White River, from the Morgan/Johnson County line to Henderson Ford Road. Trail plans indicate the trail could be near I-69 Section 6 in the vicinity of Cragen Road and the White River. INDOT will coordinate with Morgan County during final design on the schedule and update White River Greenway Trail plan. | IFA |
| 155 | The Indianapolis Department of Parks and Recreation constructed portions of the Little Buck Creek Trail on either side of SR 37 and has proposed constructing it across the SR 37 right of way. Coordination with the Indianapolis Department of Parks and Recreation will be ongoing during project design to accommodate future plans for this trail. Additional details are included in FEIS Section 7.3.2. | Design-Build Contractor |
| 156 | A national group, the U.S. Bicycle Routes System (USBRS), has mapped U.S. Bicycle Route 50 along Southport Road at SR 37. The USBRS was established in 1978 by the American Association of State Highway and Transportation Officials (AASHTO). As part of the I-69 Section 6 project, facilities will be provided along Southport Road to accommodate the bicycle route through the interchange and the planned trail along Little Buck Creek. | Design-Build Contractor |
| 157 | Five cemeteries have the potential to be impacted by the I-69 Section 6 project. They are the Wilson Family, Old Mount Olive Methodist, Bell, Williams Bradford, and Stockwell/Hammons/Cain Cemeteries. This project would be developed in accordance with Indiana Code regulating construction near cemeteries (IC 14-21-1-26.5 and IC 23-14-44-1). If design plans require the RPA to disturb ground within 100 feet of the cemetery boundary, a cemetery development plan will be completed and submitted to IDNR DHPA during the design phase of project development in accordance with the Indiana Historic Preservation and Archaeology Act (IHPAA). | Design-Build Contractor |
| 158 | Noise abatement has been analyzed at 30 locations. There are ten feasible and reasonable noise barrier locations in the refined preferred alternative. For a description of barriers, see Table 5.10-6 and Figures 5.10-1 to 5.10-14 of the FEIS. Potentially affected property owners and/or tenants at the potential barrier locations that meet INDOT feasible and reasonableness criteria will be surveyed during final design in accordance with the INDOT Traffic Noise Analysis Procedure to determine whether they warrant noise abatement. A final determination on noise abatement for the project will be made during the design phase. At such time, additional noise analysis will be performed to more accurately determine barrier performance, barrier characteristics (length and height), and the optimal barrier location for any potential noise barriers that may be recommended for noise abatement. | Design-Build Contractor |

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| 159 | Environmentally-sensitive locations (e.g., wetlands, historic structures, or archaeology sites, or drinking water wells) in the general project area will be clearly shown on construction plans and called out to contractors during a pre-construction meeting. These sites will not be permitted for use as staging areas, borrow, or waste sites. Additionally, appropriate protection measures such as spill prevention, sediment and erosion control, and stormwater pollution prevention will be required of the contractor near these areas. | Design-Build Contractor |
| 160 | Prior to construction, 327 IAC 15-5 (Rule 5) requires that the contractor develop a construction plan for stormwater discharges from construction activities encompassing one or more acres. A SWPPP will be developed and approved by INDOT and IDEM prior to construction. The SWPPP will be provided to the local stormwater officials for each community within the project area and to relevant water utilities for areas within a WHPA in the project area. The construction contract(s) will require that a level 2 stormwater inspector, meeting current INDOT qualifications, be engaged to insure the SWPPP is implemented per the approved permit. A level 2 stormwater inspector (SWQM) must successfully complete the INDOT Construction Stormwater Training course and hold a current training verification document for that course. At the time this document is prepared, a level 2 stormwater inspector shall hold a current certification as a CESSWI, or a CESSWI In-Training, or a CISEC, or a CISEC In-Training, or a CPESC, or a CPESC In-Training, or an approved equivalent. | Design-Build Contractor |
| 161 | BMPs will be used to minimize sediment and debris within the project area for temporary erosion control. | Design-Build Contractor |
| 162 | Prior to construction, heavy equipment parking and turning areas may be located outside the construction limits but within the right of way. Parking and turning areas will be located in areas that do not require additional tree clearing, and will avoid environmentally sensitive areas, such as wetlands, wellhead protection areas (WHPAs) or areas prone to soil erosion. | Design-Build Contractor |
| 163 | SWPPP, spill prevention, and stormwater BMPs will be implemented during and after construction to protect groundwater. Potable water sources will be protected through the use of BMPs such as diversion of stormwater into grassy swales, and the use of construction BMPs such as straw or rock check dams, rock filter berms, sediment traps and/or sediment basins to reduce sediment erosion. | Design-Build Contractor |
| 164 | Construction equipment will be maintained in proper mechanical condition. Mobile source air toxics (MSAT) and diesel emission reduction strategies may also be employed to limit the amount of diesel emissions from construction equipment, such as limiting idling times or reducing the number of trips. | Design-Build Contractor |
| 165 | The contractor SWPPP will specify heavy equipment parking area locations and measures taken to prevent tracking onto roadways, control spills, and provide erosion and sediment control. These will be located in areas that do not require additional tree clearing, and will avoid environmentally sensitive areas, such as wetlands or areas prone to soil erosion. | Design-Build Contractor |
| 166 | The potential construction impacts to the Indiana bat and northern long-eared bat summer habitat will be addressed in accordance with the requirements of the USFWS revised BO for Tier 1, issued on August 24, 2006 and amended on May 25, 2011 and July 24, 2013, and subsequent formal consultation conditions specific to I-69 Section 6. The BO for I-69 Section 6 will dictate the mitigation required for construction impacts. | IFA |
| 167 | To fulfill Rule 5 (327 IAC 15-5), contractors will be required to provide a spill response plan acceptable to INDOT and IDEM. This response plan will include, at minimum, protocols for contact with emergency response personnel, material safety data sheets, and copies of agreements with any agencies that are part of the spill-response effort. An emergency contact for the contractor will also be required. The contractor will work with the relevant water utilities for areas within a WHPA in developing these spill response plans. | Design-Build Contractor |
| 168 | Traffic flow maintenance and construction sequences will be planned and scheduled to minimize traffic delays on existing public crossroads. | Design-Build Contractor |
| 169 | Local law enforcement officials, fire departments, and other emergency responders will be notified by the construction contractor at least one month prior (or sooner if required by local regulations) to all road closings and other construction-related activities that could affect their response times and routes so they can plan alternative routes in advance. | Design-Build Contractor |
| 170 | Contractors will be required to coordinate with the appropriate utility during the final design phase and during construction with regard to all borrow or disposal areas within wellhead protection areas (WHPAs). Special provisions will be included in contract documents that restrict the storage of construction materials generated by clearing and grubbing or demolition from within the WHPAs. | Design-Build Contractor |

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| 171 | Provisions will be included in the construction contracts to provide additional limitations on the location of waste and borrow facilities associated with I-69 Section 6. These provisions will be coordinated with IDEM prior to the finalization of the construction contracts. | Design-Build Contractor |
| 172 | Efforts will be made in this project to create positive impacts and reduce negative impacts without compromising traffic operations and safety. As the project continues into design, INDOT will consult with local governments regarding project elements such as signage, bridge design, and landscaping. | IFA |
| 173 | Non-diffuse lighting will be considered, where appropriate. Any lights installed will be at least 40 feet above the highway in order to avoid collisions between bats and vehicles. Lighting locations will be identified during final design. | Design-Build Contractor |
| 174 | Recommendations for additional work related to hazardous materials include confirmation of final construction limits to verify no impacts to 12 sites, Phase I Environmental Site Assessments (ESAs) for 9 sites, and Phase II ESAs for 13 sites. See FEIS Section 5.16 for site locations. | Design-Build Contractor |
| 175 | The Phase I and II ESAs would be performed prior to or as part of the right of way acquisition process. Prior to any field work, a site-specific Health and Safety Plan would be completed that would address workplace safety, proper protective equipment, and standards of operation. The recommendations listed below have been developed for the properties of environmental concern impacted by I-69 Section 6. | Design-Build Contractor |
| 176 | Multiple USTs were reported and/or identified within the potential right of way for I-69 Section 6. All USTs encountered must be properly removed and soils and groundwater evaluation completed. In the event that an unknown UST is encountered, it would be removed in accordance with 329 IAC 9, which includes an assessment of soil and groundwater. | Design-Build Contractor |
| 177 | Major streams and FEMA mapped 100-year floodplains crossed in Section 6 are at White River, Little Buck Creek, Pleasant Run Creek, Honey Creek/Messersmith Creek, North Bluff Creek, Crooked Creek, Stotts Creek, Clear Creek, Indian Creek, and State Ditch. A final hydraulic design study that addresses structure size and types will be completed during the design phase of I-69 Section 6, and a summary will be included with the field check plans and project design summary. Floodplain encroachments will be minimized, where reasonable, by using existing bridge crossings and by applying design practices such as longer bridges and perpendicular stream crossings where new crossings are warranted. | Design-Build Contractor |
| 178 | Longitudinal and transverse floodplain encroachments will be minimized, where reasonable, through reuse of existing bridges, and design practices such as longer bridges and perpendicular stream crossings for new bridges. Flood easements may be acquired at these or other locations if determined appropriate. | Design-Build Contractor |
| 179 | All floodway mitigation required for Construction in a Floodway permits will follow the IDNR mitigation guidelines. | Design-Build Contractor |
| 180 | All water resource areas within the right of way will be identified on the design plans, and these areas will have IDEM approved erosion control measures as part of the overall erosion control plan to prevent any filling or contamination of these areas during construction | Design-Build Contractor |
| 181 | If appropriate, wetland mitigation may include wetland pooling, meaning efforts would be made to group mitigation sites together to create a more substantial and effective mitigation site. | IFA |
| 182 | Environmentally sensitive areas, to include waterbodies, wetlands, and other natural areas will be marked with signs in the right of way. The marking of jurisdictional streams will be coordinated with IDEM during project design. Herbicide use in these areas will be limited to that required to control noxious and invasive species as required by state law. | Design-Build Contractor |
| 183 | Stream relocations within Indiana bat and northern long-eared bat maternity colony areas will be completed using the natural channel design features that are identified through coordination with the resource agencies. Stream mitigation will be completed to adequately mitigate for linear feet of stream impacts in coordination with regulatory agencies during the permitting process. Where possible, both banks of stream mitigation areas will be protected. If both banks cannot be protected, coordination with the regulatory agencies will be completed to identify the amount of mitigation credits that INDOT may receive based on the proposed mitigation site. | IFA |
| 184 | Other details of mitigation will be coordinated with the regulatory agencies with jurisdiction during the permitting process. In addition, INDOT will coordinate with IDEM, IDNR, and USACE to take into account any recent stream stabilization projects. Any stream relocations required within an Indiana bat or northern long-eared bat maternity colony area in I-69 Section 6 will be completed with a natural stream design. USFWS will be included in the coordination regarding the relocation during the permitting process to assure that any concerns relative to the Indiana bat and northern long-eared bats are addressed as part of the stream relocation. | IFA |

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| 185 | If riprap is used for bank stabilization, it shall be of appropriate size and extend below the low-water elevation to provide for aquatic habitat. The construction plans will clearly note the dimensions and depth of riprap to be installed. It will be the responsibility of the contractor and/or the construction inspection team to ensure the riprap and culverts are installed per the final approved roadway plans. Alternative materials, other than riprap, will be reviewed for areas above the OHWM that require placement of scour protection measures and if feasible, the alternative measures will be considered. | Design-Build Contractor |
| 186 | Stream mitigation plans will be developed where necessary. | IFA |
| 187 | As a mitigation measure, bridges and culverts will be inspected for Indiana bats and northern long-eared bats prior to construction in accordance with a protocol to be drafted in coordination with USFWS. The protocol shall define all inspection parameters including, but not limited to: what structures are to be inspected, when (season and time of day) inspections shall take place, who has authority to conduct inspections, documentation requirements, and proper agency notification procedure when roosting bats are encountered. | Design-Build Contractor |
| 188 | Possible wetland and forest mitigation sites to be considered for Indiana bat and northern long-eared bat summer habitat mitigation will be within the White River floodplain west of existing SR 37. Additional areas outside the White River floodplain may receive consideration as well. | IFA |
| 189 | Investigations will be coordinated with USFWS on purchasing lands at fair market value in the Action Area from "willing sellers" to preserve summer habitat. Any acquired summer habitat area would be turned over to an appropriate government conservation and management agency for protection in perpetuity via conservation easements. | IFA |
| 190 | Consultation with the Indiana SHPO revealed that there is insufficient information regarding archaeological sites 12-Mg-0052, 12-Mg-0334, 12-Mg-0561, 12-Mg-0571, 12-Jo-0010, 12-Jo-0017, 12-Jo-0042, 12-Jo-0044, 12-Jo-0062, 12-Jo-0489, 12-Ma-0052, 12-Ma-0170, 12-Ma-0171, 12-Ma-0174, 12-Ma-0175, and 12-Ma-0241 to determine whether they are eligible for inclusion in the NRHP. However, portions of these sites within the Section 6 Project APE do not appear to contain significant archaeological deposits; and, therefore, no further archaeological investigations are necessary in those portions of the sites. The portions of the sites located outside the Section 6 Project APE will be clearly marked prior to ground disturbing activities so that they are avoided by all project activities. If avoidance is not feasible, a plan for further archaeological investigations will be submitted to the Indiana SHPO for review and comment. | IFA |
| 191 | Consultation with Indiana SHPO, it has been determined that an Alluvial Floodplain Area near Indian Creek, an Alluvial Floodplain Area (three loci) near Crooked Creek, and an Alluvial Floodplain Area near Honey Creek in the White River valley have the potential for buried cultural deposits and should be avoided by project activities, or if they cannot be avoided, subjected to Phase Ic investigations as necessary to identify and evaluate potential buried archaeological sites. | IFA |
| 192 | No right of way will be acquired from any aboveground historic property except for the Southside German Market Gardeners Historic District. | IFA |
| 193 | The Old SR 37 pavement, both north and south of Morgan County Bridge 224 and outside of the proposed I-69 Section 6 right of way, will remain in place. | IFA |
| 194 | Potential context sensitive solutions for historic properties include construction of an earthen slope on the north side of I-465 and east side of Bluff Road within the Southside German Market Gardeners Historic District; consideration in the design phase of a larger opening at the bridge carrying I-465 over Bluff Road to better connect the historic district; a commitment to conduct at least three neighborhood meetings during design to discuss specific plantings on the earthen slope and treatments on the mechanically stabilized earth (MSE) walls in the historic district; and, potentially providing graphite resistant coverings on the MSE wall within the historic district. | Design-Build Contractor |
| 195 | INDOT and/or its representatives shall consult with the property owner of the Reuben Aldrich Farm and, if appropriate and given consent by the property owner, will fund and install vegetative screening on this property. If the property owner provides consent for the vegetative screen, the property owner will provide INDOT and/or its contractors with right of entry to the property during mitigation implementation and subsequent monitoring. After the installation of the vegetative screening, maintenance of such screening on private property will be the responsibility the property owner of the Reuben Aldrich Farm. | IFA |

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| 196 | INDOT shall fund the preparation of the NRHP nomination application for the Reuben Aldrich Farm, if the property owner gives permission for the preparation of the application. This NRHP nomination application will provide a means to disseminate information about the history of agriculture. The NRHP nomination application shall be made available as a paper copy at selected repositories in Morgan County and in an electronic format on selected websites including but not limited to those of the NRHP (National Park Service), INDOT, and SHAARD. | IFA |
| 197 | INDOT shall fund the preparation a NRHP nomination application, if given consent by the majority of property owners within the Southside German Market Gardeners Historic District. This NRHP nomination application will serve as an educational component to disseminate information about the history of the District. The NRHP nomination application shall be made available as a paper copy at selected repositories in Marion County and in an electronic format on selected websites including but not limited to those of the NRHP (National Park Service), INDOT, and the Indiana State Architectural and Archaeological Research Database ("SHAARD") of the Indiana Department of Natural Resources/Division of Historic Preservation and Archaeology ("IDNR/DHPA"). | IFA |
| 198 | INDOT shall fund the manufacture and the installation of a commemorative plaque for the Reuben Aldrich Farm upon acceptance of the Reuben Aldrich Farm for listing in the NRHP, if the property owner provides permission for the installation and for access to the property. The plaque will state that the Reuben Aldrich Farm is listed in the NRHP and will be affixed to one of the buildings that contribute to the significance of the property. INDOT's obligation to manufacture and install the plaque should be completed within one year of the property's listing in the NRHP. | IFA |
| 199 | FHWA and INDOT shall ensure that the NRHP nomination application for the Aldrich Farm is completed. If the nomination application preparation is not undertaken directly by INDOT, INDOT shall provide funding to a consultant for activities performed in preparation of the application. INDOT or its consultant shall prepare and submit the application to the Indiana SHPO within two years of the project's construction letting. Additional details of this commitment are as outlined in the Section 106 MOA, Stipulation II.B.5.a, b, c, and d. | IFA |
| 200 | If supported by Indiana State Preservation Officer (SHPO), FHWA and INDOT shall ensure that the NRHP nomination application for the Southside German Market Gardeners Historic District. If the NRHP nomination application preparation is not undertaken directly by INDOT, INDOT shall provide funding to a consultant for activities performed in preparation of the application. INDOT and/or its consultant shall prepare and submit the first draft of the application to the Indiana SHPO within two years of the project's construction letting. Additional details of this commitment are as outlined in the Section 106 MOA, Stipulation II.B.3.a, b, c, d, and e. | IFA |
| 201 | INDOT shall fund the manufacture and the installation of interpretive signage within the boundaries of the Southside German Market Gardeners Historic District or at a public space with a connection to the District. The interpretative signage shall provide information about the history of these resources in Section 6 of the Tier 2 Study. The design and graphic content of the interpretative signage may focus on German Ethnic Heritage in Indianapolis and/or Market Gardening in Indianapolis. The proposed design and content (text and illustrations) of the interpretive signage will be prepared by a qualified professional historian and shall be submitted to the Advisory Team at 30% and 60% completion for review and comment. If the Advisory Team does not respond within 30 days, acceptance will be assumed. Additional details of the process are included in the Section 6 MOA, Stipulation II.B.1. | IFA |
| 202 | In consultation with the Indiana SHPO, INDOT shall ensure that all work performed pursuant to the Section 6 Section 106 MOA is performed or supervised by a qualified individual and/or team(s) that meet the Secretary of the Interior's Professional Qualification Standards as outlined in Appendix A to 36 CFR 61 for history, archaeology, architectural history, architecture, and/or historic architecture, as appropriate. | IFA |
| 203 | The individual and/or team(s) performing or supervising the archaeology investigations shall have supervisory experience in the prehistoric and historic archaeology of the southeastern Indiana region. All work performed or supervised by such person or persons shall be conducted pursuant the provisions of Indiana Code 14-21-1, 312 Indiana Administrative Code 22, and the most current versions of the "Guidebook for Indiana Historic Sites and Structures Inventory-Archaeological Sites" and the INDOT Cultural Resources Manual. | IFA |
| 204 | As soon as practical, FHWA will convene an Advisory Team to consider the treatment of the side slopes along I-465 within the Southside German Market Gardeners Historic District and the bridge carrying I-465 over Bluff Road within the Southside German Market Gardeners Historic District. Responsibilities of and participation of the Advisory Team include Section 106 MOA Stipulations II.A.2.a, b, c, d, e, f, and g. | Design-Build Contractor |

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| 205 | If the Section 6 Project is modified with respect to aboveground resources after a finding of effect has been issued and the Section 106 MOA has been executed, then FHWA shall review the Section 6 Project modifications and proceed by complying with Section 106 MOA Stipulation II.C.1. and, if appropriate, Stipulation II.C.2. References to FHWA also apply to INDOT, wherever INDOT is authorized to act on FHWA's behalf. | Design-Build Contractor |
| 206 | Consultation with the Indiana SHPO determined that there is insufficient information regarding archaeological sites 12-Mg-0564, 12-Mg-0565, 12-Mg-0566, 12-Mg-0567, and 12-Mg-0568 to determine whether they are eligible for inclusion in the NRHP. These sites must be avoided or subjected to further archaeological investigations. If avoidance is not feasible, a plan for evaluative testing will be submitted to the Indiana SHPO for review and comment. | IFA |
| 207 | Consultation with the Indiana SHPO revealed that there is insufficient information regarding archaeological site 12-Mg-0525 to determine whether it is eligible for inclusion in the NRHP. This site must be avoided by project activities or if it cannot be avoided subjected to additional investigation to make an eligibility determination. Site 12-Mg-0525 lies outside the Section 6 Project APE and will be avoided by all project related ground disturbance. | IFA |
| 208 | Stipulations related to Additional Investigations for archaeological resources are included in Section 106 MOA Stipulation III.E.1, 2, 3 and 4. | IFA |
| 209 | For the treatment of archaeological resources, statutory and regulatory standards in Section 106 MOA Stipulation III.A.1, 2, 3, 4, 5, 6 and 7 shall be followed. Upon completion of work, FHWA shall provide copies of final reports to the Indiana SHPO, INDOT, and federally recognized Indian Tribes when appropriate, and afford them thirty (30) days to review and submit comments on the reports. FHWA shall respond to all comments received. | IFA |
| 210 | For the treatment of archaeological resources, identification and evaluation procedures in Section 106 MOA Stipulation III.B.1, 2, 3, 4, 5, 6 and 7 shall be followed. | IFA |
| 211 | For the treatment of archaeological resources, assessment of effects procedures in Section 106 MOA Stipulation III.C.1, 2, and 3 shall be followed. | IFA |
| 212 | In regards to the treatment of archaeological resources, If FHWA, in consultation with the Indiana SHPO, federally recognized Indian Tribes that may ascribe traditional cultural and religious significance to affected properties, and other parties whom FHWA deems appropriate, determines that the adverse effect cannot be avoided or minimized, then FHWA shall develop and implement a Treatment Plan(s), as part of the above consultation, to mitigate the adverse effects to an archeological resource on a site-by-site basis. The implementation of the Treatment Plan(s) must be completed for each site prior to the initiation of any Project construction activities within a segment that could affect that site. | IFA |
| 213 | Any disagreement and misunderstanding about how the Section 106 MOA is or is not being implemented shall be resolved according to MOA Stipulations IV.A, B, C, D and E. | IFA |
| 214 | With any stream crossings, the design must include consideration of fish and wildlife passage. Any new or modified structure must not create conditions that are less favorable for passage under the structure compared to the current conditions. Wherever possible, bridges should be used for stream crossings rather than culverts. If culverts must be used, we recommend a three-sided structure. To the extent possible, sediment bars or stream banks will be maintained for wildlife passage. | Design-Build Contractor |
| 215 | I-69 Section 6 includes 9 locations where wildlife currently use the existing structure to cross the highways. These include 2 crossings on I-465 (White River and State Ditch) and 7 crossings on SR 37 (Little Buck Creek, Pleasant Run Creek, Honey Creek, Crooked Creek, Stotts Creek, Clear Creek, and Indian Creek). Section 5.18 and Appendix AA of the FEIS contains maps and additional details regarding these crossings. Construction contracts will maintain the existing wildlife passages provided by SR 37, I-465, and other existing roadways. During the design phase of the project when structure sizing is being determined for new and existing crossings, accommodations for wildlife will be considered. | Design-Build Contractor |
| 216 | Clear Creek, Stotts Creek, Crooked Creek and Travis Creek crossings have records showing bat usage for travel and foraging. Each bridge will have vertical clearances equal to or greater than the existing clearance to accommodate bat passage and to maintain existing flyways under the bridge. Additionally, native vegetation will be maintained or re-vegetated along these waterways. The Travis Creek crossing is currently a pipe structure. Additional coordination will be conducted with USFWS regarding the proposed structure and vegetation treatments along Travis Creek to facilitate the connectivity for bat and wildlife use. | IFA |
| 217 | There will be no net loss of the number of crossings, resulting in landscape permeability (ease with which wildlife can cross under I-69) being relative unchanged. Wildlife use of the existing structures indicates they have adapted to and use these areas to cross the highway. New bridges will be sized to accommodate the existing waterway and serve as wildlife crossings. Modifications to existing bridges or culverts to improve wildlife crossings will be made if feasible. With the proposed crossing improvements, it is anticipated that landscape permeability across the interstate highway will not decrease compared to current conditions along SR 37 with the construction of I-69 Section 6. | Design-Build Contractor |

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| 218 | Coordination with Indiana American Water – Johnson County, as well as other water utilities that control wellhead protection areas (WHPA) crossed by I-69 Section 6, will continue during the design phase. The Spill Prevention, Control and Counter-measure Plan (SPCC) will include each utility on the list of recipients. In addition to standard spill protection practices required as part of the INDOT Standard Specifications, the SPCC will include protocols for daily inspection of chemical tanks, no overnight storage of large equipment, no re-fueling of any equipment, no dumpsters, no concrete wash-out areas, and no fertilizer, pesticide, or herbicide application within the WHPAs. As appropriate these protocols will also be included in the Stormwater Pollution Prevention Plan (SWPPP). | Design-Build Contractor |
| 219 | All alternatives, including the RPA, would impact property in the north unit of the Cikana State Fish Hatchery. INDOT will continue to work with IDNR and the Cikana State Fish Hatchery to minimize impacts to the property, where reasonable and feasible. The direct access to the north unit from SR 37 will be lost during construction of I-69 Section 6 and new access will be provided via Twin Branch Road. | IFA |
| 220 | With the exception of any wetland and forest areas within the managed properties, mitigation for impacts to the managed land areas could be accomplished through repayment to the resource agencies of amount associated with each cost-sharing agreement and abiding by other agreement stipulations. These mitigation measures would apply only if the agreements are still in force or the time stipulated periods have not expired. INDOT will consult with IDNR during design regarding impacts to the fish hatchery. | IFA |
| 221 | Special measures, including diversions of highway runoff from direct discharge off of bridge decks into streams and containment basins to detain accidental spills, will be incorporated into final design plans for perennial streams within the Indiana bat and northern long-eared bat maternity colony areas to address water quality concerns associated with bats. | Design-Build Contractor |
| 222 | The use of herbicides will be minimized in environmentally sensitive areas such as karst areas to protect Indiana bats and northern long-eared bats. Environmentally sensitive areas will be determined in coordination with INDOT as appropriate. Appropriate signage will be posted along the interstate to alert maintenance staff of these areas. | Design-Build Contractor |
| 223 | Revegetation of disturbed areas will occur in accordance with INDOT Standard Specifications. Locations that may be considered for revegetation with native grasses and wildflowers such as those cultivated through INDOT's Roadside Heritage program include, but are not limited to stream crossings and the interchange locations. | Design-Build Contractor |
| 224 | While I-69 Section 6 is not likely to adversely affect the rusty patched bumble bee, INDOT and FHWA may use seed mixes on their mitigation sites which are beneficial to pollinators such as bumble bees. | IFA |
| 225 | Vibrations above criteria provided in FTA's Transit Noise and Vibration Impact Assessment, are not anticipated. Special provisions will be included in construction contracts to require compliance with this standard. | Design-Build Contractor |
| 226 | INDOT has completed coordination with each of the MS4 entities within the project study area and has gathered their input regarding the project, especially with regards to construction and post construction stormwater treatment. Appropriate stormwater control measures will be included as part of the project design, construction, and maintenance. For example, post-construction stormwater detention basins or swales may be constructed at locations where runoff from the roadway would exit the right of way to reduce the peak flow discharge and remove pollutants of concern. | Design-Build Contractor |
| 227 | Indianapolis International Airport is a public-use airport within 20,000 feet of I-69 Section 6. Coordination with the INDOT Office of Aviation and the FAA will be required during the final design phase to determine whether tall-structure permits are necessary. | Design-Build Contractor |
| 228 | In addition to the Indiana Tall Structure Permit, the FAA requires notice of construction activities under 14 alternative Part 77.13 that occur within a specified distance or height from an airport. It is expected that notification would be required for I-69 Section 6 for the Indianapolis International Airport since the northern end of the project at I-465 is in the approach to Runway 14-32. | Design-Build Contractor |
| 229 | Signage along the interstate will be investigated during design that informs motorists of businesses, schools, and emergency services. | Design-Build Contractor |
| 230 | INDOT will assure that drainage, including Hilldale Cemetery Legal Drain and Sartor Legal Drain, for any new or improved road sections constructed for this project meets current design standards. | IFA |
| 231 | Coordination with the affected school districts will continue through final design and construction to minimize impacts to school bus routes to the extent possible. | Design-Build Contractor |
| 232 | INDOT will continue to investigate various solutions for a municipal sewer line along Morgan Street that would connect the Prince of Peace Lutheran Church and School into the municipal sewer system. | IFA |

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| 233 | Detailed maintenance of traffic plans for construction will be developed during final design. | Design-Build Contractor |
| 234 | INDOT will continue to investigate options for reducing impacts to quarries during the design phase. If property is ultimately required, appraisers who specialize in mineral rights will be utilized to determine compensation for damages and acquisition. | IFA |
| 235 | INDOT will coordinate with quarry owners during design and construction regarding setbacks for blasting activities. | IFA |
| 236 | Continuous uninterrupted access to the Indiana American Water facility will be provided during construction. | Design-Build Contractor |
| 237 | INDOT will include Indiana American Water, and other water utility providers in the project area, in the development of the Hazardous Materials Response Plan and on the list of recipients. | Design-Build Contractor |
| 238 | In addition to standard spill protection practices required as part of the INDOT Standard Specifications, the Hazardous Materials Spill Response plan will include protocols for daily inspection of chemical tanks, no overnight storage of large equipment, no re-fueling of any equipment, no dumpsters, no concrete wash-out areas, and no fertilizer, pesticide, or herbicide application within the wellhead protection areas. In addition to practices required as part of the INDOT Standard Specifications regarding clearing and grubbing, demolition or other construction practices, INDOT commits to including special provisions to restrict the storage of construction materials generated by clearing and grubbing or demolition from within the wellhead protection areas. INDOT will require contractors to coordinate with the appropriate utility during the final design phase and during construction with regard to all borrow or disposal areas within the wellhead protection areas. | Design-Build Contractor |
| 239 | INDOT will coordinate with Indiana American Water prior to construction to develop a response plan for construction activities within the wellhead protection area. | Design-Build Contractor |
| 240 | INDOT will coordinate with Indiana American Water to develop a maintenance plan for salt application within the wellhead protection area. | IFA |
| 241 | INDOT will explore additional refinements to the right of way limits at the Peaper Brothers, Inc. property during final design. | IFA |
| 242 | INDOT will consult and confer with local governments during design regarding project elements such as signage, bridge design and landscaping | Design-Build Contractor |
| 243 | INDOT will continue to work with Morgan County, environmental resource agencies, and the Federal Emergency Management Administration to assure that the road design does not worsen the flooding conditions in the Willowbrook Drive neighborhood. The road design will include hydraulic analysis of water flow patterns. | IFA |
| 244 | INDOT will convene an advisory team comprised of property owners in the Southside German Market Gardeners Historic District during the design phase to consider proposed context-sensitive mitigation measures, including vegetative screening. Context-sensitive design will also be considered during the design phase as it relates to the environment within the district. | Design-Build Contractor |
| 245 | INDOT will engage with businesses during the design process regarding signage and access. | Design-Build Contractor |
| 246 | INDOT will consider roadside vegetation as a screening measure during the project design phase where reasonable and feasible in the vicinity of sensitive noise receptors. This consideration must reflect that vegetation dense enough and/or proximate enough to highways must not compromise safety of clear zones around travel lanes. | IFA |
| 247 | Any changes in the proximity of the I-69 Section 6 right of way to identified bald eagle nests will be coordinated with USFWS to avoid or minimize impacts to bald eagles. | IFA |
| 248 | INDOT will continue to coordinate with IDEM regarding stormwater management within wellhead protection areas. During the design phase, specific coordination will be conducted with IDEM for any detention/retention facilities planned in wellhead protection areas | Design-Build Contractor |
| 249 | The placement of fencing along the corridor for the purpose of discouraging wildlife to cross the highway and funneling wildlife to suitable crossing locations will be assessed during final design. | Design-Build Contractor |
| 250 | FHWA, in consultation with the USFWS, must develop detailed, site-specific final mitigation plans for each secured mitigation site within 6 months of securing the site or within 6 months of the issuance of the Section 6 BO (dated 10/30/17), whichever is later. All mitigation sites must be identified and secured within 3 years of the issuance of the BO, including the development of final mitigation plans. | IFA |

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| 251 | Per the Section 6 BO (dated 10/30/17), mitigation plans will not be conceptual, but rather will contain detailed descriptions for each phase of mitigation including 1) initial construction and establishment, 2) 10-year, post-construction monitoring phase, and 3) long-term management. The Section 6 final mitigation plans will address and/or establish the following: quantifiable criteria and methods for assessing success of all mitigation plantings and functionality of constructed wetlands and streams, approved lists of tree/plant species to be planted (and their relative abundance/%), approved lists of herbicides for weed control, proposed construction schedules, annual post-construction monitoring schedules, and a long-term, ongoing management/stewardship strategy. | IFA |
| 252 | To ensure timeliness, the FHWA must begin construction and/or reforestation within the Section 6 Mitigation Areas either before (the most preferable option) or during the first summer reproductive season (1 April – 30 September) immediately after any I-69 related tree clearing or construction begins in Section 6 anywhere within each maternity area. Once initiated, all USFWS-approved construction and tree plantings within the Section 6 Mitigation Areas must be completed within 3 calendar years. | IFA |
| 253 | FHWA will provide the USFWS with a written annual report that summarizes the previous year's monitoring, conservation and mitigation accomplishments, remaining efforts, and any problems encountered within Section 6. This annual report will be completed throughout the 10-year post-construction monitoring period. The annual report for Section 6 may be a stand-alone document or included as part of the annual report required under the Tier 1 Term and Condition Number 2 (amended May 25, 2011, July 24, 2013, and April 2015). | IFA |
| 254 | In the Section 6 Action Area, the incidental take is no more than 32 Indiana bats and 7 Northern Long-Eared Bats taken by 2030 (17 years of operation). Direct habitat loss will be limited to 208 acres of forest habitat and 2.6 acres of non-forested wetland habitat (excluding open-water ponds) within the Section 6 Expanded Action Area. If the anticipated levels of incidental take (i.e. habitat modification and/or roadkill) are exceeded by more than 10% (or tree clearing occurs during the period April 1-September 30 in the SAA), then such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided. INDOT and FHWA must immediately provide an explanation of the causes of the taking and review with the USFWS the need for possible modification of the reasonable and prudent measures. | IFA |
| 255 | Special provisions for borrow sites/waste disposal in Section 6 would include prohibiting tree clearing from April 1 to September 30 in the Summer Action Area (SAA), as identified in the revised BOs for Tier 1 and Tier 2. Tree clearing would be allowed from October 1 through March 31 in the SAA. | Design-Build Contractor |
| 256 | Should USFWS so desire, INDOT and FHWA will assist USFWS in distributing letters to the property owners in the Section 6 corridor designed to increase awareness of the impact of tree harvesting on Indiana and northern-long eared bats. INDOT will also send a letter to each property owner in the right of way, stating that INDOT is not working with any logging companies in the development of I-69. This information should prevent any confusion on the part of the landowners that INDOT advocates, condones or permits logging on the property prior to the time when INDOT purchases the property for the Project. INDOT and FHWA will also work with USFWS to identify logging activities within the project area, and INDOT will notify USFWS of any logging activity discovered. This notice will allow USFWS to take appropriate action under the ESA as warranted. | IFA |
| 257R | If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately. | IFA |
| 258R | Notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access. | Design-Build Contractor |
| 259R | Bridge piers cannot be placed within the OHWM of jurisdictional streams (Lick Creek and McFarland). | Design-Build Contractor |
| 260R | Notify IndyGo at least two weeks prior to any construction that would block or limit access to public transit routes. | Design-Build Contractor |
| 261R | During construction, the closure of consecutive bridges (e.g., Madison Avenue and Keystone Avenue) at the same time is prohibited. | Design-Build Contractor |
| 262R | INDOT should coordinate with DPW to manage the potential for increased stormwater runoff into two adjacent DPW projects, one in Section A/B and one in Section C. The current project manager for both projects is David Haas (David.Hass@indy.gov). | IFA |
| 263R | GENERAL AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs. | Design-Build Contractor |
| 264R | LIGHTING AMM 1: Direct temporary lighting away from suitable habitat during the active season. | Design-Build Contractor |

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| 265R | LIGHTING AMM 2: When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society, be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable. | Design-Build Contractor |
| 266R | TREE REMOVAL AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal. | Design-Build Contractor |
| 267R | TREE REMOVAL AMM 2: Apply time of year restrictions for tree removal when bats are not likely to be present (no clearing April 1 to September 30), limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/rail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed. | Design-Build Contractor |
| 268R | TREE REMOVAL AMM 3: Ensure tree removal is limited to that specified in the Project Plans. Install bridge colored flagging or fencing prior to any tree clearing to ensure Construction Work stays within the clearing limits. Ensure all Design-Build Contractor personnel understand clearing limits and how the limits are marked in the field. | Design-Build Contractor |
| 269R | TREE REMOVAL AMM 4: Do not remove documented Indiana bat or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or documented foraging habitat any time of year. | Design-Build Contractor |
| 270R | USFWS Bridge/Structure Assessment shall take place no earlier than two (2) years prior to the start of construction. Current surveys were conducted between July 2018 and March 2019. Since construction will likely begin after July 2020, inspection of structures by qualified individuals must be performed. The inspection of the structures should check for presence of bats/bat indicators and/or presence of birds. The results of the inspection must indicate no signs of bats or birds. If signs of bats or birds are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately. | Design-Build Contractor |
| 271R | If box or pipe culverts are used, the bottoms should be buried to a minimum of 6 inches (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2 feet) below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. Crossings should: span the entire channel width (a minimum of 1.2 times the bankful width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width/length) of 0.25; and have stream depth and water velocities during low-flow conditions that are approximate to those in the natural stream channel. The new, replacement, or rehabbed structure should not create conditions that are less favorable for wildlife passage under the structure compared to the current conditions. | Design-Build Contractor |
| 272R | Riprap must not be placed in the active thalweg channel or placed in the streambed in a manner that precludes fish or aquatic organism passage (riprap must not be placed above the existing streambed elevation). Riprap may be used only at the toe of the sideslopes up to the OHWM. The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. | Design-Build Contractor |
| 273R | Impacts to non-wetland forest of one (1) acre or more should be mitigated at a minimum 2:1 ratio. Impacts to nonwetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10 inches dbh or greater (5:1 mitigation based on the number of large trees). | Design-Build Contractor |
| 274R | Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting from April 1 through September 30. | Design-Build Contractor |
| 275R | Segments A and C: Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pump-arounds. | Design-Build Contractor |
| 276R | Use minimum average six-inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. | Design-Build Contractor |
| 277R | The project should comply with the City of Indianapolis Storm Water Design and Construction Manual including Chapter 700 Stormwater Quality and Chapter 600 Erosion and Sediment Control. | IFA |
| 278R | All conditions of the IDNR Construction in a Floodway general and special conditions shall be followed unless specifically removed in a special condition or if the permit is amended by the Design-Build Contractor after coordination with IDNR. A fish spawning waiver will be required for work in-stream from April 1 to June 30. | Design-Build Contractor |
| 279R | All conditions of the 401 Water Quality Certification shall be followed unless specifically removed in a special condition or if the permit is amended by the Design-Build Contractor after coordination with IDEM. | Design-Build Contractor |
| 280R | All conditions of the 404 Regional General Permit shall be followed unless specifically removed in a special condition or if the permit is amended by the Design-Build Contractor after coordination with USACE. | Design-Build Contractor |

ATTACHMENT 7-3: Environmental Commitment Summary

| | | |
|------|--|-------------------------|
| 281R | All conditions of the 404 Individual Permit shall be followed unless specifically removed in a special condition or if the permit is amended by the Design-Build Contractor after coordination with USACE. | Design-Build Contractor |
|------|--|-------------------------|

REMOVE AND REPLACE NATURAL STREAM SUBSTRATE

Description

The Design-Build Contractor shall excavate the natural stream substrate within the proposed structure limits, preserve the excavated material, and place the material along the flowline of the structure after construction is completed.

Materials

Materials shall consist of the existing stream substrate material, excavated and maintained on-site.

Construction Requirements

Excavation shall take place upon removal of the existing structure. Excavation shall be at a uniform depth, no greater than 8 inches, across the width of the stream, and for the full length of the proposed structure. Dewatering measures shall be taken to prevent sediment from leaving the project site or disturbance of the receiving stream.

Storage of the excavated material shall be maintained on-site. The storage area shall be clean and free of any contaminants. The Design-Build Contractor shall maintain erosion and sediment control measures to prevent sediment from the stockpiled material from leaving the storage area.

Placement of the material shall be performed after the proposed structure is in place and while all temporary erosion control measures are in place. The material shall be placed within the disturbed flowline of the stream and throughout the length of the structure. Material shall be placed at a depth of 6 inches.

Basis of Item

No measurement shall be made for the materials and equipment necessary to remove and replace the natural stream substrate.

The following shall be considered incidental to this item:

Excavation, storage, replacement, erosion control items for the stockpile, and all necessary incidentals.

KIRTLAND'S SNAKE AVOIDANCE AND MINIMIZATION MEASURES

Description

Specific avoidance and minimization measures related to the Kirtland's Snake (*Clonophis kirtlanii*) are required for this contract.

Materials

Materials shall be in accordance with the appropriate sections.
Silt fence shall be in accordance with 918.02.

Construction Requirements

The Kirtland's Snake (*Clonophis kirtlanii*) has been found near the existing structure. To minimize impacts to this species, the Design-Build Contractor shall install silt fencing around the entire work area in accordance with 205.06. All work shall be conducted between March 1 to October 31 to avoid digging up hibernating snakes.

For any work taking place between November 1 and March 1, the exclusion silt fence shall be installed by October 31, before snakes move to potential burrows located within the work area. Alternatively, if the work area is surveyed for crayfish burrows and none are found in the work area, then an exclusion fence is not needed as long as all work takes place between November 1 and March 1.

Procedure

Any snakes encountered in the project area, regardless of species, shall be removed, unharmed, and immediately placed outside the construction area in suitable habitat.

For work during March 1 to October 31

1. A trenched-in silt/geotextile fabric fence shall encircle the entire work area as shown on the plans at least two weeks prior to construction work.
 - a. Fencing shall be 2 ft tall and staked.
 - b. Fence shall be trenched in at least 2 in. into the ground.
2. Any snakes, regardless of species, found within the construction area shall be moved, unharmed, outside of the trenched fencing. Snakes shall be handled with latex-free gloves. A new pair of gloves shall be donned for every snake being handled.
3. Trenched-in silt fence/geotextile fabric fencing shall remain up until completion of the project.

For work during November 1 to February 28:

1. A trenched-in silt/geotextile fabric fence shall encircle the entire work area as shown on the plans at least two weeks prior to construction work and no later than October 18.
 - a. Fencing shall be 2 ft tall and staked.
 - b. Fence shall be trenched in at least 2 in. into the ground.

Basis of Item:

Kirtland's Snake Avoidance and Minimization Measures and Geotextiles shall not be quantified. Silt fence shall be considered incidental to this item.

ATTACHMENT 08-1: Design Criteria

TABLE 1: Existing Freeway (Partial Reconstruction 4R), Project: Project: I-69 Section 6 Contract 5 Segments A & C

INDOT (des.) #1802075

Date Updated: 08/22/2019 By: CWB

| | DESIGN CRITERIA | MANUAL SECTION (2013 IDM - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|--|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway, Partial 3R (Urban Interstate) |
| | INDOT Geometric Design Table | Chp. 54 | Table 54-2A |
| | Design Year Traffic, AADT | 40-2.02 | 134,550 |
| | Design Vehicle | Fig. 46-1E | WB-65 |
| | *Design Speed, MPH | Fig. 54-2A | 70 mph |
| | Access Control | Fig. 54-2A | Full Control |
| | Level of Service | Fig. 54-2A | Desirable: B; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 54-3.03 | 12 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | Shoulder | | |
| | *Right Width Usable | 54-3.03 | 13 ft |
| | *Right Width Paved | 54-3.03 | 12 ft |
| | *Left Width Usable | 54-3.03 | 13 ft |
| | *Left Width Paved | 54-3.03 | 12 ft |
| | with Guardrail\Barrier | 49-5.0 | 14 ft LT/14 ft RT |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 12 ft |
| | Shoulder Width | 45-1.03 | 14 ft |
| | Median Width | 54-3.03 | Paved with median barrier: 12 ft to 26 ft Grass Median: 60 ft to 186 ft |
| | Clear Zone Width | 49-2.0 | 30 ft |
| | Side Slopes | | |
| | Cut Foreslope | 54-3.03 | 2:1 |
| Cut Ditch Width | 54-3.03 | N/A | |
| Cut Backslope | 54-3.03 | 2:1 | |
| Fill | 45-3.0 | 2:1 | |
| Median Slopes | 45-3.03 | N/A | |
| BRIDGES | New and Reconstructed Bridges | | |
| | *Structural Capacity | Chp. 60 | HL-93 |
| | *Clear Roadway Width | 54-5.0 | Full Paved Approach Width |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Chp. 72 | HS-20 |
| | *Clear Roadway Width | 54-5.0 | Travelway Plus 10 ft Rt. & 4 ft Lt. Shoulders |
| | *Vertical Clearance (Freeway Under) | | |
| | New and Replaced Overpassing Bridge | 54-5.0 | 16.5 ft |
| | Existing Overpassing Bridge | 54-5.0 | 16 ft |
| | Sign Truss/Pedestrian Bridge | 54-5.0 | 17 ft to 18 ft |
| Freeway over Railroad | Chp. 69 | Existing | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | Fig. 54-2A | 730 ft |
| | Decision Sight Distance | 42-2.0 | |
| | Speed/path/direction change | 42-2.0 | 1445 ft |
| | Stop Maneuver | 42-2.0 | 1410 ft |
| | Passing Sight Distance | 42-3.0 | N/A |
| | Intersection Sight Distance, -3% to +3% | 42-4.0 | N/A |
| | *Minimum Radius, e=8% | 43-2.0 | Existing |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 730 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Existing |
| | Sag | 44-3.0 | Existing |
| | Vertical Grades | | |
| | *Maximum | Fig. 54-2A | 3-5% Up Down 4-6% |
| | Minimum | 54-3.02 | Desirable: 0.5%, Minimum: 0.30% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

TABLE 1: Existing Freeway (Partial Reconstruction 4R), Project: Project: I-69 Section 6 Contract 5 Segments A & C (US 31 Interchange)

INDOT (des.) #1802075

Date Updated: 08/22/2019 By: CWB

| | DESIGN CRITERIA | MANUAL SECTION (2013 IDM - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-----------------------------|-------------------------------------|--|---|
| DESIGN CONTR | Functional Classification | | Freeway, Partial 4R (Urban Ramp) |
| | INDOT Geometric Design Table | Chp. 54 | Table 54-2A |
| | Design Year Traffic, AADT | 40-2.01 | 5,882 (2045) |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, MPH | Fig. 48-5A | 25-60 mph |
| INTERCHANGE ELEMENTS | Traveled Way | | |
| | Width | 48-5.02 | 16 ft |
| | Typical Surface Type | Ch. 52 | Exist = PCCP |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft |
| | with Guardrail\Barrier | 49-5.0 | Paved shoulder width + 2 ft |
| | Typical Surface Type | Ch. 52 | Exist = PCCP |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Superelevation | 48-5.03 | e _{max} = 8% |
| | Vertical Grades Maximum | | |
| Upgrade | 48-5.04 | 5% | |
| Downgrade | 48-5.04 | 6% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

TABLE 1: Minor Arterial (3R, Non-Freeway), Project: Project: I-69 Section 6 Contract 5 Segment C (Madison Avenue)

INDOT (des.) #1802075

Date Updated: 08/22/2019 By: CWB

| | DESIGN CRITERIA | MANUAL SECTION (2013 IDM - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|--|
| DESIGN CONTROLS | Functional Classification | | Non-Freeway, 3R (Urban Arterial, 4 or more lanes) |
| | INDOT Geometric Design Table | Chp. 55 | Table 55-3E (Suburban) |
| | Design Year Traffic, AADT | 55-4.01 | 26,157 (2045) |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, MPH | Fig. 55-3E | Posted Speed Limit (40 mph) |
| | Access Control | Fig. 55-3E | None |
| | Level of Service | Fig. 55-3E | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | Curbed: 12 ft Uncurbed: 12 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | *Curb Offset | 55-4.05 | 1 ft |
| | Shoulder | | |
| | *Right Width Paved | 55-4.05 | Uncurbed: 10 ft |
| | *Left Width Paved | 55-4.05 | Curbed: 1 ft |
| | with Guardrail\Barrier | 55-4.05 | Paved shoulder width + 2 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2%; 4% w/guardrail |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | N/A |
| | Shoulder Width | 55-4.05 | N/A |
| | TWLT Width | 46-5.0 | 16 ft |
| | Median Width (Raised Island) | 55-4.05 | 10 ft |
| | Obstruction Free Zone Width | 55-5.02 | 10 ft + min. paved shldr width |
| | Side Slopes | | |
| | Cut Foreslope | 55-4.05 | 2:1 |
| | Cut Ditch Width | 55-4.05 | Existing |
| Cut Backslope | 55-4.05 | 2:1 | |
| Fill | 55-4.05 | 2:1 | |
| Median Slopes, Depressed | 55-4.05 | N/A | |
| BRIDGES | New and Reconstructed Bridges | | |
| | *Structural Capacity | Chp. 403 | HL-93 |
| | *Clear Roadway Width | 55-6.03 | Uncurbed: Full approach width |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Chp. 72 | HS-20 |
| | *Clear Roadway Width | 55-6.02 | Uncurbed: Uncurbed: Travelway plus 2 ft on each side |
| | *Vertical Clearance (Arterial Under) | | |
| | New and Replaced Overpassing Bridge | 55-6.0 | 16.5 ft |
| Existing Overpassing Bridge | 55-6.0 | 14 ft | |
| Sign Truss/Pedestrian Bridge | 55-6.0 | N/A | |
| Arterial over Railroad | Ch. 402-6.01 | Existing | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | Fig. 42-1A | 305 ft |
| | Decision Sight Distance | 42-2.0 | |
| | Speed/path/direction change | 42-2.0 | 825 ft |
| | Stop Maneuver | 42-2.0 | 690 ft |
| | Passing Sight Distance | 42-3.0 | 1470 FT |
| | Intersection Sight Distance, -3% to +3% | 46-10.0 | P: 440 ft SUT: 560 ft |
| | *Minimum Radius, e=6% | Fig. 43-2B | 485 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Existing |
| | Sag | Fig. 55-4A | 35 |
| | Vertical Grades | | |
| *Maximum | 55-4.0 | Level: 8.5% | |
| Minimum | 44-1.03 | Curbed Des: 0.5%, Curbed Min: 0.3%, Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

TABLE 1: Minor Arterial (3R, Non-Freeway), Project: Project: I-69 Section 6 Contract 5 Segment C (Keystone Avenue)

INDOT (des.) #1802075

Date Updated: 08/22/2019 By: CWB

| | DESIGN CRITERIA | MANUAL SECTION (2013 IDM - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|--|
| DESIGN CONTROLS | Functional Classification | | Non-Freeway, 3R (Urban Arterial, 4 or more lanes) |
| | INDOT Geometric Design Table | Chp. 55 | Table 55-3E (Suburban) |
| | Design Year Traffic, AADT | 55-4.01 | 9,436 (2045) |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, MPH | Fig. 55-3E | Posted Speed Limit (40 mph) |
| | Access Control | Fig. 55-3E | None |
| | Level of Service | Fig. 55-3E | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | Curbed: 11 ft Uncurbed: 11 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | *Curb Offset | 55-4.05 | 1 ft |
| | Shoulder | | |
| | *Right Width Paved | 55-4.05 | Uncurbed: 10 ft |
| | *Left Width Paved | 55-4.05 | Curbed: 1 ft |
| | with Guardrail\Barrier | 55-4.05 | Paved shoulder width + 2 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2%; 4% w/guardrail |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 10 ft |
| | Shoulder Width | 55-4.05 | N/A |
| | TWLT Width | 46-5.0 | 16 ft |
| | Median Width (Raised Island) | 55-4.05 | 10 ft |
| | Obstruction Free Zone Width | 55-5.02 | 10 ft + min. paved shldr width |
| | Side Slopes | | |
| | Cut Foreslope | 55-4.05 | 2:1 |
| Cut Ditch Width | 55-4.05 | Existing | |
| Cut Backslope | 55-4.05 | 2:1 | |
| Fill | 55-4.05 | 2:1 | |
| Median Slopes, Depressed | 55-4.05 | N/A | |
| BRIDGES | New and Reconstructed Bridges | | |
| | *Structural Capacity | Chp. 403 | HL-93 |
| | *Clear Roadway Width | 55-6.03 | Uncurbed: Full approach width |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Chp. 72 | HS-20 |
| | *Clear Roadway Width | 55-6.02 | Uncurbed: Uncurbed: Travelway plus 2 ft on each side |
| | *Vertical Clearance (Arterial Under) | | |
| | New and Replaced Overpassing Bridge | 55-6.0 | 16.5 ft |
| Existing Overpassing Bridge | 55-6.0 | 14 ft | |
| Sign Truss/Pedestrian Bridge | 55-6.0 | N/A | |
| Arterial over Railroad | Ch. 402-6.01 | Existing | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | Fig. 42-1A | 305 ft |
| | Decision Sight Distance | 42-2.0 | |
| | Speed/path/direction change | 42-2.0 | 825 ft |
| | Stop Maneuver | 42-2.0 | 690 ft |
| | Passing Sight Distance | 42-3.0 | 1470 FT |
| | Intersection Sight Distance, -3% to +3% | 46-10.0 | P: 440 ft SUT: 560 ft |
| | *Minimum Radius, e=6% | Fig. 43-2B | 485 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Existing |
| | Sag | Fig. 55-4A | 35 |
| | Vertical Grades | | |
| *Maximum | 55-4.0 | Level: 8.5% | |
| Minimum | 44-1.03 | Curbed Des: 0.5%, Curbed Min: 0.3%, Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

TABLE 1: Minor Arterial (3R, Non-Freeway), Project: Project: I-69 Section 6 Contract 5 Segment C (Carson Avenue)

INDOT (des.) #1802075

Date Updated: 08/22/2019 By: CWB

| | DESIGN CRITERIA | MANUAL SECTION (2013 IDM - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|--|
| DESIGN CONTROLS | Functional Classification | | Non-Freeway, 3R (Urban Arterial, 2 or more lanes) |
| | INDOT Geometric Design Table | Chp. 55 | Table 55-3F |
| | Design Year Traffic, AADT | 55-4.01 | 5,486 (2045) |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, MPH | Fig. 55-3F | Posted Speed Limit (35 mph) |
| | Access Control | Fig. 55-3F | Partial Control/None |
| | Level of Service | Fig. 55-3F | Desirable: B; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | Curbed: 12 ft Uncurbed: |
| | *Width | 55-4.05 | 12 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | *Curb Offset | 55-4.05 | 1 ft |
| | Shoulder | | |
| | *Paved Width | 55-4.05 | Curbed Des: 10 ft; Min. 1 ft Uncurbed Des: 10 ft; Min. 6 ft |
| | with Guardrail/Barrier | 55-4.05 | Paved shoulder width + 2 ft |
| | Typical Surface Type | Ch. 304 | Asphalt |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2%; 4% w/guardrail |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | N/A |
| | Shoulder Width | 55-4.05 | N/A |
| | TWLTW Width | 46-5.0 | 16 ft |
| | Obstruction Free Zone Width | 55-5.02 | 10 ft + min. paved shldr width |
| Side Slopes | | | |
| Cut Foreslope | 55-5.0 | 2:1 | |
| Cut Ditch Width | 55-5.0 | Existing | |
| Cut Backslope | 55-5.0 | 2:1 | |
| Fill | 55-5.0 | 2:1 | |
| BRIDGES | New and Reconstructed Bridges | | |
| | *Structural Capacity | Chp. 403 | HL-93 |
| | *Clear Roadway Width | 55-6.03 | Uncurbed: Full approach width |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Chp. 72 | HS-20 |
| | *Clear Roadway Width | 55-6.02 | Uncurbed: Travelway plus 2 ft on each side |
| | *Vertical Clearance (Arterial Under) | | |
| | New and Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | 14 ft |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Arterial over Railroad | Ch. 402-6.01 | Existing | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | Fig. 42-1A | 250 ft |
| | Decision Sight Distance | 42-2.0 | |
| | Speed/path/direction change | 42-2.0 | U: 720 ft; SU: 625 ft |
| | Stop Manuever | 42-2.0 | 650 ft |
| | Intersection Sight Distance, -3% to +3% | 46-10.0 | P: 390 ft SUT: 490 ft |
| | *Minimum Radius, e=6% | Fig. 43-2B | 340 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 250 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Existing |
| | Sag | Fig. 55-4A | 27 |
| | Vertical Grades | | |
| | *Maximum | 55-4.0 | Level: 9% Rolling: 10% |
| Minimum | 44-1.03 | Curbed Des: 0.5%, Curbed Min: 0.3%, Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

TABLE 1: Major Collector (3R, Non-Freeway), Project: Project: I-69 Section 6 Contract 5 Segment A (W. Mooresville Road Bypass)

INDOT (des.) #1802075

Date Updated: 08/22/2019 By: CWB

| | DESIGN CRITERIA | MANUAL SECTION (2013 IDM - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|--|
| DESIGN CONTROLS | Functional Classification | | Non-Freeway, 3R (Urban Major Collector) |
| | INDOT Geometric Design Table | Chp. 55 | Table 55-3G |
| | Design Year Traffic, AADT | 40-2.01 | 3,878 (2045) |
| | Design Vehicle | Fig. 46-1E | WB-50 |
| | *Design Speed, MPH | Fig. 55-3G | Posted Speed Limit (30 MPH) |
| | Access Control | Fig. 55-3G | None |
| | Level of Service | 40-2.0 | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | Curbed: 12 ft Uncurbed: 12 ft |
| | Typical Surface Type | Ch. 52 | Asphalt |
| | Shoulder | | |
| | *Paved Width | 55-4.05 | Curbed Des: 8 ft; Min. 1 ft Uncurbed Des: 8 ft; Min. 4 ft |
| | with Guardrail\Barrier | 55-4.05 | Paved shoulder width + 2 ft |
| | Typical Surface Type | Ch. 304 | Asphalt |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2%; 4% w/guardrail |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | N/A |
| | Shoulder Width | 55-4.05 | N/A |
| | Obstruction-Free-Zone Width | 55-5.02 | 6 ft + min. paved shldr width |
| | Side Slopes | 55-4.05 | Existing |
| | Cut Foreslope | 55-4.05 | 2:1 |
| Cut Ditch Width | 55-4.05 | Existing | |
| Cut Backslope | 55-4.05 | 2:1 | |
| Fill | 55-4.05 | 2:1 | |
| BRIDGES | New and Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear Roadway Width | 55-6.03 | Uncurbed: Full approach width |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Chp. 72 | HS-15 |
| | *Clear Roadway Width | 55-6.02 | Uncurbed: Travelway plus 2 ft on each side |
| | *Vertical Clearance (Collector Under) | | |
| | New and Replaced Overpassing Bridge | 55-6.0 | 14.5 ft |
| Existing Overpassing Bridge | 55-6.0 | 14 ft | |
| Collector over Railroad | Ch. 402-6.01 | 23 ft | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | Fig. 42-1A | 200 ft |
| | Decision Sight Distance | 42-2.0 | |
| | Speed/path/direction change | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance, -3% to +3% | 46-10.0 | P: 330 ft SUT: 420 ft |
| | *Minimum Radius, e=8% | Fig. 43-2B | 250 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Existing |
| | Sag | Fig. 55-4A | 20 |
| | Vertical Grades | | |
| | *Maximum | 55-4.0 | Level: 11% Rolling: 13% |
| Minimum | 44-1.03 | Curbed Des: 0.5%, Curbed Min: 0.3%, Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: I-465 "Line ZZ"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Freeway, 4R (Urban) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-1 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | West of I-69: 147,900 East of I-69: 140,700 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 53-1 | 70 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 45-1.02 | 13 ft |
| | *Right Width Paved | 45-1.02 | 12 ft; 14 ft with barrier |
| | *Left Width Paved | 45-1.02 | 14 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Auxiliary Lanes | | |
| | *Lane Width | 45-1.03 | 12 ft |
| | *Shoulder Width | 45-1.03 | 12 ft |
| | Median Width | | |
| | Depressed | 45-2.0 | N/A |
| | Flush, with CMB | 45-2.0 | 30.5 ft |
| | Clear Zone Width | 49-2.0 | 30 ft + 1 ft to front face of MSE Walls |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 for 20 ft., then 3:1 max | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | N/A | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 13.875 ft Lt + Travel Way + 13.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | 23 ft | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 730 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | 1445 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 1810 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 730 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 312 |
| | Sag | 44-3.0 | 181 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 3% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "A-ZZ-NE-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|--|--|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (System) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 18,400 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | 55 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 12 ft per lane |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft + 1 ft to front face of MSE walls |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 5.667 ft Lt + Travel Way + 11.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 495 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | 1135 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 (02) | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 495 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 151 |
| | Sag | 44-3.0 | 115 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 4.0% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "A-ZZ-NW-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|--|--|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (System) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 24,900 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | 55 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 12 ft per lane |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft + 1 ft to front face of MSE walls |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 5.667 ft Lt + Travel Way + 11.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 495 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | 1135 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 (02) | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 495 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 151 |
| | Sag | 44-3.0 | 115 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 4.0% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "ZZ-A-ES-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (System) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 22,000 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | 55 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 12 ft per lane |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft + 1 ft to front face of MSE walls |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 495 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | 1135 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 (02) | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 495 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 151 |
| | Sag | 44-3.0 | 115 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 4.0% |
| Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "ZZ-A-WS-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|--|--|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (System) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 16,800 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | 55 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 12 ft per lane |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft + 1 ft to front face of MSE walls |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 5.667 ft Lt + Travel Way + 11.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 495 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | 1135 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 (02) | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 495 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 151 |
| | Sag | 44-3.0 | 115 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 4.0% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Mann"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Arterial (Intermediate), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-7 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 14,500 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 53-7 | 40 mph |
| | Access Control | Fig. 53-7 | None |
| | Level of Service | Fig. 53-7 | D |
| CROSS-SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Paved Width | 45-1.02 | 8 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 12 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWLTW Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 16 ft |
| | Typical Curbing Type, where used | 45-1.05 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | N/A |
| | Cut Ditch Width | 45-3.0 | N/A |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | 6 ft shelf; 2 ft to toe of slope |
| | Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe |
| | BRIDGES | New or Reconstructed Bridges | |
| *Structural Capacity | | Ch. 403 | HL-93 |
| *Clear-Roadway Width | | 45-4.01 | 9.667 ft Rt + Travel Way + 9.667 ft Lt |
| Existing Bridges to Remain in Place | | | |
| *Structural Capacity | | Ch. 72 | N/A |
| *Clear-Roadway Width | | 45-4.0 | N/A |
| *Vertical Clearance (Freeway Under) | | | |
| New or Replaced Overpassing Bridge | | 44-4.0 | N/A |
| Existing Overpassing Bridge | | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | | 44-4.0 | N/A |
| Vertical Clearance, Local over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 305 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 825 ft; SU: 715 ft |
| | Stop Maneuver | 42-2.0 | 690 ft |
| | Intersection Sight Distance | 46-10.0 | P: 440 ft; SUT: 560 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 485 ft |
| | *Superelevation Rate | 43-3.0 | emax= 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 61 |
| | Sag | 44-3.0 | 64 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 6.5% |
| | Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Mann-EBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 6,500 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Mann-WBEX-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 7,700 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | emax= 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: "Line A" - Harding St

Revised 07-15-2020:
Added Median Width Criteria
Revised Side Slope Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Principal Arterial (Intermediate), 3R |
| | INDOT Geometric Design Table | Ch. 55 | Figure 55-3E |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 26,800 |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, mph | Fig. 55-3F | 45 mph |
| | Access Control | Fig. 55-3F | None |
| | Level of Service | Fig. 55-3F | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 55-4.05 | 2 ft |
| | Shoulder | | |
| | *Paved Width | 55-4.05 | 8 ft; match existing |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2% |
| | Median Width | | |
| | Total Width | 45-2.02 | 9 ft (includes two 2 ft curb offsets) |
| | Raised Island Width | 45-2.02 | 5 ft |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 12 ft |
| | Curb Offset | 55-4.05 | 2 ft |
| | Shoulder Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWTL Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | 6 ft |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Obstruction Free Zone | 55-5.02 | 12 ft |
| | Typical Curbing Type, where used | 55-5.0 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 55-5.0 | 3:1 or flatter |
| | Cut Ditch Width | 55-5.0 | Existing |
| Cut Backslope | 55-5.0 | 3:1 or flatter | |
| Fill | 55-5.0 | 3:1 or flatter | |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 55-4.05 | 6 ft shelf; 1 ft to toe of slope | |
| Fill | 55-4.05 | 3:1 or flatter | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 55-6.03 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 55-6.02 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 55-4.02 | 360 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 930 ft; SU: 800 ft |
| | Stop Maneuver | 42-2.0 | 825 ft |
| | Intersection Sight Distance | 55-4.06 | P: 530 ft; SUT: 675 ft |
| | *Minimum Radius, e=8% | 55-4.03 | emax= 8% |
| | *Superelevation Rate | 55-4.03 | Varies - See separate exhibit |
| | *Horizontal Sight Distance | 55-4.03 | 360 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 55-4.04 | 84 |
| | Sag | 55-4.04 | 79 |
| | Vertical Grades | | |
| | *Maximum | 55-4.04 | Level: 8.5% |
| Minimum | 44-1.03 | Curb Des: 0.5%; Curb Min: 0.3%; Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Harding-EBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 7,400 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | emax= 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Harding-EBEX-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|--|--|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 6,200 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | emax= 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Harding-WBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 5,100 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Harding-WBEX-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 9,600 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | emax= 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

Revised 07-15-2020:
Added Design Criteria for
Existing SR 37

I-69 Section 6 Contract 5 Design Criteria Route: "Line A" - Existing SR 37

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Principal Arterial (Intermediate), 3R |
| | INDOT Geometric Design Table | Ch. 55 | Figure 55-3E |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 26,800 |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, mph | Fig. 55-3F | 45 mph |
| | Access Control | Fig. 55-3F | None |
| | Level of Service | Fig. 55-3F | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft |
| | Surface Type | Ch. 304 | Existing |
| | *Curb Offset | 55-4.05 | Existing |
| | Shoulder | | |
| | *Paved Width | 55-4.05 | Median: Match existing Outside: 12 ft |
| | Surface Type | Ch. 304 | Existing |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | Existing |
| | Shoulder | 55-4.05 | Existing |
| | Median Width | | |
| | Total Width | 45-2.02 | Existing |
| | Raised Island Width | 45-2.02 | Existing |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 12 ft |
| | Curb Offset | 55-4.05 | Existing |
| | Shoulder Width | 55-4.05 | Existing |
| | Surface Type | Ch. 304 | Existing |
| | TWTL Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone | 55-5.02 | 24 ft |
| | Typical Curbing Type, where used | 55-5.0 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 55-5.0 | 3:1 or flatter |
| | Cut Ditch Width | 55-5.0 | Existing |
| | Cut Backslope | 55-5.0 | 3:1 or flatter |
| | Fill | 55-5.0 | 3:1 or flatter |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 55-4.05 | 6 ft shelf; 1 ft to toe of slope |
| | Fill | 55-4.05 | 3:1 or flatter |
| | BRIDGES | New or Reconstructed Bridges | |
| *Structural Capacity | | Ch. 403 | N/A |
| *Clear-Roadway Width | | 55-6.03 | N/A |
| Existing Bridges to Remain in Place | | | |
| *Structural Capacity | | Ch. 72 | N/A |
| *Clear-Roadway Width | | 55-6.02 | N/A |
| *Vertical Clearance (Freeway Under) | | | |
| New or Replaced Overpassing Bridge | | 44-4.0 | N/A |
| Existing Overpassing Bridge | | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 55-4.02 | Existing |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Existing |
| | Stop Maneuver | 42-2.0 | Existing |
| | Intersection Sight Distance | 55-4.06 | Existing |
| | *Minimum Radius, e=8% | 55-4.03 | Existing |
| | *Superelevation Rate | 55-4.03 | Existing |
| | *Horizontal Sight Distance | 55-4.03 | Existing |
| | *Vertical Curvature, K-value | | |
| | Crest | 55-4.04 | Existing |
| | Sag | 55-4.04 | Existing |
| | Vertical Grades | | |
| | *Maximum | 55-4.04 | Existing |
| Minimum | 44-1.03 | Existing | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "W Thompson Rd"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Suburban), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | TBD |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 11 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 10 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 16 ft |
| | Typical Curbing Type, where used | 45-1.05 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max |
| | Cut Ditch Width | 45-3.0 | 0 ft |
| | Cut Backslope | 45-3.0 | 3:1 Max |
| | Fill | 45-3.0 | 3:1 Max |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance | 46-10.0 | P: 330 ft; SUT: 420 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 250 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| | Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "Harding Ct"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Intermediate), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 7,500 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 11 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 10 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 16 ft |
| | Typical Curbing Type, where used | 45-1.05 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max |
| | Cut Ditch Width | 45-3.0 | 0 ft |
| | Cut Backslope | 45-3.0 | 3:1 Max |
| | Fill | 45-3.0 | 3:1 Max |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance | 46-10.0 | P: 330 ft; SUT: 420 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| | Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "PR-31 WBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | TBD |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | e oth |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 11 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 24 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | emax= 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Bluff Road

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Arterial (Intermediate), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-7 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 12,500 |
| | Design Vehicle | Fig. 46-1E | N/A |
| | *Design Speed, mph | Fig. 53-7 | N/A |
| | Access Control | Fig. 53-7 | N/A |
| | Level of Service | Fig. 53-7 | N/A |
| CROSS-SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | N/A |
| | Surface Type | Ch. 304 | N/A |
| | *Curb Offset | 45-1.02 | N/A |
| | Shoulder | | |
| | *Paved Width | 45-1.02 | N/A |
| | Surface Type | Ch. 304 | N/A |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | N/A |
| | Shoulder | 45-1.02 | N/A |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | N/A |
| | Curb Offset | 45-1.03 | N/A |
| | Shoulder Width | 45-1.03 | N/A |
| | Surface Type | Ch. 304 | N/A |
| | TWLTW Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 24 ft + 1 ft to front face of MSE walls |
| | Typical Curbing Type, where used | 45-1.05 | N/A |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | N/A |
| | Cut Ditch Width | 45-3.0 | N/A |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | BRIDGES | New or Reconstructed Bridges | |
| *Structural Capacity | | Ch. 403 | N/A |
| *Clear-Roadway Width | | 45-4.01 | N/A |
| Existing Bridges to Remain in Place | | | |
| *Structural Capacity | | Ch. 72 | N/A |
| *Clear-Roadway Width | | 45-4.0 | N/A |
| *Vertical Clearance (Arterial Under) | | | |
| New or Replaced Overpassing Bridge | | 44-4.0 | 16.5 ft |
| Existing Overpassing Bridge | | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | | 44-4.0 | N/A |
| Vertical Clearance, Local over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | N/A |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | N/A |
| | Stop Maneuver | 42-2.0 | N/A |
| | Intersection Sight Distance | 46-10.0 | P: 440 ft; SUT: 560 ft |
| | *Minimum Radius, e=8% | 43-2.0 | N/A |
| | *Superelevation Rate | 43-3.0 | N/A |
| | *Horizontal Sight Distance | 43-4.0 | N/A |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | N/A |
| | Sag | 44-3.0 | N/A |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | N/A |
| Minimum | 44-1.03 | N/A | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Meridian Street

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Arterial (Intermediate), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-7 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 21,500 |
| | Design Vehicle | Fig. 46-1E | N/A |
| | *Design Speed, mph | Fig. 53-7 | N/A |
| | Access Control | Fig. 53-7 | N/A |
| | Level of Service | Fig. 53-7 | N/A |
| CROSS-SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | N/A |
| | Surface Type | Ch. 304 | N/A |
| | *Curb Offset | 45-1.02 | N/A |
| | Shoulder | | |
| | *Paved Width | 45-1.02 | N/A |
| | Surface Type | Ch. 304 | N/A |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | N/A |
| | Shoulder | 45-1.02 | N/A |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | N/A |
| | Curb Offset | 45-1.03 | N/A |
| | Shoulder Width | 45-1.03 | N/A |
| | Surface Type | Ch. 304 | N/A |
| | TWLT Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 24 ft + 1 ft to front face of MSE walls |
| | Typical Curbing Type, where used | 45-1.05 | N/A |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | N/A |
| | Cut Ditch Width | 45-3.0 | N/A |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | BRIDGES | New or Reconstructed Bridges | |
| *Structural Capacity | | Ch. 403 | N/A |
| *Clear-Roadway Width | | 45-4.01 | N/A |
| Existing Bridges to Remain in Place | | | |
| *Structural Capacity | | Ch. 72 | N/A |
| *Clear-Roadway Width | | 45-4.0 | N/A |
| *Vertical Clearance (Arterial Under) | | | |
| New or Replaced Overpassing Bridge | | 44-4.0 | 14.5 ft |
| Existing Overpassing Bridge | | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | | 44-4.0 | N/A |
| Vertical Clearance, Local over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | N/A |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | N/A |
| | Stop Maneuver | 42-2.0 | N/A |
| | Intersection Sight Distance | 46-10.0 | P: 440 ft; SUT: 560 ft |
| | *Minimum Radius, e=8% | 43-2.0 | N/A |
| | *Superelevation Rate | 43-3.0 | N/A |
| | *Horizontal Sight Distance | 43-4.0 | N/A |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | N/A |
| | Sag | 44-3.0 | N/A |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | N/A |
| Minimum | 44-1.03 | N/A | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: "Line PR-A2"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Freeway, 4R (Urban) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-1 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | South of Southport: 78,200 North of Southport: 91,100 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 53-1 | 70 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 45-1.02 | 13 ft |
| | *Right Width Paved | 45-1.02 | 12 ft; 14 ft with barrier |
| | *Left Width Paved | 45-1.02 | 14 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Auxiliary Lanes | | |
| | *Lane Width | 45-1.03 | 12 ft |
| | *Shoulder Width | 45-1.03 | 12 ft |
| | Median Width | | |
| | Depressed | 45-2.0 | 50 ft |
| | Flush, with CMB | 45-2.0 | 26.5 ft |
| | Clear Zone Width | 49-2.0 | 30 ft min + 1 ft to front face of MSE Walls |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 for 20 ft., then 3:1 max | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | 6:1 | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 11.875 ft Lt + Travel Way + 13.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 730 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver B | 42-2.0 | 1445 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 1810 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 730 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 312 |
| | Sag | 44-3.0 | 181 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 3% |
| Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Epler"

Revised 07-15-2020:
Added Median Width Criteria
Revised Side Slope Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|---------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Principal Arterial (Intermediate), 3R |
| | INDOT Geometric Design Table | Ch. 55 | Figure 55-3E |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 12,100 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 55-3E | 45 mph |
| | Access Control | Fig. 55-3E | None |
| | Level of Service | Fig. 55-3E | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 55-4.05 | 2 ft |
| | Shoulder | | |
| | *Paved Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2% |
| | Median Width | | |
| | Total Width | 45-2.02 | 12 ft (includes two 2 ft curb offsets) |
| | Raised Island Width w/ Median Barrier | 45-2.02 | 8 ft |
| | Auxiliary Lanes | 45-2.0 | 12 ft (includes 2.5 ft barrier and minimum 4 ft paved median shoulder adjacent to barrier) |
| | Lane Width | 55-4.05 | 12 ft |
| | Curb Offset | 55-4.05 | 2 ft |
| | Shoulder Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWLT Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | 6 ft |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Obstruction Free Zone | 55-5.02 | 2.5 ft |
| | Typical Curbing Type, where used | 55-5.0 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 55-5.0 | 3:1 or flatter |
| | Cut Ditch Width | 55-5.0 | Match Existing |
| | Cut Backslope | 55-5.0 | 3:1 or flatter |
| Fill | 55-5.0 | 3:1 or flatter | |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 55-4.05 | 6 ft shelf; 1 ft to toe of slope | |
| Fill | 55-4.05 | 3:1 or flatter | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 55-6.03 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 55-6.02 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 55-4.02 | 360 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 930 ft; SU: 800 ft |
| | Stop Maneuver | 42-2.0 | 800 ft |
| | Intersection Sight Distance | 55-4.06 | P: 530 ft; SUT: 675 ft |
| | *Minimum Radius, e=8% | 55-4.03 | e _{max} = 8% |
| | *Superelevation Rate | 55-4.03 | Varies - See separate exhibit |
| | *Horizontal Sight Distance | 55-4.03 | 360 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 55-4.04 | 61 |
| | Sag | 55-4.04 | 79 |
| | Vertical Grades | | |
| *Maximum | 55-4.04 | Level: 8.5% | |
| Minimum | 44-1.03 | Curb Des: 0.5%; Curb Min: 0.3%; Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Epler-NBEX-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 6,100 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp - Line "Epler-SBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 5,000 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | Varies - See separate exhibit |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | Varies per curve DS - See Calculations |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | Varies per curve DS - See Calculations |
| | *Minimum Radius, e=8% | 43-2.0 | Varies per curve DS - See Calculations |
| | *Superelevation Rate | 48-5.03 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | Varies per curve DS - See Calculations |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Varies per curve DS - See Calculations |
| | Sag | 44-3.0 | Varies per curve DS - See Calculations |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

Revised 07-15-2020:
Revised Side Slope Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Epler Connection-C" - Epler Avenue East

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|--------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Collector (Built-Up), 3R |
| | INDOT Geometric Design Table | Ch. 55 | Figure 55-3G |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 3,330 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 55-3G | 30 mph |
| | Access Control | Fig. 55-3G | None |
| | Level of Service | Fig. 55-3G | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 55-4.05 | 2 ft |
| | Shoulder | | |
| | *Paved Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 12 ft |
| | Curb Offset | 55-4.05 | 2 ft |
| | Shoulder Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWLTW Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Obstruction Free Zone | 55-5.02 | 2.5 ft |
| | Typical Curbing Type, where used | 55-5.0 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 55-5.0 | N/A |
| | Cut Ditch Width | 55-5.0 | N/A |
| | Cut Backslope | 55-5.0 | N/A |
| | Fill | 55-5.0 | N/A |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 55-4.05 | 6 ft shelf; 1 ft to top of slope | |
| Fill | 55-4.05 | 3:1 or flatter | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 55-4.02 | 200 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance | 55-4.06 | P: 330 ft; SUT: 420 ft |
| | *Minimum Radius, e=8% | 55-4.03 | emax= 8% |
| | *Superelevation Rate | 55-4.03 | Varies - See separate exhibit |
| | *Horizontal Sight Distance | 55-4.03 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 55-4.04 | 19 |
| | Sag | 55-4.04 | 37 |
| | Vertical Grades | | |
| | *Maximum | 55-4.04 | Level: 11% |
| Minimum | 44-1.03 | Curb Des: 0.5%; Curb Min: 0.3%; Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Kopetsky Dr-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|----------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Built-Up), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 1,400 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 10 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 16 ft |
| | Typical Curbing Type, where used | 45-1.05 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | N/A |
| | Cut Ditch Width | 45-3.0 | N/A |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | Side Slopes (Curbed) | | |
| Cut Backslope | 45-3.0 | 6 ft shelf; 1 ft to toe of slope | |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance | 46-10.0 | P: 330 ft; SUT: 420 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| | Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp "Southport NBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 12,000 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | 40-60 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft |
| | with Guardrail\Barrier | 49-5.0 | Paved +2 ft |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies; 16 ft - 30 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | N/A | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 5.667 ft Lt + Travel Way + 9.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver B | 42-2.0 | 40 mph - 690 ft; 60mph - 1150 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 | 8% |
| | *Horizontal Sight Distance | 43-4.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | *Vertical Curvature, K-value (Min) | | |
| | Crest | 44-3.0 | 40 mph - 61; 60 mph - 193; 70 mph - 312 |
| | Sag | 44-3.0 | 40 mph -64; 60 mph - 136; 70 mph - 181 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04 | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp "Southport NBEX-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 5,000 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft |
| | with Guardrail\Barrier | 49-5.0 | Paved +2 ft |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies; 26 ft - 12 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| | Cut Backslope | 45-3.0 | 4:1 |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver B | 42-2.0 | 40 mph - 690 ft; 60mph - 1150 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 | 8% |
| | *Horizontal Sight Distance | 43-4.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | *Vertical Curvature, K-value (Min) | | |
| | Crest | 44-3.0 | 40 mph - 61; 60 mph - 193; 70 mph - 312 |
| | Sag | 44-3.0 | 40 mph -64; 60 mph - 136; 70 mph - 181 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04 | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp "Southport SBEN-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 4,100 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft |
| | with Guardrail\Barrier | 49-5.0 | Paved +2 ft |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies; 26 ft - 12 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver B | 42-2.0 | 40 mph - 690 ft; 60mph - 1150 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 | 8% |
| | *Horizontal Sight Distance | 43-4.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | *Vertical Curvature, K-value (min) | | |
| | Crest | 44-3.0 | 40 mph - 61; 60 mph - 193; 70 mph - 312 |
| | Sag | 44-3.0 | 40 mph -64; 60 mph - 136; 70 mph - 181 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04 | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Ramp "Southport SBEX-C"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp (Service) |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 10,400 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | *Design Speed, mph | Fig. 48-5A | |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | 9 ft |
| | *Right Width Paved | 48-5.02 | 8 ft |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft |
| | with Guardrail\Barrier | 49-5.0 | Paved +2 ft |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | Varies; 30 ft - 16 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | N/A | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 5.667 ft Lt + Travel Way + 9.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver B | 42-2.0 | 40 mph - 690 ft; 60mph - 1150 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 960 ft |
| | *Superelevation Rate | 48-5.03 | 8% |
| | *Horizontal Sight Distance | 43-4.0 | 40 mph - 305 ft; 60mph - 570 ft |
| | *Vertical Curvature, K-value (min) | | |
| | Crest | 44-3.0 | 40 mph - 61; 60 mph - 193; 70 mph - 312 |
| | Sag | 44-3.0 | 40 mph -64; 60 mph - 136; 70 mph - 181 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04 | 5.0% |
| Minimum | 44-1.03 | 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Southport Road"

Revised 07-15-2020:
Added Median Width Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Arterial (Built-Up), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-6 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 30,000 |
| | Design Vehicle | Fig. 46-1E | WB-62 |
| | *Design Speed, mph | Fig. 53-6 | 40 mph |
| | Access Control | Fig. 53-6 | none |
| | Level of Service | Fig. 53-6 | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Paved Width | 45-1.02 | N/A |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Median Width | | |
| | Total Width | 45-2.02 | 12 ft (includes two 2 ft curb offsets) |
| | Raised Island Width | 45-2.02 | 8 ft |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 12 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | N/A |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWTL Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | 6 ft |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear-Zone Width | 49-2.0 | 10 ft |
| | Typical Curbing Type, where used | 45-1.05 | Vertical |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | |
| | Cut Ditch Width | 45-3.0 | |
| | Cut Backslope | 45-3.0 | |
| Fill | 45-3.0 | | |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 45-3.0 | 6 ft Shelf; 3:1 Max Toe of Slope 1' beyond sidewalk | |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 2 ft Lt + Travel Way + 10 ft path + 2 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Sign Truss/Pedestrian Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 305 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 825 ft; SU: 715 ft |
| | Stop Maneuver | 42-2.0 | 690 ft |
| | Intersection Sight Distance | 46-10.0 | P: 440 ft; SUT: 560ft |
| | *Minimum Radius, e=4%/6% | 43-2.0 | 535 ft / 485 ft |
| | *Superelevation Rate | 43-3.0 | 4% / 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Des: 61 |
| | Sag | 44-3.0 | 64 |
| | Vertical Grades | | |
| *Maximum | 44-1.02 | Level: 6.5%, Rolling: 7.5% | |
| Minimum | 44-1.03 | Des: 0.5%; Curb Min: 0.3%; Uncurbed: 0% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: PR-Winslet Blvd"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Built-Up), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 2,300 |
| | Design Vehicle | Fig. 46-1E | WB-50 |
| | *Design Speed, mph | Fig. 53-9 | 25 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | N/A |
| | Curb Offset | 45-1.03 | N/A |
| | Shoulder Width | 45-1.03 | N/A |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Typical Curbing Type, where used | 45-1.05 | Vertical/Sloping |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max |
| | Cut Ditch Width | 45-3.0 | 0 ft |
| | Cut Backslope | 45-3.0 | 3:1 Max |
| | Fill | 45-3.0 | 3:1 Max |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | Sidewalk: 11 ft Shelf; No Sidewalk: 5 ft Shelf |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Vertical Clearance, Local over Railroad | 402-6.01 | N/A |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 155 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 515 ft; SU: 445 ft |
| | Stop Maneuver | 42-2.0 | 430 ft |
| | Intersection Sight Distance | 46-10.0 | P: 280 ft; SUT: 350 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 140 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 155 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 12 |
| | Sag | 44-3.0 | 26 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| | Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "Perry Commons"

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Built-up), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | <500 |
| | Design Vehicle | Fig. 46-1E | WB-40 |
| | *Design Speed, mph | Fig. 53-9 | 25 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 11 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | N/A |
| | Curb Offset | 45-1.03 | N/A |
| | Shoulder Width | 45-1.03 | N/A |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Typical Curbing Type, where used | 45-1.05 | |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | N/A |
| | Cut Ditch Width | 45-3.0 | N/A |
| | Cut Backslope | 45-3.0 | N/A |
| | Fill | 45-3.0 | N/A |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 45-3.0 | Sidewalk: 11 ft Shelf; No Sidewalk: 5 ft Shelf |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| Existing Overpassing Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Local over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 155 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 515 ft; SU: 445 ft |
| | Stop Maneuver | 42-2.0 | 430 ft |
| | Intersection Sight Distance | 46-10.0 | P: 280 ft; SUT: 350 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 140 ft |
| | *Superelevation Rate | 43-3.0 | emax= 4% |
| | *Horizontal Sight Distance | 43-4.0 | |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 19 |
| | Sag | 44-3.0 | 26 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Wellingshire-C"

Revised 07-15-2020:
Added Median Width Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|---------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Suburban), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 3,600 |
| | Design Vehicle | Fig. 46-1E | WB-40 |
| | *Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Median Width | | |
| | Total Width | 45-2.02 | 8 ft (includes two 2 ft curb offsets) |
| | Raised Island Width | 45-2.02 | 4 ft |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 10 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Typical Curbing Type, where used | 45-1.05 | |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max |
| | Cut Ditch Width | 45-3.0 | 0 ft |
| Cut Backslope | 45-3.0 | 3:1 Max | |
| Fill | 45-3.0 | 3:1 Max | |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 45-3.0 | Sidewalk: 11 ft Shelf; No Sidewalk: 5 ft Shelf | |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Vertical Clearance, Local over Railroad | 402-6.01 | N/A |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance | 46-10.0 | P: 330 ft; SUT: 420 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | emax= 4% |
| | *Horizontal Sight Distance | 43-4.0 | |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Belmont Avenue - Line "Southport Connector-C"

Revised 07-15-2020:
Added Median Width Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Intermediate), 4R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 3,800 |
| | Design Vehicle | Fig. 46-1E | |
| | *Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 45-1.02 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 2% |
| | Median Width | | |
| | Total Width | 45-2.02 | 8 ft (includes two 2 ft curb offsets) |
| | Raised Island Width | 45-2.02 | 4 ft |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 10 ft |
| | Curb Offset | 45-1.03 | 2 ft |
| | Shoulder Width | 45-1.03 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Typical Curbing Type, where used | 45-1.05 | |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max |
| Cut Ditch Width | 45-3.0 | 0 ft | |
| Cut Backslope | 45-3.0 | 3:1 Max | |
| Fill | 45-3.0 | 3:1 Max | |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 45-3.0 | Sidewalk: 11 ft Shelf; No Sidewalk: 5 ft Shelf | |
| Fill | 45-3.0 | 12:1 for 12 ft; 3:1 Max to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | 3.667 ft Lt + Travel Way + 3.667 ft Rt |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| Existing Overpassing Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Local over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 620 ft; SU: 535 ft |
| | Stop Maneuver | 42-2.0 | 490 ft |
| | Intersection Sight Distance | 46-1.0 | P: 330 ft; SUT: 420 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | emax= 4% |
| | *Horizontal Sight Distance | 43-4.0 | |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| *Maximum | 44-1.02 | Level: 10% | |
| Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Banta Road - Line "PR-Banta Rd"

Revised 07-15-2020:
Revised Side Slope Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|-------------------------------|---|--|---|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Collector (Intermediate), 3R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 55-3G |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 6,300 |
| | Design Vehicle | Fig. 46-1E | WB-50 |
| | *Design Speed, mph | 55-4.01 | 40 mph |
| | Access Control | 40-5.0 | None |
| | Level of Service | 40-2.0 | D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft 14 ft under I-69 |
| | Surface Type | Ch. 52 | Asphalt / Concrete |
| | *Curb Offset | 55-4.05 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 10 ft |
| | Curb Offset | 55-4.05 | 2 ft |
| | Shoulder Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWTL Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 55-4.05 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Obstruction-Free-Zone Width | 55-5.02 | 1.5 ft |
| | Typical Curbing Type, where used | 55-4.05 | |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 55-4.05 | |
| | Cut Ditch Width | 55-4.05 | |
| | Cut Backslope | 55-4.05 | |
| | Fill | 55-4.05 | |
| | Side Slopes (Curbed) | | |
| | Cut Backslope | 55-4.05 | 3:1 Max |
| | Fill | 55-4.05 | 3:1 Max |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 14.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| | Vertical Clearance, Local over Railroad | 402-6.01 | N/A |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 55-4.02 | 305 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 825 ft; SU: 715 ft |
| | Stop Maneuver | 42-2.0 | 690 ft |
| | Intersection Sight Distance | 55-4.06 | P: 440; SUT: 560 |
| | *Minimum Radius, e=8% | 55-4.03 | |
| | *Superelevation Rate | 55-4.03 | 6% |
| | *Horizontal Sight Distance | 55-4.03 | |
| | *Vertical Curvature, K-value | | |
| | Crest | 55-4.04 | 61 |
| | Sag | 55-4.04 | 64 |
| | Vertical Grades | | |
| | *Maximum | 55-4.04 | Level: 10% |
| | Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Edgewood Ave"

Revised 07-15-2020:
Revised Side Slope Criteria

INDOT (des.) #1801695

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Arterial (Built-up), 3R |
| | INDOT Geometric Design Table | Ch. 53 | Figure 55-3F |
| | Design Year Traffic, AADT (2045) | Fig. 40-4A | 3,100 |
| | Design Vehicle | Fig. 46-1E | WB-50 |
| | *Design Speed, mph | 55-4.01 | 40 mph Advisory speed at Belmont Intersection |
| | Access Control | 40-5.01 | None |
| | Level of Service | 40-2.0 | D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft 14 ft under I-69 |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | *Curb Offset | 55-4.05 | 2 ft |
| | Shoulder | | |
| | *Usable Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 10 ft |
| | Curb Offset | 55-4.05 | 2 ft |
| | Shoulder Width | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | TWTLT Width | 46-5.0 | N/A |
| | Parking-Lane Width | 45-1.04 | N/A |
| | Sidewalk Width | 45-1.06 | N/A |
| | Bicycle-Lane Width | 51-7.0 | N/A |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Typical Curbing Type, where used | 55-5.0 | Vertical/Sloping |
| | Side Slopes (Uncurbed) | | |
| | Cut Foreslope | 55-5.0 | 3:1 Max |
| | Cut Ditch Width | 55-5.0 | 0 ft |
| | Cut Backslope | 55-5.0 | 3:1 Max |
| Fill | 55-5.0 | 3:1 Max | |
| Side Slopes (Curbed) | | | |
| Cut Backslope | 55-4.05 | 3:1 Max | |
| Fill | 55-4.05 | 3:1 Max | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| Existing Overpassing Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Local over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 55-4.02 | 305 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver | 42-2.0 | U: 825 ft; SU: 715 ft |
| | Stop Maneuver | 42-2.0 | 690 ft |
| | Intersection Sight Distance | 55-4.06 | P: 440 ft; SUT: 560 ft |
| | *Minimum Radius, e=8% | 55-4.03 | 485 ft |
| | *Superelevation Rate | 55-4.03 | emax= 6% |
| | *Horizontal Sight Distance | 55-4.03 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 55-4.04 | 61 |
| | Sag | 55-4.04 | 64 |
| | Vertical Grades | | |
| *Maximum | 55-4.04 | 8.5% | |
| Minimum | 44-1.03 | Des: 0.5%; Min: 0.3% (Curbed) 0.0% (Uncurbed) | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-A2" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Freeway, 4R (Urban) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-1 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | South of County Line: 65,000 North of County Line: 78,200 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | * Design Speed, mph | Fig. 53-1 | 70 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| | CROSS SECTION ELEMENTS | Travel Lane | |
| *Width | | 45-1.01 | 12 ft |
| Surface Type | | Ch. 304 | Asphalt / Concrete |
| Shoulder | | | |
| *Right Width Usable | | 45-1.02 | 13 ft |
| *Right Width Paved | | 45-1.02 | 12 ft; 14 ft with barrier |
| *Left Width Paved | | 45-1.02 | 12 ft; 14 ft with barrier |
| Surface Type | | Ch. 304 | Asphalt / Concrete |
| Cross Slope | | | |
| *Travel Lane | | 45-1.01 | 2% |
| Shoulder | | 45-1.02 | 4% |
| Auxiliary Lanes | | | |
| *Lane Width | | 45-1.03 | 12 ft |
| *Shoulder Width | | 45-1.03 | Right: 10 ft; Left: 4 ft |
| Median Width | | | |
| Depressed | | 45-2.0 | 50 ft |
| Flush, with CMB | | 45-2.0 | 30.5 ft |
| Clear Zone Width | | 49-2.0 | 30 ft min. |
| Side Slopes | | | |
| Cut Foreslope | | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 for 20 ft, then 3:1 max | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| Median Slopes | 45-2.02 | Desirable: 8:1; Maximum: 5:1 | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | Full Paved Approach Width |
| | *Bridge Railing Safety Performance | IDM Figure 49-6D | TL-5 |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 730 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver E | 42-2.0 | 1445 ft |
| | *Minimum Radius, e=8% | 43-2.0 | 1810 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 730 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 312 |
| | Sag | 44-3.0 | 181 |
| | Vertical Grades | | |
| *Maximum | 44-1.02 | Level: 3% | |
| Minimum | 44-1.03 | Desirable: 0.5%; Minimum: 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "County Line - NBEX" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---------------------------------------|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 3,700 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | * Design Speed, mph | Fig. 48-5A | 25 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | Single Lane: 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | Single Lane: 9 ft; 11 ft with barrier |
| | *Right Width Paved | 48-5.02 | Single Lane: 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 14 ft min. |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 155 ft |
| | Decision Sight Distance | | |
| | Avoidance maneuver E | 42-2.0 | 515 ft |
| | *Minimum Radius, e=8% | 48-2.02(02) | 180 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 155 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 19 |
| | Sag | 44-3.0 | 26 |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria

Route: Line "County Line - NBEN"

Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 11,000 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | * Design Speed, mph | Fig. 48-5A | 30 - 60 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | Single Lane: 16 ft; Multi-Lane: 12 ft per lane |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | Single Lane: 9 ft; 11 ft with barrier; Multi-Lane: 11 ft; 13 ft with barrier |
| | *Right Width Paved | 48-5.02 | Single Lane: 8 ft; 10 ft with barrier; Multi-Lane: 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 20 ft min. |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft (30 mph); 425 ft (50 mph) |
| | Decision Sight Distance | | |
| | Avoidance maneuver E | 42-2.0 | 620 ft (30 mph); 1030 ft (50 mph) |
| | *Minimum Radius, e=8% | 48-2.02(02) | 214 ft (30 mph); 758 ft (50 mph) |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft (30 mph); 425 ft (50 mph) |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 29 (30 mph); 114 (50 mph) |
| | Sag | 44-3.0 | 37 (30 mph); 96 (50 mph) |
| | Vertical Grades | | |
| *Maximum | 48-5.04(01) | 5% | |
| Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "County Line - SBEX" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 9,600 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | * Design Speed, mph | Fig. 48-5A | 30 - 60 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | Single Lane: 16 ft; Multi-Lane: 12 ft per lane |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | Single Lane: 9 ft; 11 ft with barrier; Multi-Lane: 11 ft; 13 ft with barrier |
| | *Right Width Paved | 48-5.02 | Single Lane: 8 ft; 10 ft with barrier; Multi-Lane: 10 ft; 12 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 20 ft min. |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft (30 mph); 425 ft (50 mph) |
| | Decision Sight Distance | | |
| | Avoidance maneuver E | 42-2.0 | 620 ft (30 mph); 1030 ft (50 mph) |
| | *Minimum Radius, e=8% | 48-2.02(02) | 214 ft (30 mph); 758 ft (50 mph) |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft (30 mph); 425 ft (50 mph) |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 29 (30 mph); 114 (50 mph) |
| | Sag | 44-3.0 | 37 (30 mph); 96 (50 mph) |
| | Vertical Grades | | |
| *Maximum | 48-5.04(01) | 5% | |
| Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria

Route: Line "County Line - SBEN"

Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|---------------------------------------|
| DESIGN CONTROLS | Functional Classification | | Freeway Ramp |
| | INDOT Geometric Design Table | Ch. 48 | Figure 48-5A |
| | Design Year Traffic, AADT (2045) | 40-2.01 | 4,000 |
| | Design Vehicle | Fig. 46-1E | IDV |
| | * Design Speed, mph | Fig. 48-5A | 30 - 60 mph |
| | Access Control | Fig. 53-1 | Full Control |
| | Level of Service | Fig. 53-1 | Desirable: B; Minimum: C |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 48-5.02 | Single Lane: 16 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Right Width Usable | 48-5.02 | Single Lane: 9 ft; 11 ft with barrier |
| | *Right Width Paved | 48-5.02 | Single Lane: 8 ft; 10 ft with barrier |
| | *Left Width Usable | 48-5.02 | 5 ft |
| | *Left Width Paved | 48-5.02 | 4 ft; 6 ft with barrier |
| | Cross Slope | | |
| | *Travel Lane | 48-5.02 | 2% |
| | Shoulder | 48-5.02 | Right: 4%; Left: 2% |
| | Clear Zone Width | 49-2.0 | 18 ft min. |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Freeway Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft (30 mph); 425 ft (50 mph) |
| | Decision Sight Distance | | |
| | Avoidance maneuver E | 42-2.0 | 620 ft (30 mph); 1030 ft (50 mph) |
| | *Minimum Radius, e=8% | 48-2.02(02) | 214 ft (30 mph); 758 ft (50 mph) |
| | *Superelevation Rate | 43-3.0 | e _{max} = 8% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft (30 mph); 425 ft (50 mph) |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 29 (30 mph); 114 (50 mph) |
| | Sag | 44-3.0 | 37 (30 mph); 96 (50 mph) |
| | Vertical Grades | | |
| | *Maximum | 48-5.04(01) | 5% |
| Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.30% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6.5 Design Criteria Route: Line "PR-County Line Road"

Revised 07-15-2020:
Revised Median Width Criteria

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|--------------------------------------|--|---------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Arterial (Intermediate) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-6 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 22,500 |
| | Design Vehicle | Fig. 46-1E | Des: IDV, Min: WB-50 |
| | * Design Speed, mph | Fig. 53-6 | 40 mph |
| | Access Control | Fig. 53-6 | None |
| | Level of Service | Fig. 53-6 | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Curbed Sections | | |
| | *Curb Offset | 45-1.02 | 2 ft |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Median Width | | |
| | Total Width | 45-2.02 | 8 ft (includes two 2 ft curb offsets) |
| | Raised Island Width | 45-2.02 | 4 ft |
| | Clear Zone Width | 49-2.03(03) | 10 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 6:1 |
| Cut Ditch Width | 45-3.0 | 4 ft | |
| Cut Backslope | 45-3.0 | 4:1 for 20 ft; 3:1 Max. to Top | |
| Fill | 45-3.0 | 6:1 to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Arterial Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 16.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Sign Truss/Pedestrian Bridge | 44-4.0 | N/A | |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 305 ft |
| | *Minimum Radius, e=6% | 43-2.0 | 485 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 61 |
| | Sag | 44-3.0 | 64 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 6.5% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Wicker Road" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|---------------------------------------|--|--------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Collector (Intermediate) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 55-3G |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 5,100 |
| | Design Vehicle | Fig. 46-1E | Des: IDV, Min: WB-50 |
| | * Design Speed, mph | Fig. 55-3G | 40 mph |
| | Access Control | Fig. 55-3G | None |
| | Level of Service | Fig. 55-3G | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Curbed Sections | | |
| | *Curb Offset | 55-4.05 | 2 ft |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Auxiliary Lanes | | |
| | Lane Width | 55-4.05 | 12 ft |
| | Curb Offset | 55-4.05 | 2 ft |
| | Surface Type | 55-4.05 | Asphalt / Concrete |
| | Median Width | | |
| | Flush / Corrugated | 55-4.05 | Des: 16 ft; Min: 2 ft |
| | Sidewalk | | |
| | Width | 55-4.05 | 6 ft |
| | Bicycle Lanes | | |
| | Width | 51-7.0 | 5 ft |
| | Clear Zone Width | 49-2.03(03) | 10 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 2:1 or flatter |
| Cut Ditch Width | 45-3.0 | Des: 4 ft; Min: 0 ft | |
| Cut Backslope | 45-3.0 | 2:1 or flatter | |
| Fill | 45-3.0 | 2:1 or flatter | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Collector Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | 14.5 ft |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 305 ft |
| | *Minimum Radius, e=6% | 43-2.0 | 485 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 61 |
| | Sag | 44-3.0 | 64 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% | |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-West Connector Road" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|---------------------------------------|--|--------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Collector (Intermediate) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-8 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 5,300 |
| | Design Vehicle | Fig. 46-1E | Des: IDV, Min: WB-50 |
| | * Design Speed, mph | Fig. 53-8 | 40 mph |
| | Access Control | Fig. 53-8 | None |
| | Level of Service | Fig. 53-8 | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Width Usable | 45-1.02 | 9 ft |
| | *Width Paved | 45-1.02 | 8 ft; 10 ft with barrier |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Clear Zone Width | 49-2.0 | 14 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | Des: 6:1; Max: 4:1 |
| | Cut Ditch Width | 45-3.0 | 4 ft |
| Cut Backslope | 45-3.0 | 4:1 for 4 ft; 3:1 Max. to Top | |
| Fill | 45-3.0 | 4:1 max. to Clear Zone; 3:1 max. to Toe | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | HL-93 |
| | *Clear-Roadway Width | 45-4.01 | Full Paved Approach Width |
| | Bridge Railing Safety Performance | IDM Figure 49-6D | TL-4 |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Collector Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 305 ft |
| | *Minimum Radius, e=6% | 43-2.0 | 485 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 6% |
| | *Horizontal Sight Distance | 43-4.0 | 305 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Desirable: 61 |
| | Sag | 44-3.0 | 64 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 8% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Glenns Valley Lane" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Suburban) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | < 500 |
| | Design Vehicle | Fig. 46-1E | Des: WB-50, Min: WB-40 |
| | * Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 11 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Width Usable | 45-1.02 | 4 ft |
| | Surface Type | Ch. 304 | Aggregate |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max. |
| | Cut Ditch Width | 45-3.0 | Des: 4 ft; Min: 0 ft |
| Cut Backslope | 45-3.0 | 3:1 Max. | |
| Fill | 45-3.0 | 3:1 Max. | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Local Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | *Minimum Radius, e=6% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Des: 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria

Route: Line "PR-Bluff Road"

Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Suburban) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 53-9 |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | 4,650 |
| | Design Vehicle | Fig. 46-1E | Des: WB-50, Min: WB-40 |
| | * Design Speed, mph | Fig. 53-9 | 30 mph |
| | Access Control | Fig. 53-9 | None |
| | Level of Service | Fig. 53-9 | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 45-1.01 | 12 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Width Usable | 45-1.02 | 4 ft |
| | Surface Type | Ch. 304 | Aggregate |
| | Cross Slope | | |
| | *Travel Lane | 45-1.01 | 2% |
| | Shoulder | 45-1.02 | 4% |
| | Auxiliary Lanes | | |
| | Lane Width | 45-1.03 | 12 ft |
| | Shoulder Width | 45-1.03 | 4 ft |
| | Shoulder Surface Type | 45-1.03 | Aggregate |
| | Clear Zone Width | 49-2.0 | 14 ft |
| | Side Slopes | | |
| | Cut Foreslope | 45-3.0 | 3:1 Max. |
| | Cut Ditch Width | 45-3.0 | Des: 4 ft; Min: 0 ft |
| Cut Backslope | 45-3.0 | 3:1 Max. | |
| Fill | 45-3.0 | 3:1 Max. | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 45-4.01 | N/A |
| | *Vertical Clearance (Local Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 200 ft |
| | *Minimum Radius, e=6% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 200 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Des: 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Level: 10% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

ATTACHMENT 08-1: Design Criteria

I-69 Section 6 Contract 5 Design Criteria Route: Line "PR-Mt Pleasant W Street" Segment E

INDOT (des.) # 1901381

| | DESIGN ELEMENT | INDIANA DESIGN MANUAL SECTION (2013 - English) | PROJECT-SPECIFIC CRITERIA DEFINITION |
|---|-------------------------------------|--|--------------------------------------|
| DESIGN CONTROLS | Functional Classification | 40-1.01 | Urban Local Street (Suburban) |
| | INDOT Geometric Design Table | Ch. 53 | Figure 55-3H |
| | Design Year Traffic, AADT (2045) | Fig. 40-2A | < 500 |
| | Design Vehicle | Fig. 46-1E | Des: WB-50, Min: SU |
| | * Design Speed, mph | 55-3H | 25 mph |
| | Access Control | 55-3H | None |
| | Level of Service | 55-3H | Desirable: C; Minimum: D |
| CROSS SECTION ELEMENTS | Travel Lane | | |
| | *Width | 55-4.05 | 11 ft |
| | Surface Type | Ch. 304 | Asphalt / Concrete |
| | Shoulder | | |
| | *Width Usable | 55-4.05 | 2 ft |
| | Surface Type | Ch. 304 | Aggregate |
| | Cross Slope | | |
| | *Travel Lane | 55-4.05 | 2% |
| | Shoulder | 55-4.05 | 4% |
| | Clear Zone Width | 49-2.0 | 10 ft |
| | Obstruction-Free Zone Width | 55-5.02 | 8 ft |
| | Side Slopes | | |
| | Cut Foreslope | 55-4.05 | 2:1 or flatter |
| | Cut Ditch Width | 55-4.05 | Des: 4 ft; Min: 0 ft |
| Cut Backslope | 55-4.05 | 2:1 or flatter | |
| Fill | 55-4.05 | 2:1 or flatter | |
| BRIDGES | New or Reconstructed Bridges | | |
| | *Structural Capacity | Ch. 403 | N/A |
| | *Clear-Roadway Width | 55-6.03 | N/A |
| | Bridge Railing Safety Performance | IDM Figure 49-6D | N/A |
| | Existing Bridges to Remain in Place | | |
| | *Structural Capacity | Ch. 72 | N/A |
| | *Clear-Roadway Width | 55-6.02 | N/A |
| | *Vertical Clearance (Local Under) | | |
| | New or Replaced Overpassing Bridge | 44-4.0 | N/A |
| | Existing Overpassing Bridge | 44-4.0 | N/A |
| Vertical Clearance, Freeway over Railroad | 402-6.01 | N/A | |
| ALIGNMENT ELEMENTS | *Stopping Sight Distance | 42-1.0 | 155 ft |
| | *Minimum Radius, e=4% | 43-2.0 | 260 ft |
| | *Superelevation Rate | 43-3.0 | e _{max} = 4% |
| | *Horizontal Sight Distance | 43-4.0 | 155 ft |
| | *Vertical Curvature, K-value | | |
| | Crest | 44-3.0 | Des: 29 |
| | Sag | 44-3.0 | 37 |
| | Vertical Grades | | |
| | *Maximum | 44-1.02 | Commercial: 8% |
| | Minimum | 44-1.03 | Desirable: 0.5%, Minimum: 0.3% |

* Indicates Level One controlling design criteria. A deviation from such is a design exception, and is subject to approval. See section 40-8.0

Attachment 08-2: Design Vehicle Classifications

Design Vehicle Classifications for Roadway Segments and Intersections

| Segment | Location (Intersection) | Design Vehicle |
|---------|---|----------------|
| A | NB & SB W. Mooresville Road | WB-65 |
| B | Mann Road and Ramp Mann WBEX-C | IDV |
| B | Mann Road and Ramp Mann EBEN-C | IDV |
| B | Harding Street and Ramp Harding WBEN-C | IDV |
| B | Harding Street and Ramp Harding WBEX-C | IDV |
| B | Harding Street and Ramp Harding EBEN-C | IDV |
| B | Harding Street and Ramp Harding EBEX-C | IDV |
| B | Existing SR 37 and Harding Street | WB-50 |
| B | Existing SR 37 and Thompson Road | IDV |
| C | EB I-74 Exit Ramp to SB S. East Street/US 31 | WB-65 |
| C | EB I-74 Exit Ramp to NB S. East Street/US 31 | WB-65 |
| C | WB I-465 Entrance Ramp from SB S. East Street | WB-65 |
| C | NB & SB Madison Avenue | WB-65 |
| C | NB & SB Carson Avenue | WB-75 |
| D | Winslet Drive and Perry Commons | SU-30 |
| D | Edgewood Avenue and Belmont Avenue | WB-50 |
| D | Belmont Avenue and Banta Road | WB-50 |
| D | Belmont Avenue and Lighthouse Landings | WB-50 |
| D | Southport Road and Governors Point | WB-50 |
| D | Southport Road and Wellingshire Blvd | WB-50 |
| D | Southport Road and SB I-69 Ramp Terminals | IDV |
| D | Southport Road and NB I-69 Ramp Terminals | IDV |
| D | Southport Road and Winslet Blvd | IDV |
| D | Epler Avenue and Ramp Epler SBEN-C | IDV |
| D | Epler Avenue and Ramp Epler NBEX-C | IDV |
| D | Epler Avenue and Epler Connection-C | IDV |
| D | Epler Connection-C and Kopetsky Drive | WB-50 |
| E | NB I-69 Exit Ramp to County Line Road | WB-65 |
| E | NB I-69 Entrance Ramp from County Line Road | WB-65 |
| E | SB I-69 Exit Ramp to County Line Road | WB-65 |
| E | SB I-69 Entrance Ramp from County Line Road | WB-65 |
| E | West County Line Road Roundabout | WB-65 |
| E | East County Line Road Roundabout | WB-65 |
| E | County Line Road & Morris Road | WB-50 |
| E | West Connector Road & Glens Valley Lane | WB-50 |
| E | West Connector Road & Wicker Road | WB-65 |
| E | Fairview Road Cul-de-sac | SU-30 |
| E | Glens Valley Lane Cul-de-sac | SU-30 |
| E | Mt. Pleasant St. Three-Point Turn | SU-30 |

Revised 07-15-2020:
 Added two intersections for
 Existing SR 37 in Segment B

Attachment 08-2: Driveway Classifications

Driveway Classifications

| Segment | Roadway | Location | Parcel No. | Type | Notes |
|---------|--------------------------------------|--|--------------------------|---|--|
| A | No Driveways Required | | | | |
| B | Thompson Road | 4899 Mann Road | 2003443 | Class I (from cul-de-sac) Class II (West of State Ditch) | |
| B | South Concord Street & Byrkit Street | 3037 W Thompson Rd | 5007503 | Hammerhead (Turnaround) Driveway | Layout shall match dimensions shown in Reference Plans. The minimum pavement design requirement shall match Local Roadways per TP Section 9.3.2.5. |
| B | Harding Court | 1401 Harding Ct | 5025733 | 2 - Class IV | |
| B | Harding Court | 1245 Harding Ct | 5025734 | Class IV | |
| B | Harding Court | 1101 Harding Ct | 5028589 | 2 - Class IV | |
| B | Harding Court | 1045 Harding Ct | 5028590 | 2 - Class IV | |
| B | Existing SR 37 | 1600 W Thompson Road | 5036852 | Modified Class VI | Layout shall match existing |
| C | No Driveways Required | | | | |
| D | Winslet Blvd | 1741 W Southport Road | 5014408 | Class I | Residential Driveway |
| D | Belmont Road | 2222 W Southport Road | 5043316 | Class III | Southport Shoppes |
| D | Banta Road | 1900 W Banta Road | 5026744 | Class III | Indianapolis Power and Light |
| D | W Edgewood Drive | 1951 W Edgewood Avenue | 5041776 | Class III | Lake Haven Retreat |
| D | W Edgewood Drive | 6001 S Belmont Avenue | 2015871 | Class II | Gravel Driveway |
| D | W Edgewood Drive | 5970 S. Belmont Avenue | 5042987 | Class III | Rose and Walker Supply |
| D | Epler Avenue | 5320 S Belmont Ave | 5004845, 5004846 | Class III | The minimum pavement design requirement shall match Arterial Roadways per TP Section 9.3.2.5. |
| D | Epler Avenue | 2041 W Epler Ave | 5032553 | Class VII | |
| D | Epler Avenue | 1780 W Epler Ave | 5026666 | Class III | |
| D | Epler Avenue | N/A | N/A | Class I | Cemetery |
| D | Epler Avenue | 1750 W Epler Ave | 5023480 | 2 - Class III | |
| D | Epler Avenue | 1745 W Epler Ave | 5035339 | 2 - Class I | |
| D | Epler Avenue | 1735 W Epler Ave | 5035340 | Class II | |
| D | Epler Avenue | 1740 W Epler Ave | 5023944 | Class IV | |
| E | County Line Road | 5319 W County Line Rd | 41-03-28-012-056.000-038 | Class I | |
| E | County Line Road | 5303 County Line Rd | 41-03-28-012-055.000-038 | Class I | |
| E | County Line Road | 5303 County Line Rd / 5279 County Line Rd | 41-03-28-012-054.000-038 | Class I | |
| E | County Line Road | 5279 County Line Rd | 41-03-28-012-054.000-038 | Class I | |
| E | County Line Road | 2410 W County Line Rd | 5014923 | Class I | |
| E | County Line Road | 2326 W County Line Rd | 5014922 | Class I | |
| E | Bluff Road | -- | 41-03-28-012-001.004-038 | Partial Class IV | |
| E | Bluff Road | 1229 N Bluff Rd | 41-03-28-012-001.003-038 | Class IV | |
| E | Bluff Road | 1255 N Bluff Rd | 41-03-28-012-065.000-038 | Class IV | |
| E | Mt Pleasant Street | 1255 N Bluff Rd | 41-03-28-012-065.000-038 | Class IV | |
| E | Glenns Valley Lane | 2625 Glenns Valley Ln | 5020132 | Class IV | |
| E | Glenns Valley Lane | 2625 Glenns Valley Ln | 5020132 | Class IV | |
| E | Glenns Valley Lane | 2626 Glenns Valley Ln | 5002236 | Class IV | |
| E | Glenns Valley Lane | 2616 Glenns Valley Ln | 5040920 | Class II | |
| E | Wicker Road | 2780 Wicker Rd | 5030851 | Class I | |
| E | Wicker Road | 2720 Wicker Rd | 5037696 | Class I | |
| E | Wicker Road | 2625 Wicker Rd | 5013563 | Class I | |
| E | Wicker Road | 2625 Wicker Rd | 5022249 | Class I | |
| E | Wicker Road | 2620 Wicker Rd | 5044242 | Class I | |
| E | Wicker Road | 2725 Wicker Rd | 5012094 | Class V | |
| E | Wicker Road | 2725 Wicker Rd | 5020005 | Class V | |

Revised 07-15-2020: Added driveway in Segment B.

Attachment 08-2: Intersection Taper and Storage Length

Intersection Taper-Storage Length

| Segment | Location (Intersection) | Turning Roadway | Storage (ft) | Decel (ft) | Taper (ft) |
|---------|--|----------------------|--------------|----------------|------------|
| B | Mann Rd. and Ramp "Mann WBEX-C" | SB Left Turn | 100 | 430 | 100 |
| B | Mann Rd. and Ramp "Mann EBEX-C" | EB Left Turn | 150 | 0 | 100 |
| B | Harding St. and Ramp "Harding EBEX-C" | NB Left Turn | 420 | 280 | 100 |
| B | Harding St. and Ramp "Harding EBEX-C" | SB Right Turn | 420 | 280 | 100 |
| B | Harding St. and Ramp "Harding EBEN-C" | EB Left Turn | | Match Existing | |
| B | Harding St. and Ramp "Harding EBEN-C" | EB Right Turn | | Match Existing | |
| B | Harding St. and Ramp "Harding WBEN-C" | WB Right Turn | | Match Existing | |
| B | Harding St. and Ramp "Harding WBEN-C" | WB Left Turn | | Match Existing | |
| B | Harding St. and Ramp "Harding WBEX-C" | SB Left Turn | 100 | 400 | 200 |
| B | Harding St. and Ramp "Harding WBEX-C" | NB Right Turn | 100 | 400 | 200 |
| B | Existing SR 37 and Thompson Road | NB Turns | | Match Existing | |
| B | Existing SR 37 and Thompson Road | SB Turns | | Match Existing | |
| B | Existing SR 37 and Thompson Road | WB Turns | | Match Existing | |
| B | Existing SR 37 and Thompson Road | EB Turns | | Match Existing | |
| B | Existing SR 37 and Harding Street | NB Turns | | Match Existing | |
| B | Existing SR 37 and Harding Street | SB Turns | | Match Existing | |
| B | Existing SR 37 and Harding Street | WB Turns | | Match Existing | |
| C | Madison Ave. and Drive (Indianapolis Christian Fellowship) | NB Left Turn | | Match Existing | |
| C | Madison Ave. and Lick Creek Parkway South | SB Left Turn | | Match Existing | |
| D | Epler Ave. and NB I-69 Ramp | NB Left Turn | 100 | 430 | 100 |
| D | Epler Ave. and SB I-69 Ramp | SB Right Turn | 220 | 0 | 100 |
| D | Southport Rd. and NB I-69 Ramps | WB Right Turn | 600 | 0 | 100 |
| D | Southport Rd. and NB I-69 Ramps | NB Left Turn | 100 | 0 | 100 |
| D | Southport Rd. and NB I-69 Ramps | NB Right Turn | 280 | 430 | 100 |
| D | Southport Rd. and SB I-69 Ramps | EB Right Turn | 260 | 0 | 100 |
| D | Southport Rd. and SB I-69 Ramps | SB Left Turn | 240 | 0 | 100 |
| D | Southport Rd. and SB I-69 Ramps | SB Right Turn | 500 | 430 | 100 |
| D | Existing SR 37 and Epler Ave. | Epler NE Right Turn | 140 | 0 | 100 |
| D | Existing SR 37 and Epler Ave. | Epler NW Right Turn | 100 | 0 | 100 |
| D | Existing SR 37 and Epler Ave. | Epler NW Left Turn | 100 | 0 | 100 |
| D | Existing SR 37 and Epler Ave. | SR 37 SW Left Turn | 100 | 0 | 100 |
| D | Epler Ave. and Kopetsky Dr. | WB Left Turn | 100 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | EB Left Turn | 360 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | EB Right Turn | 360 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | WB Left Turn | 300 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | WB Right Turn | 300 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | NB Left Turn | 100 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | NB Right Turn | 100 | 0 | 100 |
| D | Southport Rd. and Wellingshire Blvd. | SB Left Turn | 100 | 0 | 100 |
| D | Southport Rd. and Winslet Blvd. | EB Right Turn | 100 | 0 | 100 |
| D | Southport Rd. and Winslet Blvd. | WB Left Turn | 180 | 0 | 100 |
| D | Southport Rd. and Winslet Blvd. | Winslet NE Left Turn | 100 | 0 | 100 |
| D | Winslet Blvd. and Perry Commons Ave. | Winslet SW Left Turn | 100 | 0 | 100 |
| E | County Line Rd. and NB I-69 Entrance Ramp | WB Right Turn | 650 | 0 | 100 |
| E | Bluff Rd. and County Line Rd. | NB Right Turn | 240 | 0 | 50 |
| E | Wicker Rd. and West Connector Rd. | WB Left Turn | 440 | 0 | 100 |
| E | Wicker Rd. and West Connector Rd. | EB Right Turn | 50 | 0 | 100 |
| E | County Line Rd. and SB I-69 Exit Ramp | SB Left Turn | 475 | 0 | 100 |

Revised 07-15-2020:
 Revised storage, decel, and taper lengths.
 Added two intersections for Existing SR 37 in Segment B.

Attachment 08-2: Pedestrian Accommodations

Pedestrian Accommodations

| Segment | Roadway | Alignment | RT/LT/Both ^^ | Station | | Buffer Width* (Feet) | Walking Width (Feet) | SW/SU** |
|---------|---------------------------------------|----------------------------|---------------|---------|-------|-------------------------|-------------------------|---------|
| | | | | Start | End | | | |
| A | No Pedestrian Accommodations Required | | | | | | | |
| B | Epler Avenue | "PR-Epler" | Both | 10+00 | 44+05 | -- | 6 | SW |
| B | Epler Connection | "PR-Epler Connection-C" | Both | 10+00 | 19+22 | -- | 6 | SW |
| B | Bluff Rd | N/A | LT | NA | NA | -- | 10 ^ | SU |
| C | Madison Avenue | "S-11-Z" | Both | 19+31 | 23+66 | -- | 6 | SW |
| | | | Both | 27+37 | 28+71 | -- | 6 | SW |
| D | S. Belmont Avenue | 'Southport Connector - C' | LT | 15+50 | 40+75 | -- | 6 | SW |
| D | Perry Commons Avenue | 'Perry Commons' | RT | 10+25 | 10+75 | 10 *** | 5 | SW |
| D | Winslet Blvd | 'PR-Winslet Blvd' | RT | 18+00 | 20+00 | 5 | 5 | SW |
| D | Wellingshire Blvd | 'PR-Wellingshire Blvd - C' | LT | 10+00 | 14+50 | 5 | 5 | SW |
| D | W. Banta Road | 'PR-Banta Rd' | Both | 50+95 | 52+50 | 5 ^ | 5 ^ | SW |
| D | W. Edgewood Avenue | 'PR-Edgewood Ave' | Both | 50+90 | 52+55 | 5 ^ | 5 ^ | SW |
| D | Governors Point Drive | N/A | Both | NA | NA | 4.5 *** | 4 *** | SW |
| D | W Southport Rd | 'PR-Southport Rd - C' | LT | 10+75 | 33+50 | 5 | 10 | SU |
| | | | LT | 33+50 | 37+00 | -- | 10 | SU |
| | | | LT | 37+00 | 57+00 | 5 | 10 | SU |
| | | | RT | 17+00 | 17+70 | Varies | 5 | SW |
| | | | RT | 17+70 | 21+10 | -- | 6 | SW |
| | | | RT | 21+10 | 21+75 | 5 | 5 | SW |
| | | | RT | 51+00 | 58+00 | 5 | 5 | SW |
| E | Wicker Road | "PR-Wicker Road" | Both | 51+00 | 69+00 | -- | 6 | SW |
| E | County Line Road | "PR-County Line Road" | RT | 40+00 | 40+24 | -- | Varies 5.5 to 10 | SU |
| | | | RT | 40+24 | 41+00 | -- | 10 | SU |
| | | | RT | 41+00 | 41+38 | Varies 0 to 5 | 10 | SU |
| | | | RT | 41+38 | 57+77 | 5 | 10 | SU |

^ Future sidewalk accommodations. Construct with compacted gravel under the bridges.

^^ Right and Left designations are relative to the stationing direction

* Buffer width measured From 'back of curb' to 'face of walking surface'

** SW: Sidewalk / SU: Shared-use Path

*** Match existing sidewalk and buffer widths

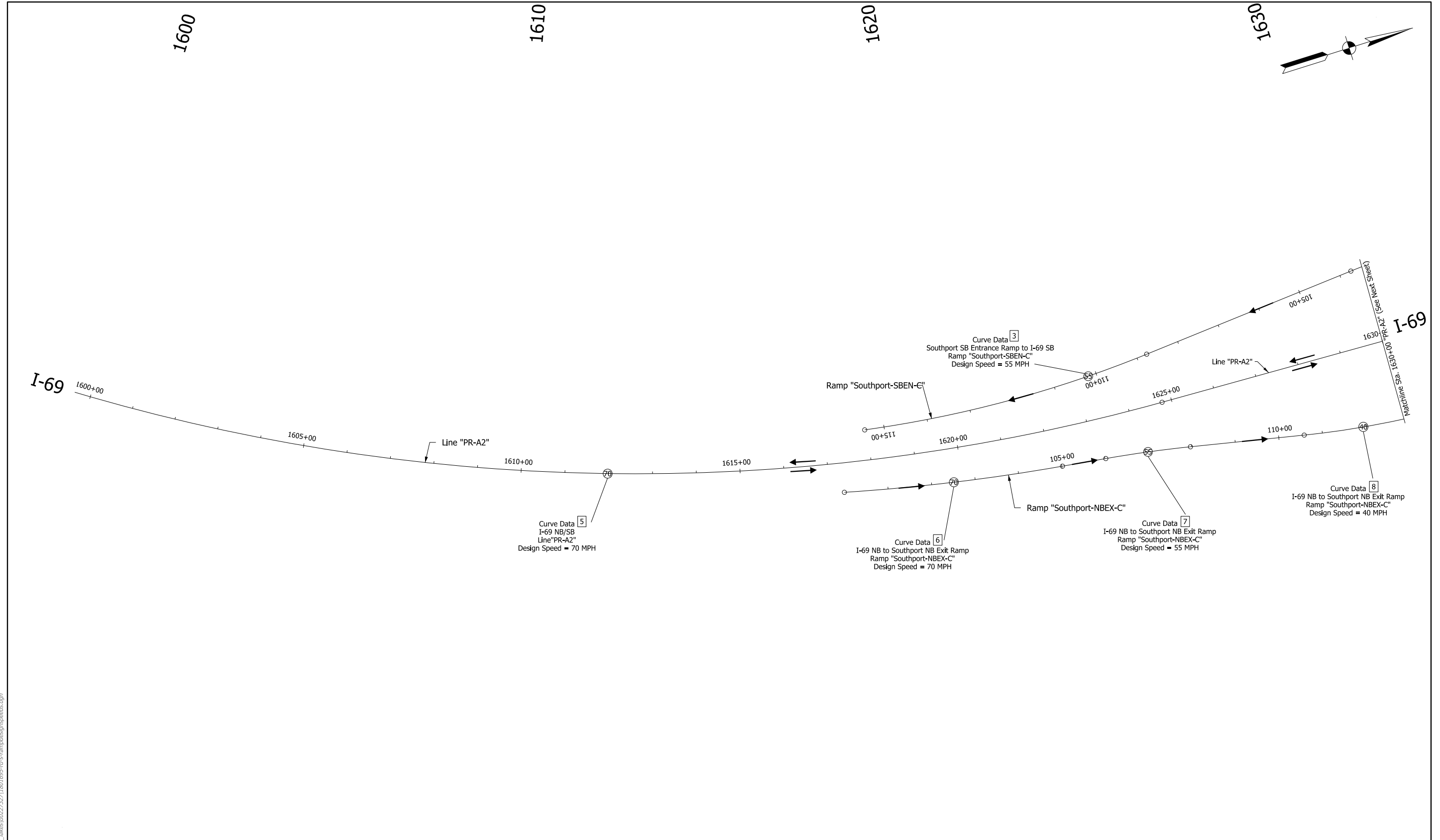
Attachment 08-2: Pedestrian Crosswalk Accommodations

Pedestrian Crosswalk Accommodations

| Segment | Intersection | Intersection Leg | Crosswalk Run | Ped Refuge | Min. Crosswalk Width (Feet) | SW/SU* |
|---------|--|------------------|---------------|------------|-----------------------------|--------|
| A | No Pedestrian Crosswalks Required | | | | | |
| B | Epler Avenue and Ramp Epler SBEN-C | South | East - West | No | 6 | SW |
| B | Epler Avenue and Ramp Epler NBEX-C | South | East - West | Yes | 6 | SW |
| B | Epler Avenue / Epler Connection | South | East - West | No | 6 | SW |
| B | Epler Avenue / Epler Connection | East | North - South | No | 6 | SW |
| C | No Pedestrian Crosswalks Required | | | | | |
| D | W Banta Rd / Graves Light Dr | West | North - South | No | 6 | SW |
| D | W Southport Rd / Wellingshire Blvd / Belmont Ave | North | East - West | Yes | 10 | SU |
| | | West | North - South | No | 5 | SW |
| D | W Southport Rd / Governors Point Dr | North | East - West | No | 10 | SU |
| D | W Southport Rd / I-69 SB Exit Ramp | North | East - West | Yes | 10 | SU |
| D | W Southport Rd / I-69 NB Entrance Ramp | North | East - West | Yes | 10 | SU |
| D | W Southport Rd / Winslet Blvd | East | North - South | No | 5 | SW |
| D | Winslet Blvd / Perry Commons Ave | South | East - West | No | 5 | SW |
| E | Wicker Rd / West Connector Rd | South | East - West | No | 6 | SW |
| E | County Line Rd / West Service Rd 3 | South | East - West | Yes | 10 | SU |
| E | County Line Rd / I-69 SB Entrance Ramp | South | East - West | No | 10 | SU |
| E | County Line Rd / Bluff Rd | South | East - West | Yes | 10 | SU |

* SW: Sidewalk / SU: Shared-use Path

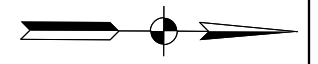
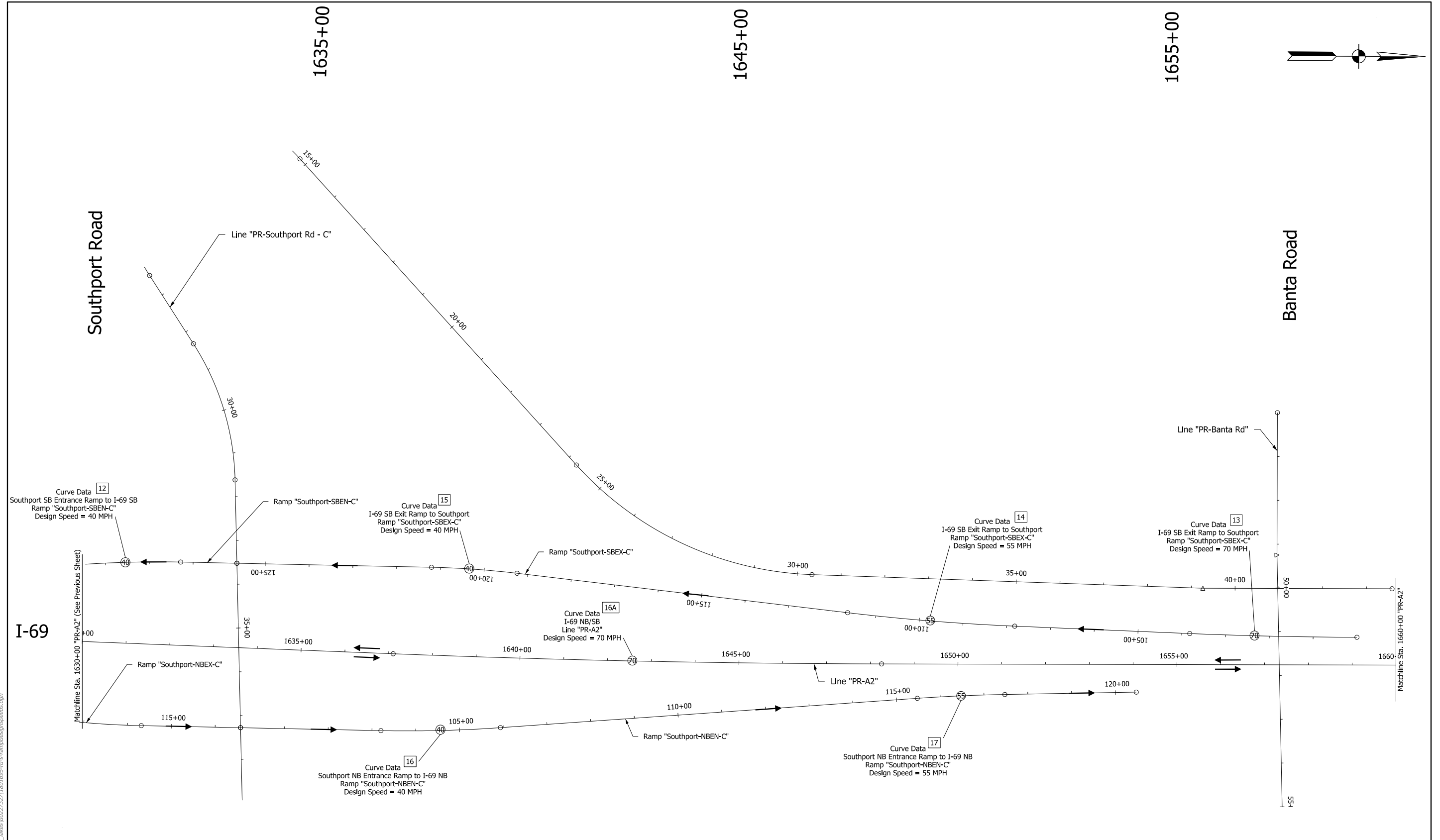
Attachment 08-2: Design Speed Diagrams



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 model-Sheet1
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| | | | | |
|--------------------------------------|--|--|---|------------------------|
| DRAFT NOT FOR CONSTRUCTION | RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE | INDIANA DEPARTMENT OF TRANSPORTATION DESIGN SPEED DIAGRAMS | HORIZONTAL SCALE 1"=100' | BRIDGE FILE N/A |
| | DESIGNED: _____ SGM _____ DRAWN: _____ SGM _____ | | VERTICAL SCALE N/A | DESIGNATION 1801695 |
| | CHECKED: _____ KRC _____ CHECKED: _____ KRC _____ | | SURVEY BOOK SHEETS RDS-01 ELECTRONIC _____ of _____ CONTRACT PROJECT R-41536 1801695 | |
| | | | | |

Attachment 08-2: Design Speed Diagrams



smain
 11/22/2019 11:27:40 am
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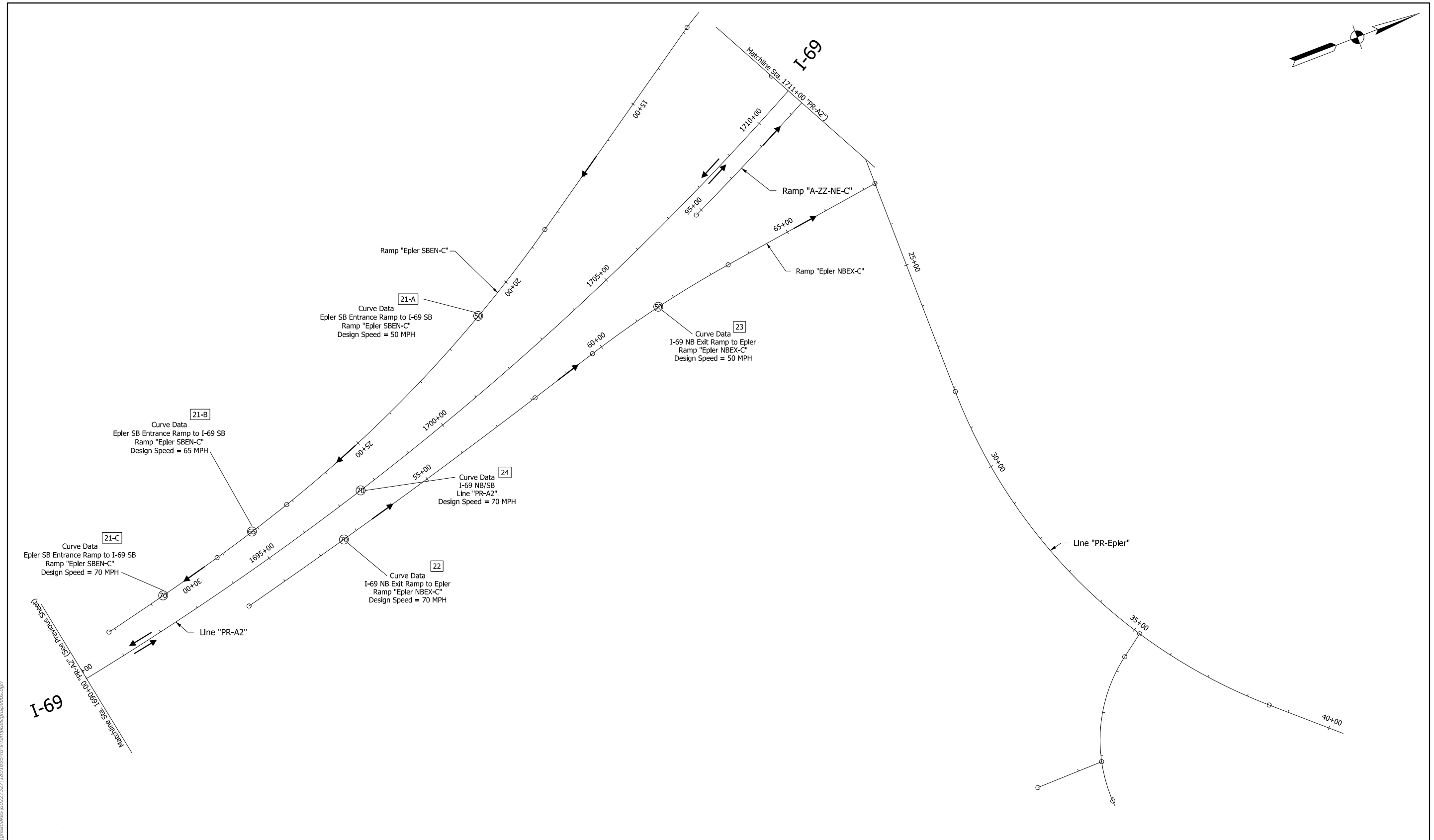
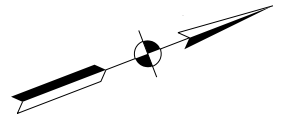
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| RECOMMENDED FOR APPROVAL | DESIGN ENGINEER | DATE |
| DESIGNED: SGM | DRAWN: SGM | |
| CHECKED: KRC | CHECKED: KRC | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

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|------------------|---------------|
| HORIZONTAL SCALE | BRIDGE FILE |
| 1"=100' | N/A |
| VERTICAL SCALE | DESIGNATION |
| N/A | 1801695 |
| SURVEY BOOK | SHEETS RDS-02 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-41536 | 1801695 |

Attachment 08-2: Design Speed Diagrams



arcosmeyer
 3/2/2020 9:26:21 am
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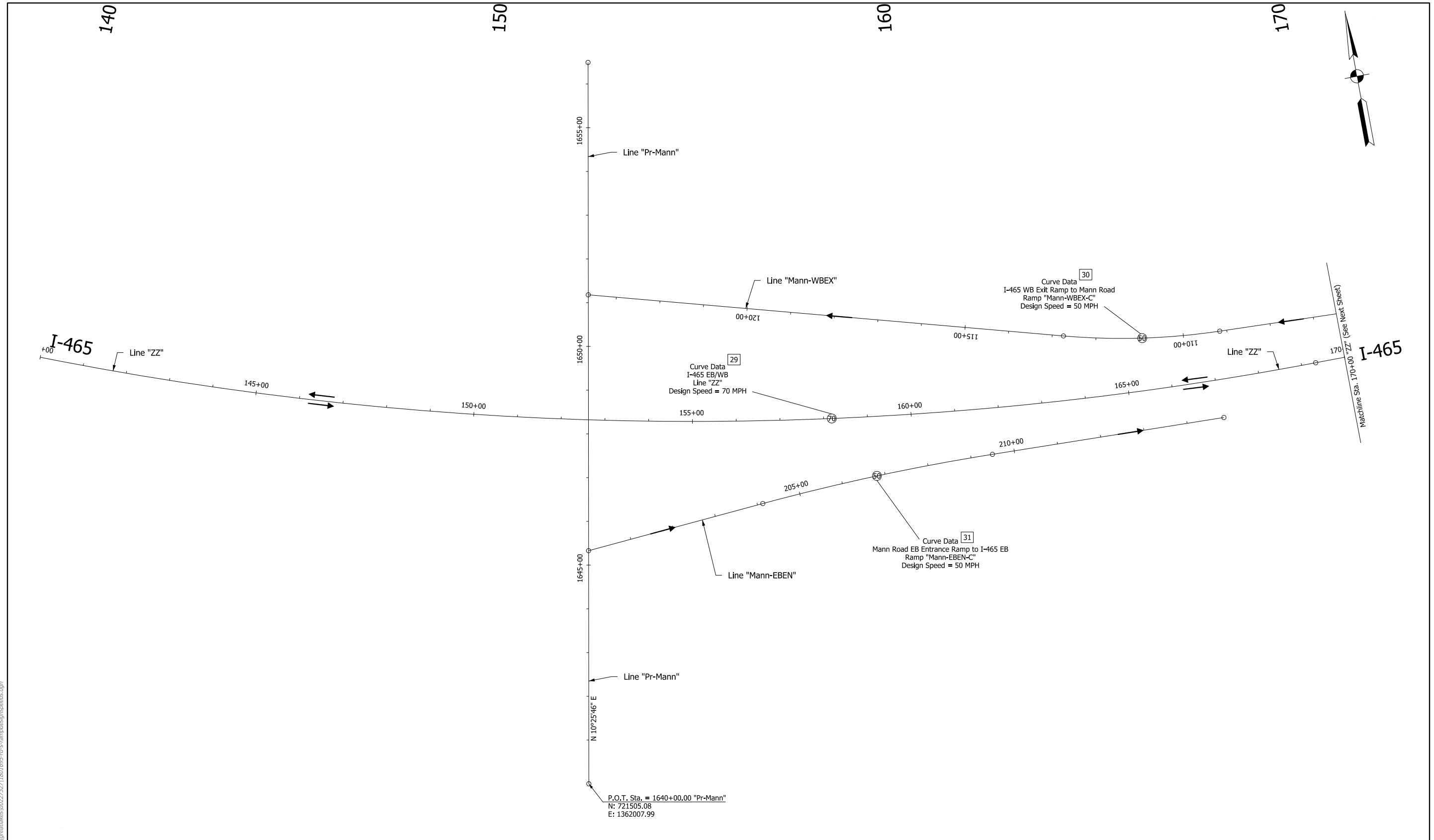
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| DESIGNED: _____ SGM _____ | DRAWN: _____ SGM _____ | |
| CHECKED: _____ KRC _____ | CHECKED: _____ KRC _____ | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

| | |
|------------------|---------------|
| HORIZONTAL SCALE | BRIDGE FILE |
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| VERTICAL SCALE | DESIGNATION |
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| SURVEY BOOK | SHEETS RDS-03 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-11536 | 1801695 |

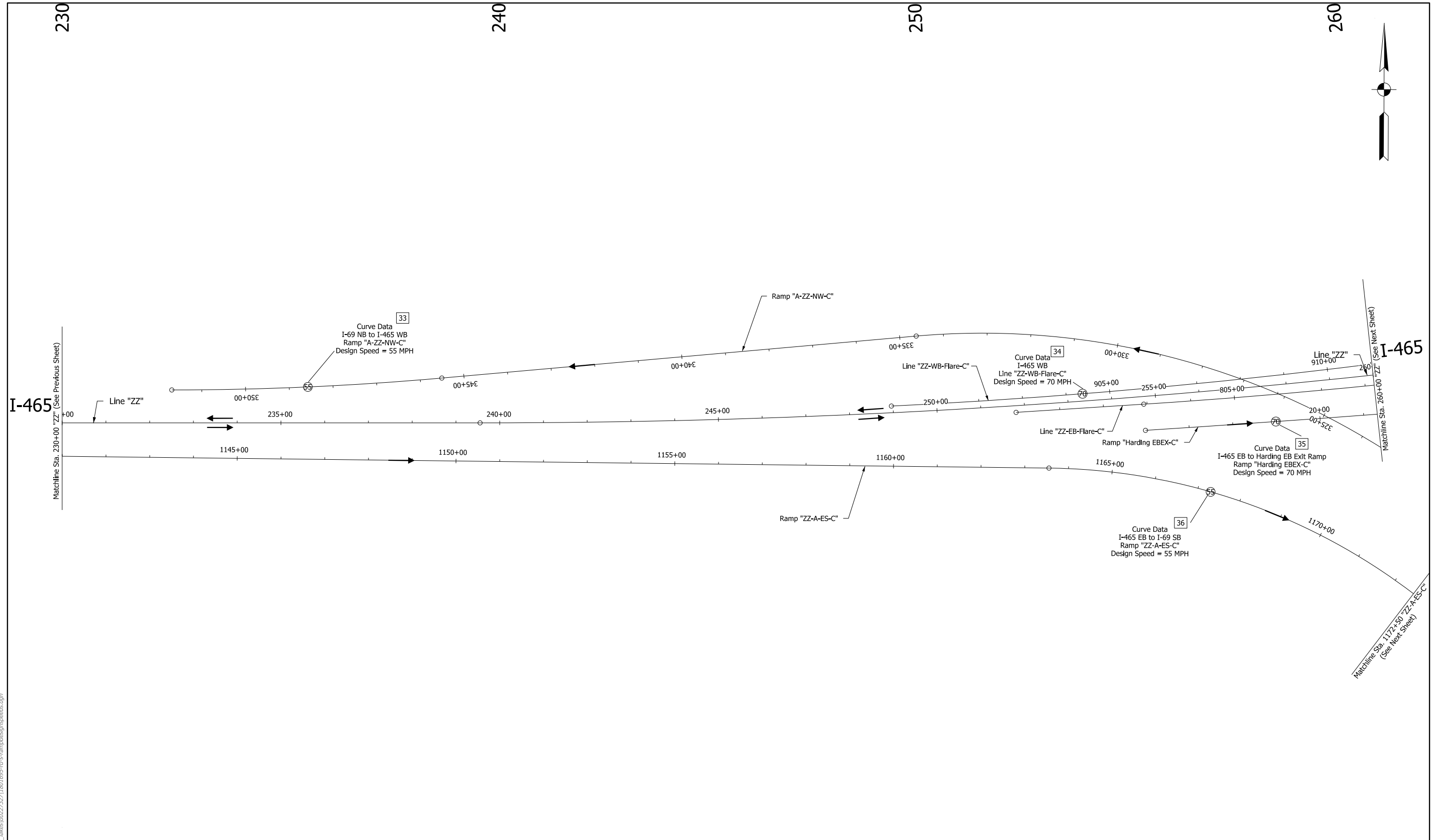
Attachment 08-2: Design Speed Diagrams



arcosmeyer
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| DRAFT NOT FOR CONSTRUCTION | RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE | INDIANA DEPARTMENT OF TRANSPORTATION DESIGN SPEED DIAGRAMS | HORIZONTAL SCALE 1"=100' | BRIDGE FILE N/A |
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| | CHECKED: _____ KRC CHECKED: _____ KRC | | SURVEY BOOK ELECTRONIC | SHEETS RDS-04 of |
| | | | CONTRACT R-11536 | PROJECT 1801695 |

Attachment 08-2: Design Speed Diagrams



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NOT FOR CONSTRUCTION

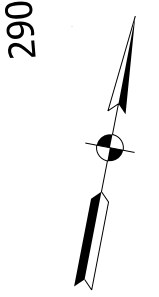
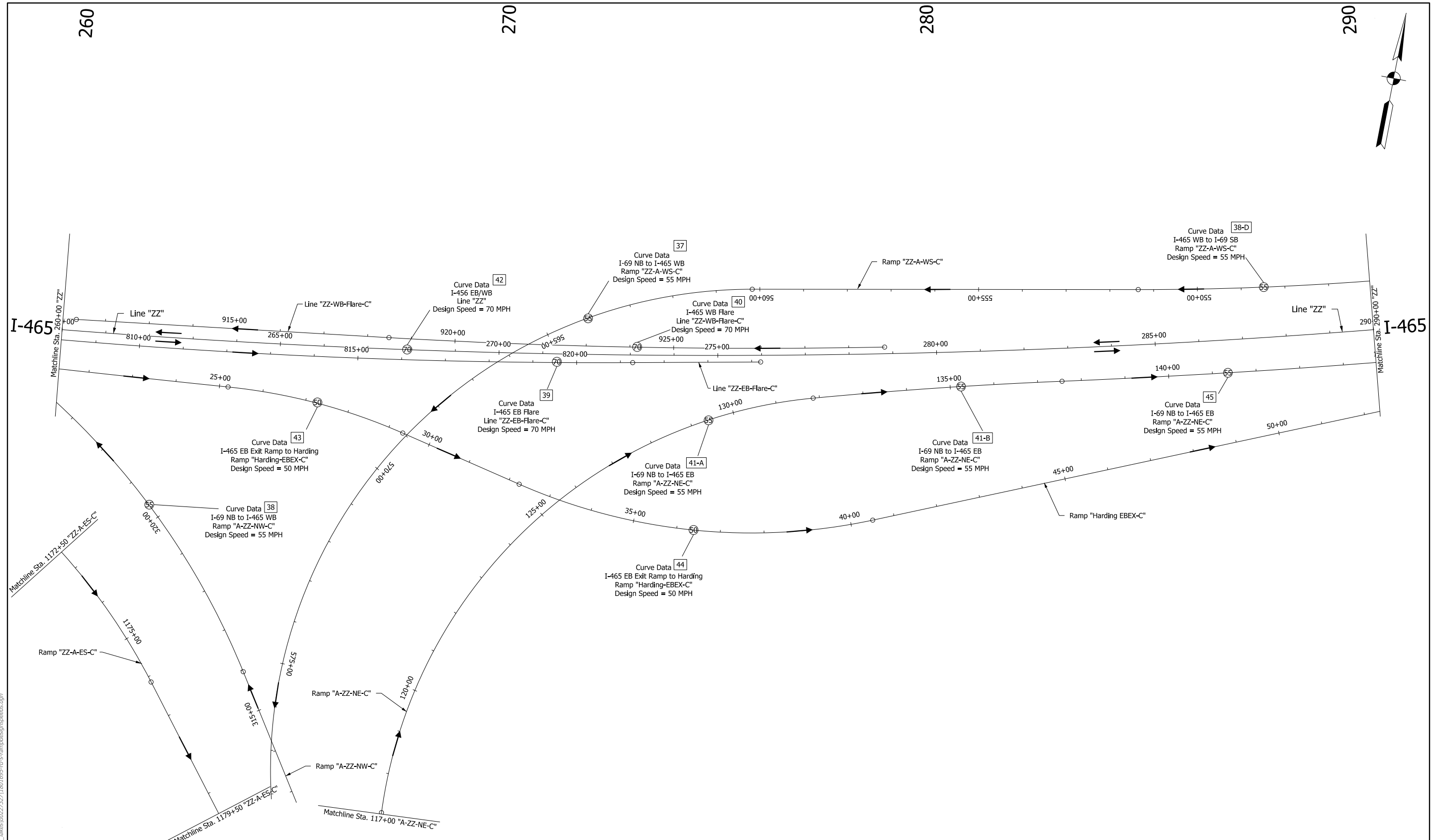
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| CHECKED: _____ KRC _____ | CHECKED: _____ KRC _____ | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

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|------------------|---------------|
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| VERTICAL SCALE | DESIGNATION |
| N/A | 1801695 |
| SURVEY BOOK | SHEETS RDS-05 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-41536 | 1801695 |

Attachment 08-2: Design Speed Diagrams



s:\main\11/22/2019 11:27:43 am
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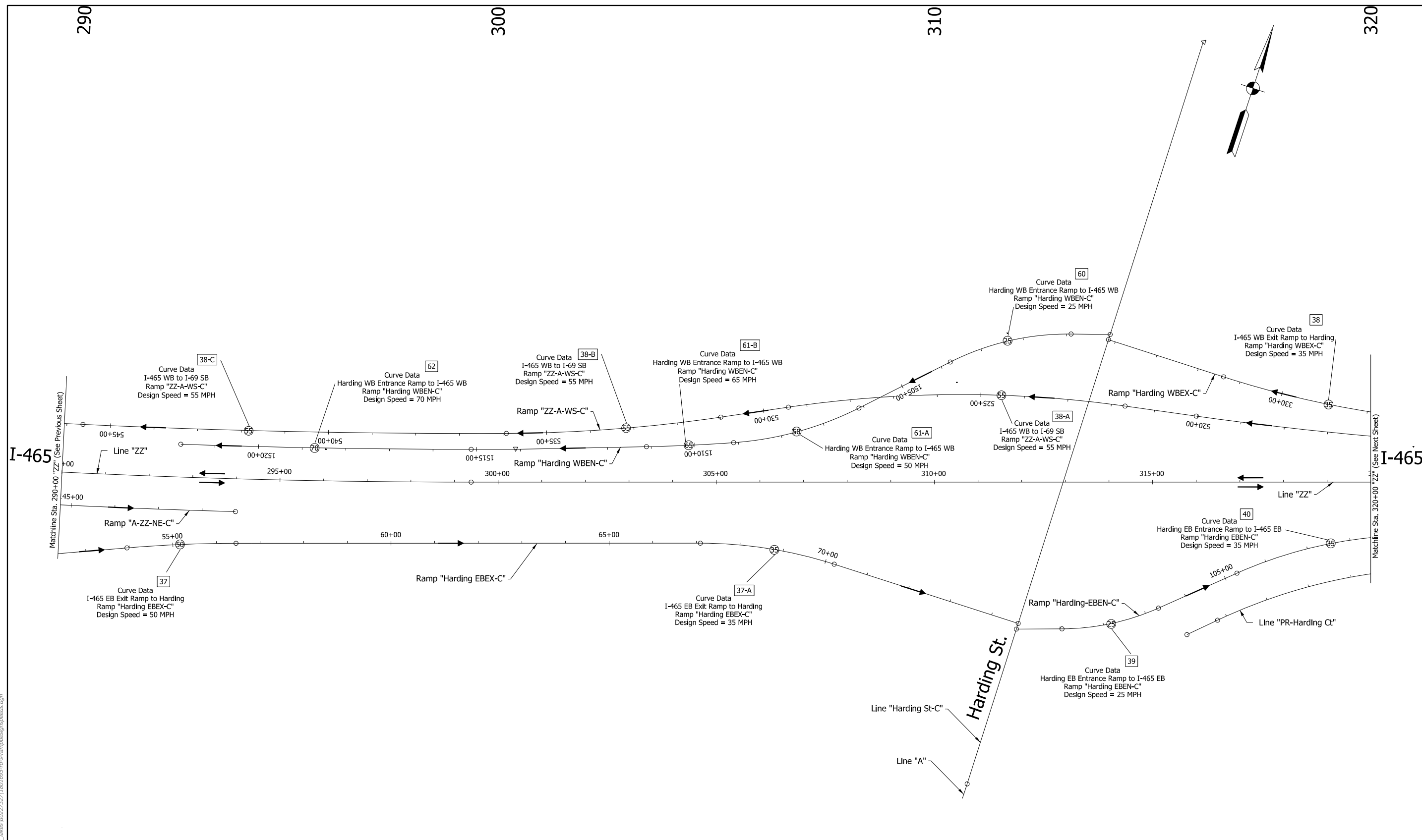
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| RECOMMENDED FOR APPROVAL _____ | DESIGN ENGINEER _____ | DATE _____ |
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| CHECKED: _____ KRC _____ | CHECKED: _____ KRC _____ | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

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| SURVEY BOOK ELECTRONIC | SHEETS of |
| CONTRACT R-41536 | PROJECT RDS-06 |
| | 1801695 |

Attachment 08-2: Design Speed Diagrams



smain
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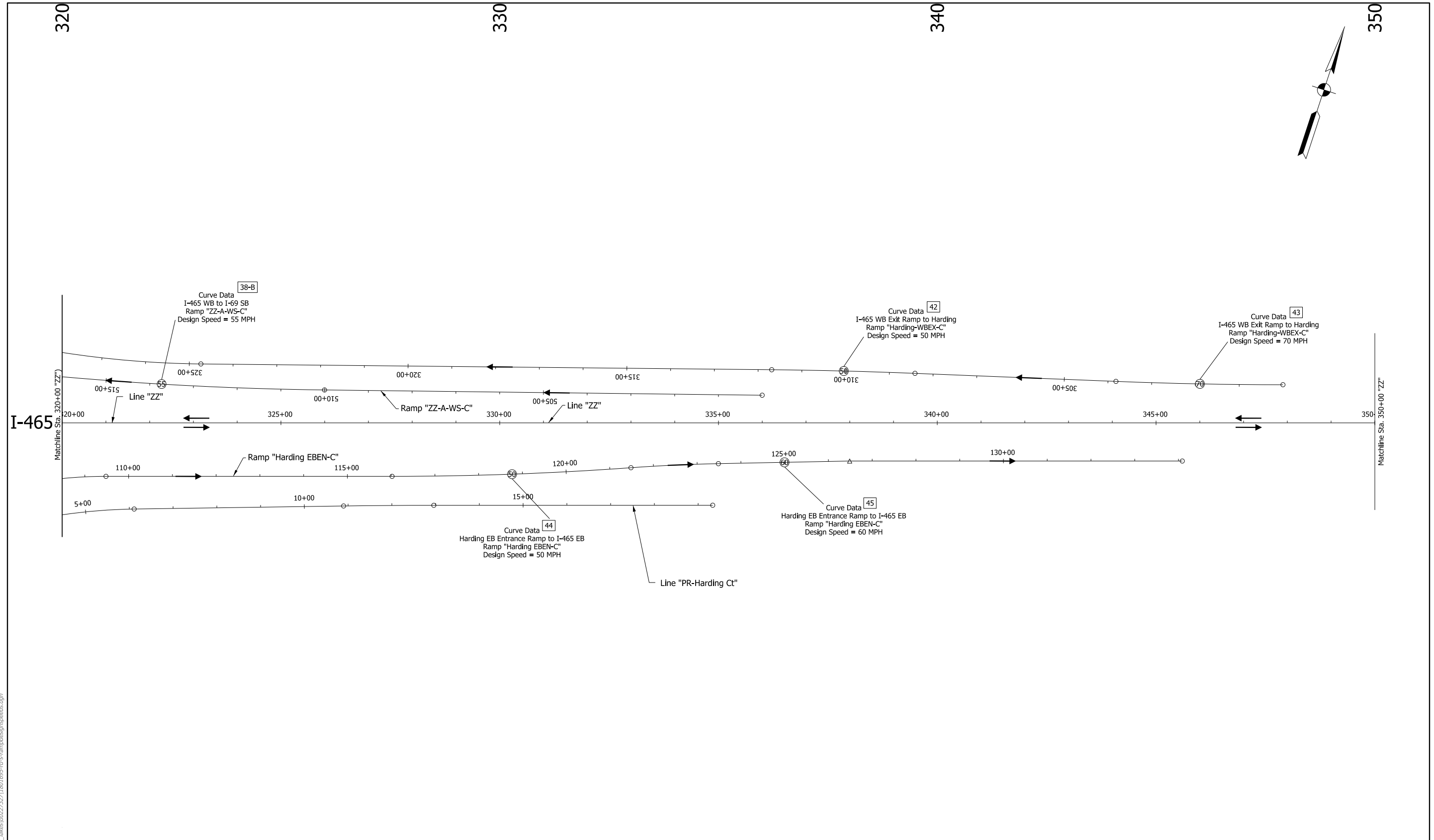
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| RECOMMENDED FOR APPROVAL | DESIGN ENGINEER | DATE |
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| CHECKED: KRC | CHECKED: KRC | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

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|------------------|---------------|
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| VERTICAL SCALE | DESIGNATION |
| N/A | 1801695 |
| SURVEY BOOK | SHEETS RDS-07 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-11536 | 1801695 |

Attachment 08-2: Design Speed Diagrams



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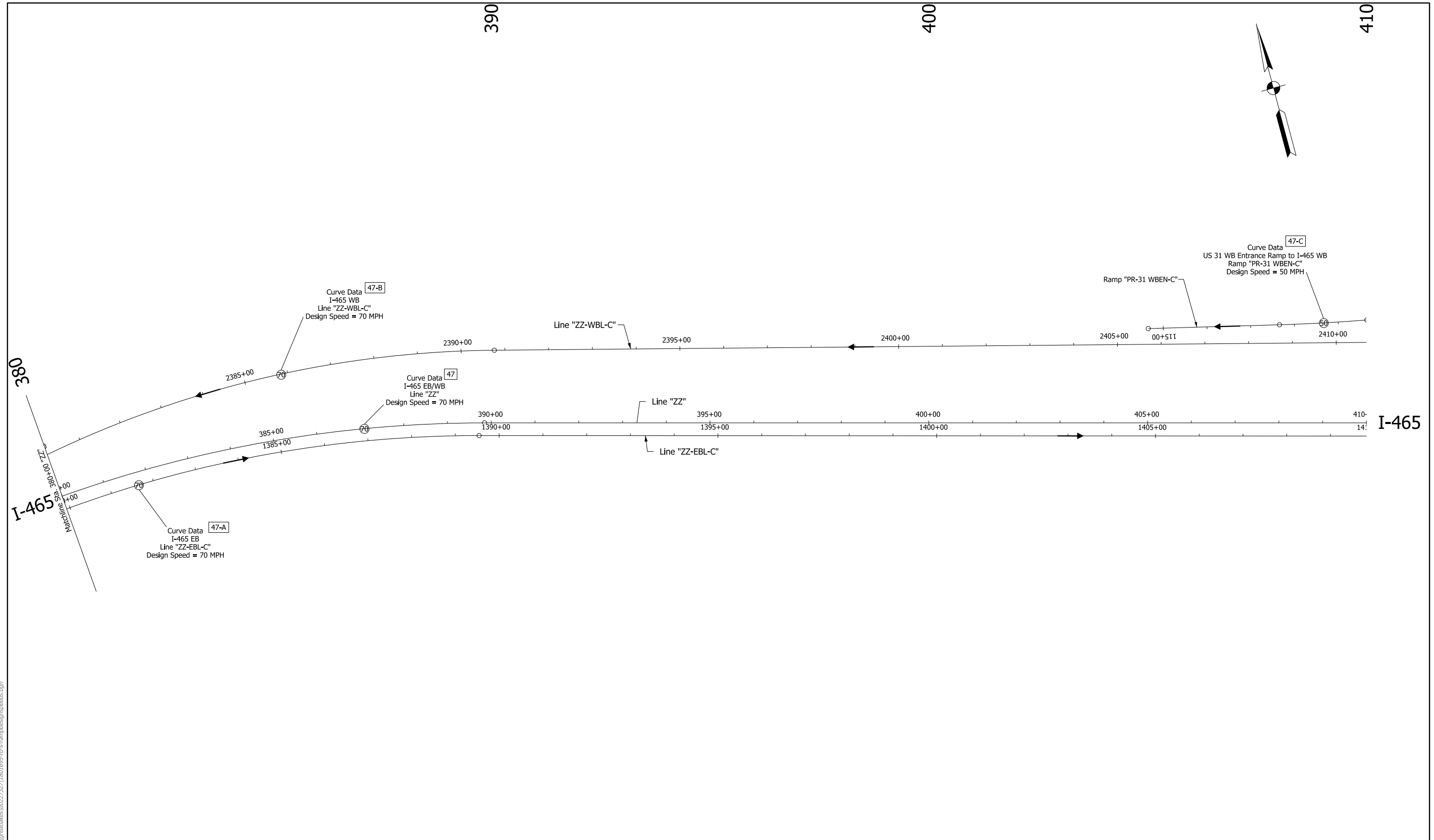
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| DESIGN ENGINEER | DATE |
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| CHECKED: _____ KRC | CHECKED: _____ KRC |

INDIANA
 DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

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| VERTICAL SCALE | DESIGNATION |
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| SURVEY BOOK | SHEETS RDS-08 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-41536 | 1801695 |

Attachment 08-2: Design Speed Diagrams



arcssemer
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| RECOMMENDED FOR APPROVAL _____ | DESIGN ENGINEER _____ | DATE _____ |
| DESIGNED: _____ SGM _____ | DRAWN: _____ SGM _____ | |
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INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

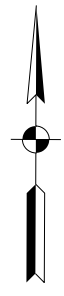
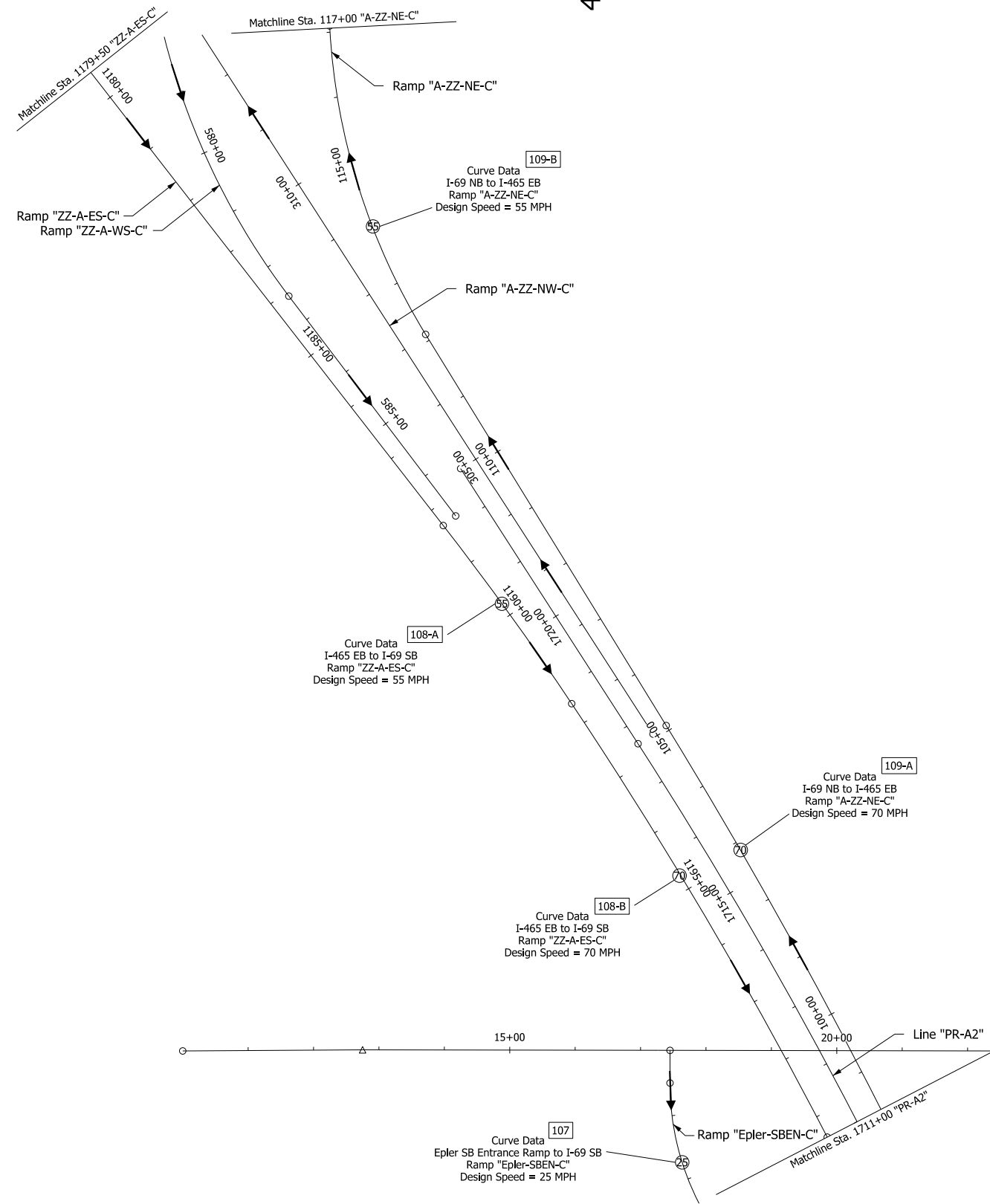
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| VERTICAL SCALE | DESIGNATION |
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| SURVEY BOOK | SHEETS RDS-09 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-11536 | 1801695 |

Attachment 08-2: Design Speed Diagrams

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| RECOMMENDED FOR APPROVAL _____ | DESIGN ENGINEER _____ | DATE _____ |
| DESIGNED: _____ SGM _____ | DRAWN: _____ SGM _____ | |
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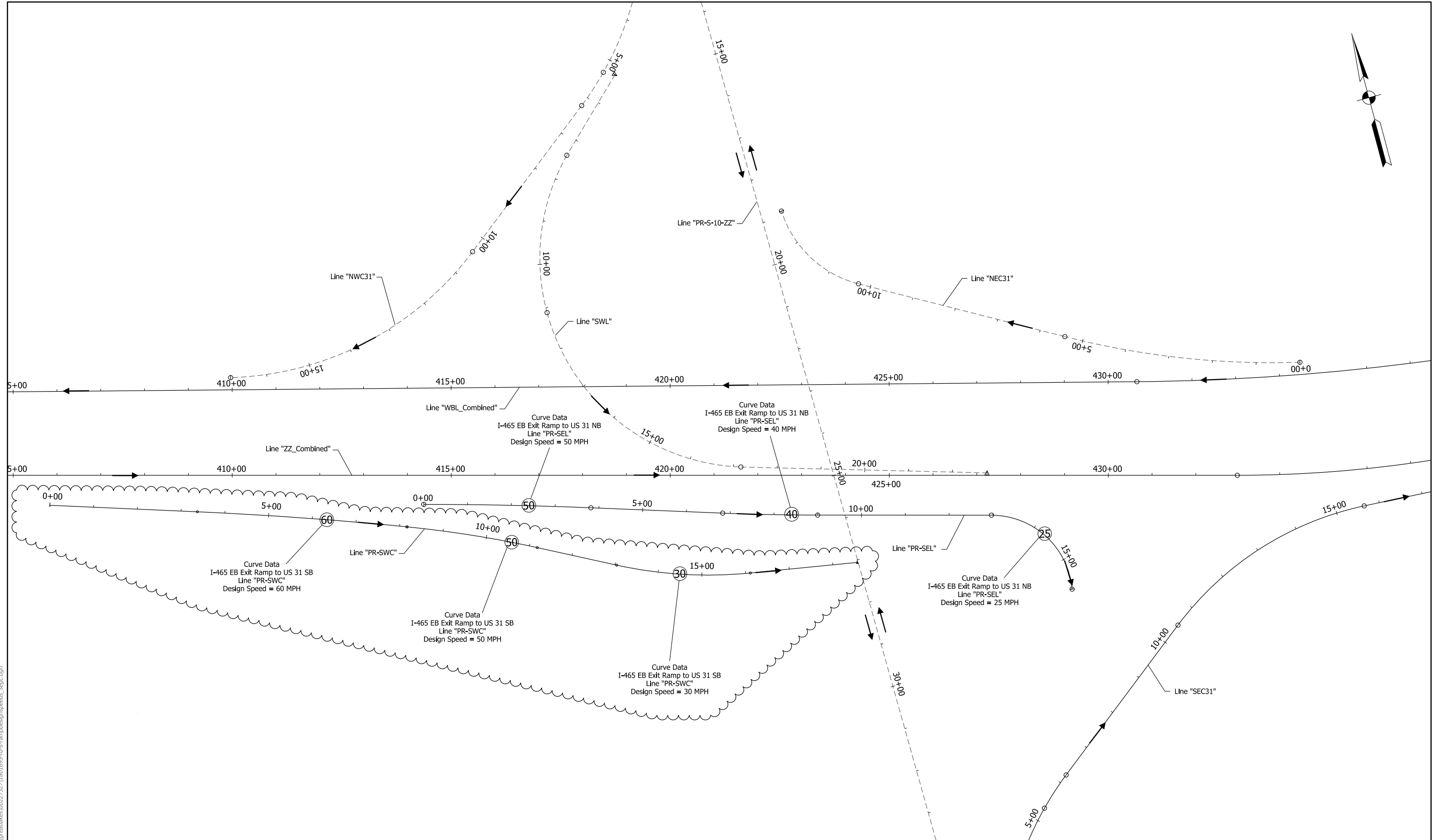
INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

| | |
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| VERTICAL SCALE | DESIGNATION |
| N/A | 1801695 |
| SURVEY BOOK | SHEETS RDS-10 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-11536 | 1801695 |

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Attachment 08-2: Design Speed Diagrams



arcosmeyer
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Addendum #1 - 5/13/20 - Line "PR-SWC" Alignment Change

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NOT FOR CONSTRUCTION

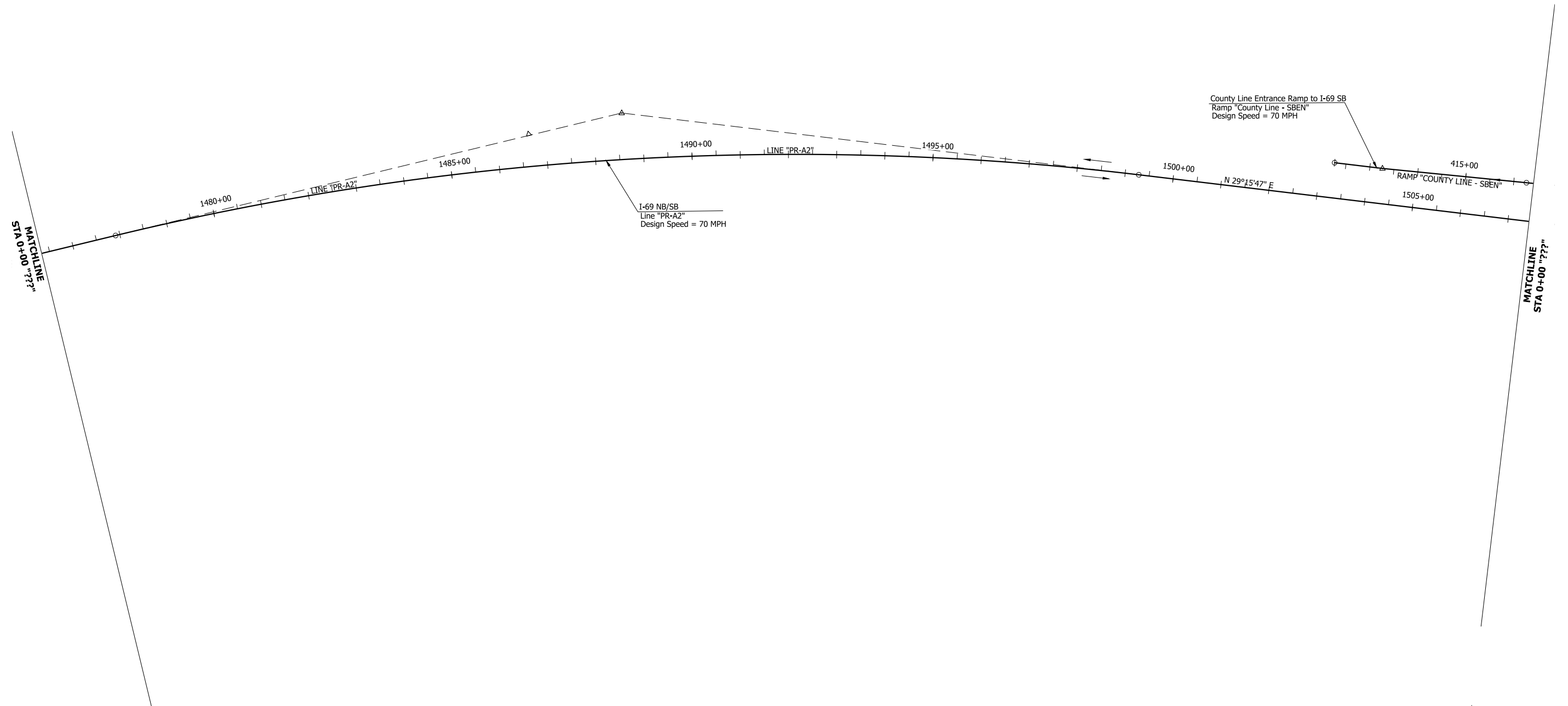
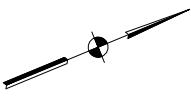
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| CHECKED: _____ KRC _____ | CHECKED: _____ KRC _____ | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

| | |
|------------------|---------------|
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| VERTICAL SCALE | DESIGNATION |
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| SURVEY BOOK | SHEETS RDS-01 |
| ELECTRONIC | of |
| CONTRACT | PROJECT |
| R-41536 | 1801695 |

Attachment 08-2: Design Speed Diagrams



File Name: P:\CDD\19-469\Road\Draw\Plans\Design Speed.dwg Plot Date: 11/25/2019 Plotted By: Andrew Wolka



8440 Allison Pointe Boulevard, Suite 200
 Indianapolis, IN 46250
 Phone 317-895-2585
 www.ucindy.com

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 NOT FOR CONSTRUCTION

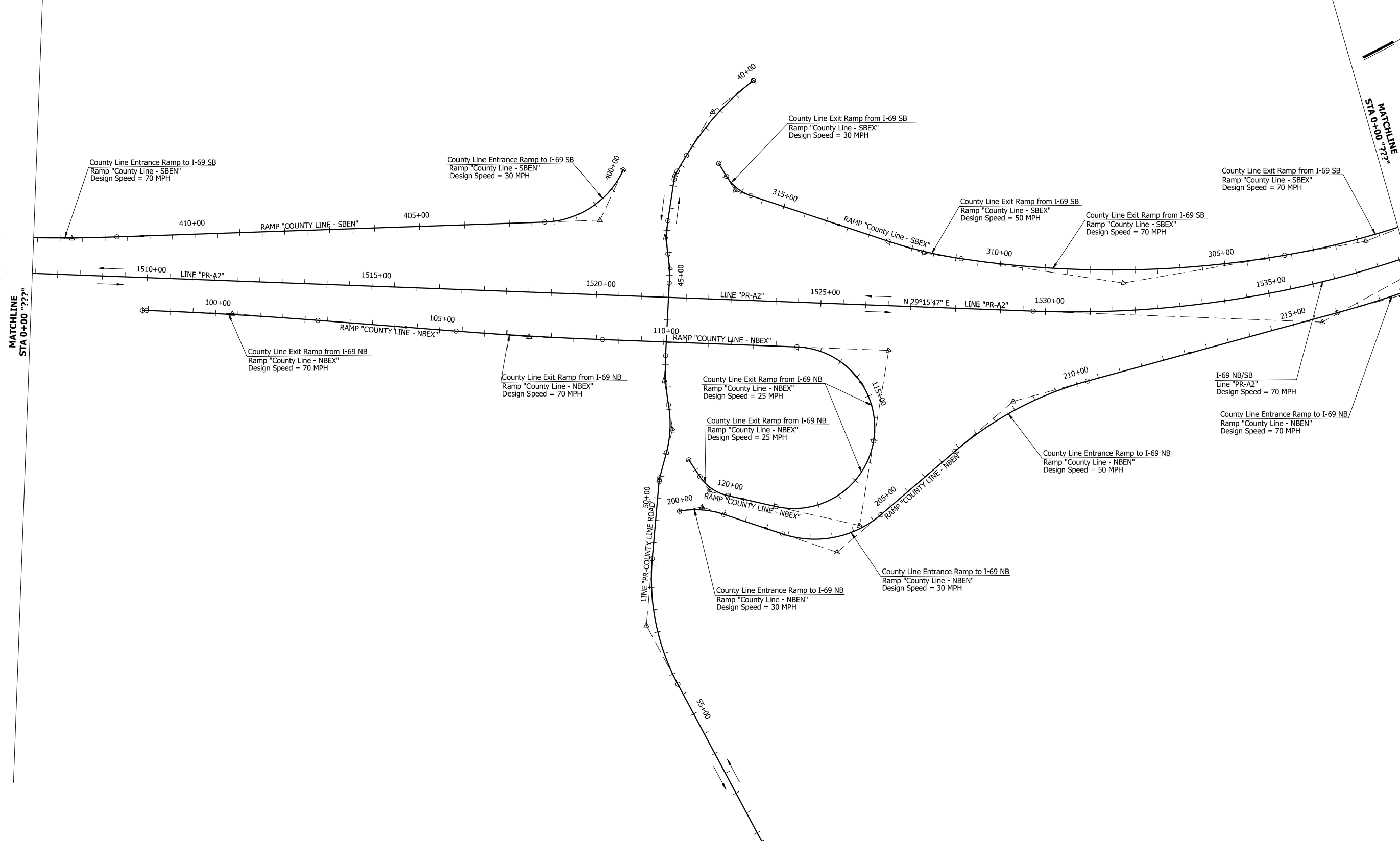
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| RECOMMENDED FOR APPROVAL _____ | | DESIGN ENGINEER _____ | DATE _____ |
| DESIGNED: <u>BSH</u> | DRAWN: <u>HSW</u> | | |
| CHECKED: <u>BJP</u> | CHECKED: <u>BJP</u> | | |

INDIANA
 DEPARTMENT OF TRANSPORTATION

DESIGN SPEED DIAGRAMS

| | |
|-------------------------------|------------------------|
| HORIZONTAL SCALE 1" = 100' | BRIDGE FILE - |
| VERTICAL SCALE N/A | DESIGNATION 1901381 |
| SURVEY BOOK - | SHEETS - of - |
| CONTRACT R-41536 | PROJECT 1801695 |

Attachment 08-2: Design Speed Diagrams



File Name: P:\CDD\19-469\Road\Draw\Plans\Design Speed.dwg Plot Date: 11/25/2019 Plotted By: Andrew Wolka



8440 Allison Pointe Boulevard, Suite 200
 Indianapolis, IN 46250
 Phone 317-895-2585
 www.ucindy.com

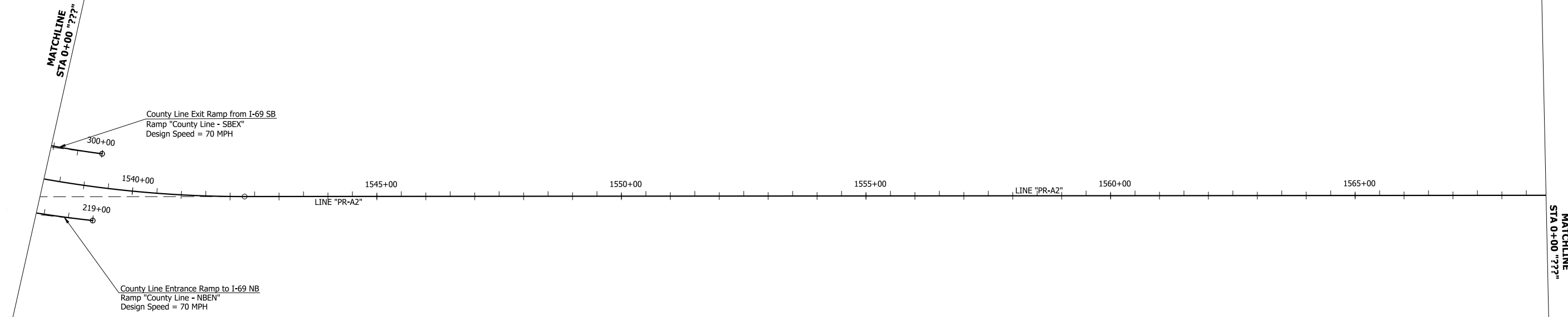
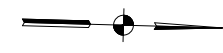
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 NOT FOR CONSTRUCTION

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| RECOMMENDED FOR APPROVAL _____ | | DESIGN ENGINEER _____ DATE _____ | |
| DESIGNED: BSH | DRAWN: HSW | | |
| CHECKED: BJP | CHECKED: BJP | | |

INDIANA
 DEPARTMENT OF TRANSPORTATION
DESIGN SPEED DIAGRAMS

| | |
|-------------------------------|------------------------|
| HORIZONTAL SCALE 1" = 100' | BRIDGE FILE - |
| VERTICAL SCALE N/A | DESIGNATION 1901381 |
| SURVEY BOOK - | SHEETS - of - |
| CONTRACT R-41536 | PROJECT 1801695 |

Attachment 08-2: Design Speed Diagrams



File Name: P:\CD\19-469\Road\Draw\Plans\Design Speed.dwg Plot Date: 11/25/2019 Plotted By: Andrew Wolke



8440 Allison Pointe Boulevard, Suite 200
 Indianapolis, IN 46250
 Phone 317-895-2585
 www.ucindy.com

DRAFT
 NOT FOR CONSTRUCTION

| | |
|--------------------------------|---------------------|
| RECOMMENDED FOR APPROVAL _____ | |
| DESIGNED: <u>BSH</u> | DRAWN: <u>HSW</u> |
| CHECKED: <u>BJP</u> | CHECKED: <u>BJP</u> |

INDIANA
 DEPARTMENT OF TRANSPORTATION
DESIGN SPEED DIAGRAMS

| | |
|-------------------------------|------------------------|
| HORIZONTAL SCALE 1" = 100' | BRIDGE FILE - |
| VERTICAL SCALE N/A | DESIGNATION 1901381 |
| SURVEY BOOK - | SHEETS - of - |
| CONTRACT R-41536 | PROJECT 1801695 |

Attachment 08-3A: Design Exception Requests

LEVEL ONE DESIGN EXCEPTION REQUEST

July 3, 2019

MEMORANDUM

TO: John Wright *JW*
Director, Highway Design Bridge

THRU: Anne Rearick *ARR 8/26/19*
Director, Greenfield District Capital Program Management

THRU: *Abell Gelaye, P.E.*
Project Reviewer *AG 7/26/19*

THRU: Brian Shattuck
Project Manager

FROM: Cody Beucler, P.E.
Designer

SUBJECT: Design Exception Request for Superelevation Transition Length
Des. No.: 1802075
Route No. or Road Name: I-465
PE Project No.: 1802075
Structure No.: N/A

Transmitted, herewith, is a Design Exception request for the above referenced project. The documentation has been reviewed for compliance with the Design Exception requirements included in *Indiana Design Manual* Section 40-8.0. Based on the analysis of the substandard Level One design features, we believe that the design exception is justified and we therefore recommend approval.

Concur: *John Wright*
Director, Highway Design
Director, Bridge

Date *8/27/19*

FHWA oversight required: Yes No

Approved: *[Signature]*
Division Administrator

Date *12/4/19 - for segments A&C*

INDOT Design Exception Database Information

Des. No.:
Request Date:
Approved Rejected
Commitment Made: Yes No

cc: _____, Director, Highway Design Bridge
file

Attachment 08-3A: Design Exception Requests

LEVEL ONE DESIGN EXCEPTION REQUEST

July 3, 2019

MEMORANDUM

TO: John Wright ^{JW}
Director, Highway Design Bridge

THRU: Anne Rearick ^{ARR 8/26/19}
Director, Greenfield District Capital Program Management

THRU: Abell Gekye ^{AG 7/25/19}
Project Reviewer

THRU: Brian Shattuck
Project Manager

FROM: Cody Beucler, P.E.
Designer

SUBJECT: Design Exception Request for Superelevation Rate
Des. No.: 1802075
Route No. or Road Name: I-465
PE Project No.: 1802075
Structure No.: N/A

Transmitted, herewith, is a Design Exception request for the above referenced project. The documentation has been reviewed for compliance with the Design Exception requirements included in *Indiana Design Manual* Section 40-8.0. Based on the analysis of the substandard Level One design features, we believe that the design exception is justified and we therefore recommend approval.

Concur: John Wright
Director, Highway Design
Director, Bridge

Date 8/27/19

FHWA oversight required: Yes No

Approved: [Signature]
Division Administrator

Date 12/4/19 - for Segments A & C

INDOT Design Exception Database Information

Des. No.:
Request Date:
Approved Rejected
Commitment Made: Yes No

cc: _____, Director, Highway Design Bridge
file

Attachment 08-3A: Design Exception Requests

LEVEL ONE DESIGN EXCEPTION REQUEST

July 3, 2019

MEMORANDUM

TO: John Wright ^{SW}
Director, Highway Design Bridge

THRU: Anne Rearick ^{Ann 8/26/19}
Director, Greenfield District Capital Program Management

THRU: Abell Gelaye
Project Reviewer ^{A& 1/12/19}

THRU: Brian Shattuck
Project Manager

FROM: Cody Beucler, P.E.
Designer

SUBJECT: Design Exception Request for Inside Shoulder Width
Des. No.: 1802075
Route No. or Road Name: I-465
PE Project No.: 1802075
Structure No.: N/A

Transmitted, herewith, is a Design Exception request for the above referenced project. The documentation has been reviewed for compliance with the Design Exception requirements included in *Indiana Design Manual* Section 40-8.0. Based on the analysis of the substandard Level One design features, we believe that the design exception is justified and we therefore recommend approval.

Concur: John Wright
Director, Highway Design
Director, Bridge

Date 8/27/19

FHWA oversight required: Yes No

Approved: John Beucler
Division Administrator

Date 12/4/19 for Segments A & C

INDOT Design Exception Database Information

Des. No.:
Request Date:
Approved Rejected
Commitment Made: Yes No

cc: _____, Director, Highway Design Bridge
file

Level One Design Exception Addendum

Revised 07/15/2020
Sheet Added

June 16, 2020

MEMORANDUM:

TO: Elizabeth P. Mouser, PE
Director, Highway Design

FROM: John LaBlonde, PE
Designer

SUBJECT: Design Exception for Inside Shoulder Width - Addendum
Des. No. 1802075
Route No.: I-465

The approved design exception for the 4'-9" inside shoulder width on I-465 Segments A and C (dated July 3, 2019) does not account for the additional width of median-mounted box truss sign structure foundations. The 30-ft long foundations for the sign structures are 12 in. wider than standard concrete median barrier.

The shoulder width will be reduced 6 in. on each side of the barrier, leaving a net shoulder width of 4'-3". The median barrier will transition horizontally at 30:1 to the wider foundation, both upstream and downstream.

Proposed sign structure locations on "PR-I465" are Sta. 68+60, 93+00, 118+00, & 130+20 in Segment "A" (Segment "A" is referenced as "Project C" in the design exception). The locations of the trusses are subject to change due to the design builder's proposed concept. However, sign structures will not be allowed within the following stations: 76+00 to 80+00 and 126+00 to 130+00 "PR-I465".

Concur: 
Director, Highway Design

Date: 6/16/20

FHWA oversight required: Yes No

Approved: _____
For: Division Administrator

Date: 6/16/20

cc: file

Attachment 08-3A: Design Exception Requests

LEVEL ONE DESIGN EXCEPTION REQUEST

July 3, 2019

MEMORANDUM

TO: John Wright ^{JW}
Director, Highway Design Bridge

THRU: Anne Rearick ^{ARR 8/26/19}
Director, Greenfield District Capital Program Management

THRU: Abell Gelaye
Project Reviewer ^{AG 7/26/19}

THRU: Brian Shattuck
Project Manager

FROM: Cody Beucler, P.E.
Designer

SUBJECT: Design Exception Request for Outside Shoulder Width
Des. No.: 1802075
Route No. or Road Name: I-465
PE Project No.: 1802075
Structure No.: N/A

Transmitted, herewith, is a Design Exception request for the above referenced project. The documentation has been reviewed for compliance with the Design Exception requirements included in *Indiana Design Manual* Section 40-8.0. Based on the analysis of the substandard Level One design features, we believe that the design exception is justified and we therefore recommend approval.

Concur: John Wright
Director, Highway Design
Director, Bridge

Date 8/27/19

FHWA oversight required: Yes No

Approved: [Signature]
For Division Administrator

Date 12/4/19 - for Under the
Railroad bridge
east of Madison
Ave. Only.

INDOT Design Exception Database Information

Des. No.:
Request Date:
Approved Rejected
Commitment Made: Yes No

cc: _____, Director, Highway Design Bridge
file

Attachment 08-3A: Design Exception Requests

LEVEL ONE DESIGN EXCEPTION REQUEST

July 3, 2019

MEMORANDUM

TO: John Wright *JW*
Director, Highway Design Bridge

THRU: Anne Rearick *ARR 8/26/19*
Director, Greenfield District Capital Program Management

THRU: Abell Gelage
Project Reviewer *AG 7/26/19*

THRU: Brian Shattuck
Project Manager

FROM: Cody Beucler, P.E.
Designer

SUBJECT: Design Exception Request for Horizontal Stopping Sight Distance
Des. No.: 1802075
Route No. or Road Name: I-465
PE Project No.: 1802075
Structure No.: N/A

Transmitted, herewith, is a Design Exception request for the above referenced project. The documentation has been reviewed for compliance with the Design Exception requirements included in *Indiana Design Manual* Section 40-8.0. Based on the analysis of the substandard Level One design features, we believe that the design exception is justified and we therefore recommend approval.

Concur: *John Wright*
Director, Highway Design
Director, Bridge

Date *8/27/19*

FHWA oversight required: Yes No

Approved: *J. Chapman*
For Division Administrator

Date *12/4/19 - As part of mitigation,
Lighting is being provided
throughout - segments
A, B, C & D.*

INDOT Design Exception Database Information
Des. No.:
Request Date:
Approved Rejected
Commitment Made: Yes No

cc: _____, Director, Highway Design Bridge
file

LEVEL ONE DESIGN EXCEPTION REQUEST

January 9, 2020

MEMORANDUM

TO: Elizabeth Phillips
Acting Director, Highway Design Bridge

THRU: Anne Rearick
Director, Greenfield District Capital Program Management

THRU: Mark Orton *M.O.* 1--13-19
Project Reviewer

THRU: Brian Shattuck *BWS*
Project Manager

FROM: Cody Beucler, P.E.
Designer

SUBJECT: Design Exception Request for Outside Shoulder Width
Des. No.: 1802075
Route No. or Road Name: I-465 EB to US 31 NB
PE Project No.: 1802075
Structure No.: N/A

Transmitted, herewith, is a Design Exception request for the above referenced project. The documentation has been reviewed for compliance with the Design Exception requirements included in *Indiana Design Manual* Section 40-8.0. Based on the analysis of the substandard Level One design features, we believe that the design exception is justified and we therefore recommend approval.

Concur: *[Signature]* Acting Director _____ Date 03/05/20
Director, Highway Design
Director, Bridge

FHWA oversight required: Yes No

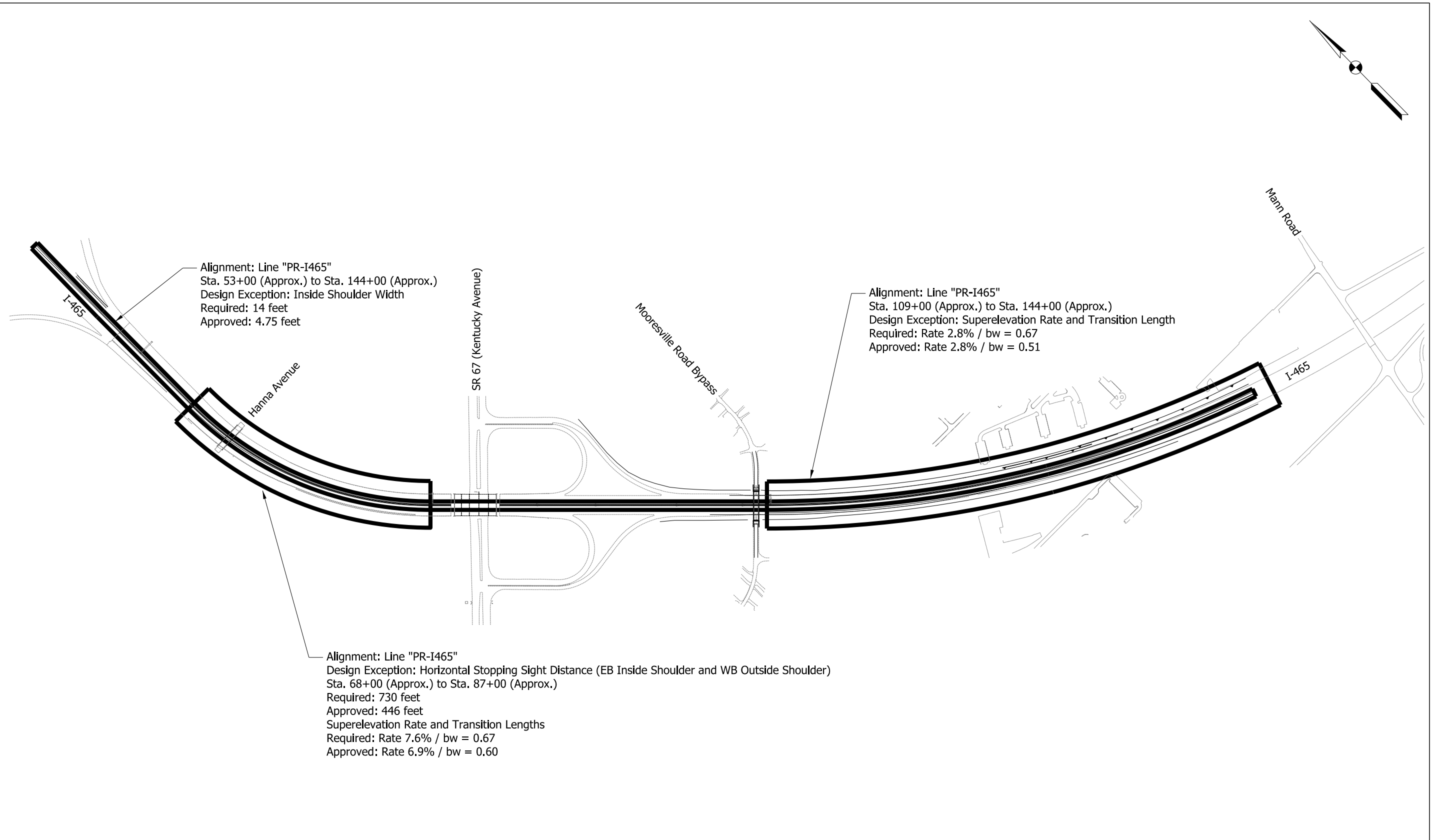
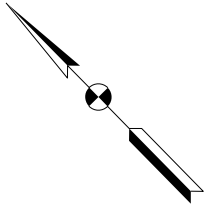
Approved: *[Signature]*
For: _____ Division Administrator

Date 3/23/20 - please see attached for agreed upon mitigation measures that are to be provided.

INDOT Design Exception Database Information
Des. No.:
Request Date:
Approved Rejected
Commitment Made: Yes No

cc: _____, Director, Highway Design Bridge
file

Attachment 08-3A: Design Exception Requests



Alignment: Line "PR-I465"
 Sta. 53+00 (Approx.) to Sta. 144+00 (Approx.)
 Design Exception: Inside Shoulder Width
 Required: 14 feet
 Approved: 4.75 feet

Alignment: Line "PR-I465"
 Sta. 109+00 (Approx.) to Sta. 144+00 (Approx.)
 Design Exception: Superelevation Rate and Transition Length
 Required: Rate 2.8% / bw = 0.67
 Approved: Rate 2.8% / bw = 0.51

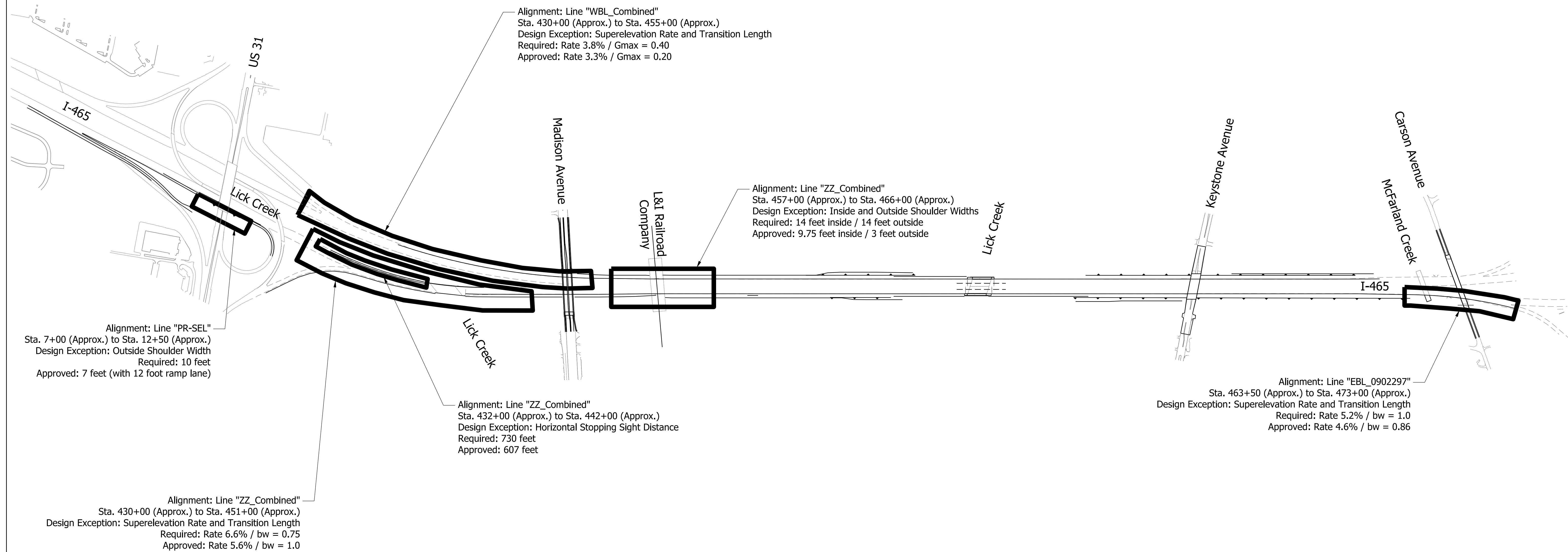
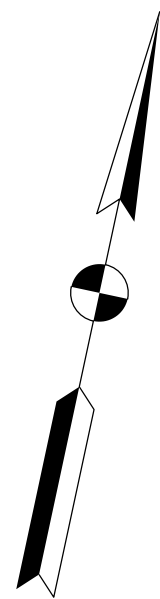
Alignment: Line "PR-I465"
 Design Exception: Horizontal Stopping Sight Distance (EB Inside Shoulder and WB Outside Shoulder)
 Sta. 68+00 (Approx.) to Sta. 87+00 (Approx.)
 Required: 730 feet
 Approved: 446 feet
 Superelevation Rate and Transition Lengths
 Required: Rate 7.6% / bw = 0.67
 Approved: Rate 6.9% / bw = 0.60

PARSONS
 101 W. Ohio St., Suite 2121
 Indianapolis, IN 46204
 Bus (317) 616-1000
 Fax (317) 616-1033

| | | |
|--------------------------------|-----------------------|------------|
| RECOMMENDED FOR APPROVAL _____ | DESIGN ENGINEER _____ | DATE _____ |
| DESIGNED: JAC | DRAWN: DH | |
| CHECKED: CWB | CHECKED: CWB | |

INDIANA
 DEPARTMENT OF TRANSPORTATION
 DESIGN EXCEPTION LIMITS EXHIBIT
 SEGMENT A

| | |
|------------------|-------------|
| HORIZONTAL SCALE | BRIDGE FILE |
| N/A | N/A |
| VERTICAL SCALE | DESIGNATION |
| N/A | 1802107 |
| SURVEY BOOK | SHEETS |
| N/A | of |
| CONTRACT | PROJECT |
| R-41536 | 1801695 |



PARSONS

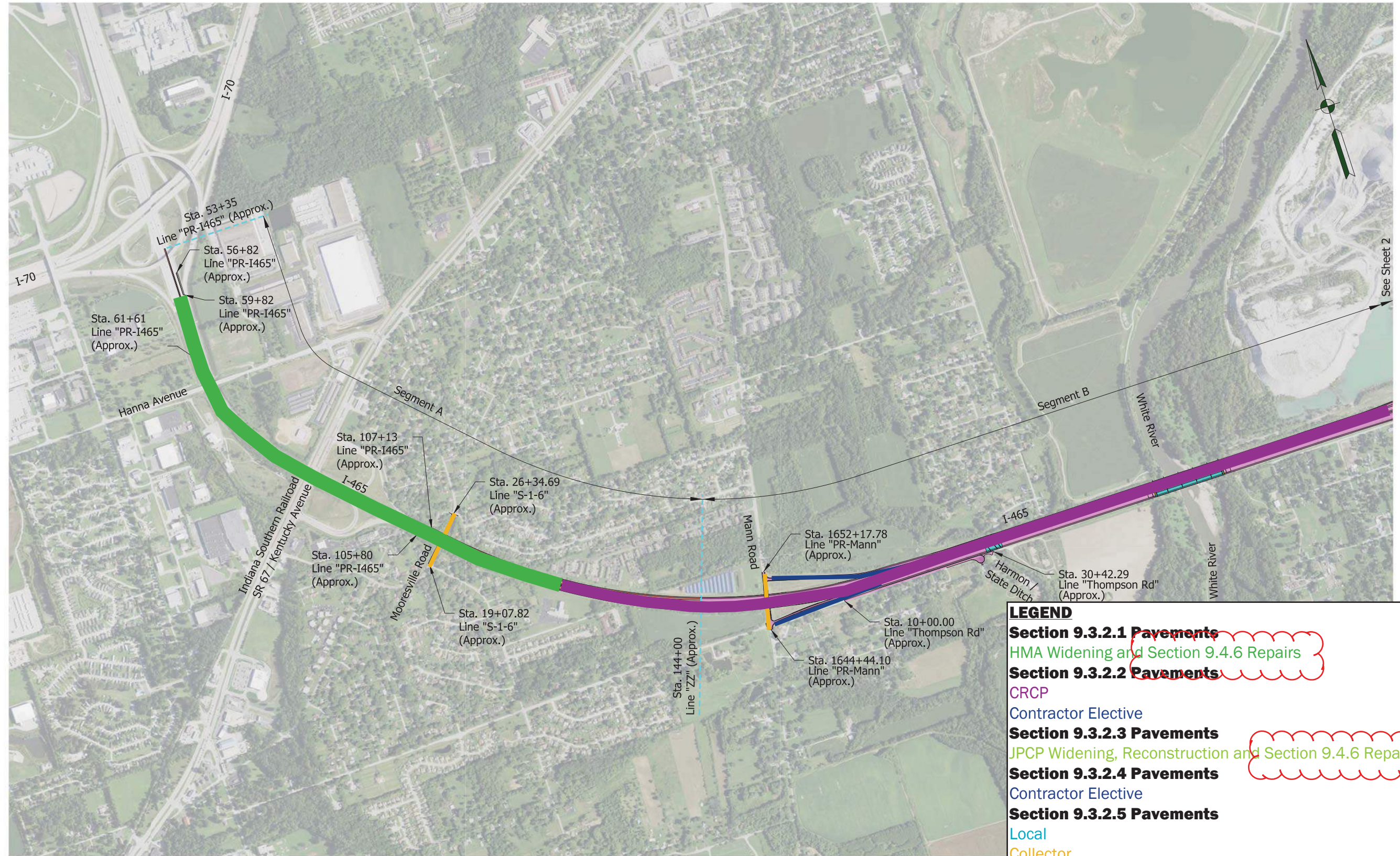
101 W. Ohio St., Suite 2121
Indianapolis, IN 46204
Bus (317) 616-1000
Fax (317) 616-1033

| | | |
|--------------------------|-----------------|------|
| RECOMMENDED FOR APPROVAL | DESIGN ENGINEER | DATE |
| DESIGNED: JAC | DRAWN: DH | |
| CHECKED: CWB | CHECKED: CWB | |

INDIANA
DEPARTMENT OF TRANSPORTATION

DESIGN EXCEPTION LIMITS EXHIBIT
SEGMENT C

| | |
|------------------|-------------|
| HORIZONTAL SCALE | BRIDGE FILE |
| N/A | N/A |
| VERTICAL SCALE | DESIGNATION |
| N/A | 1802105 |
| SURVEY BOOK | SHEETS |
| N/A | of |
| CONTRACT | PROJECT |
| R-41536 | 1801695 |



I-69 SECTION 6 CONTRACT 5

LEGEND

Section 9.3.2.1 Pavements
 HMA Widening and Section 9.4.6 Repairs

Section 9.3.2.2 Pavements
 CRCP
 Contractor Elective

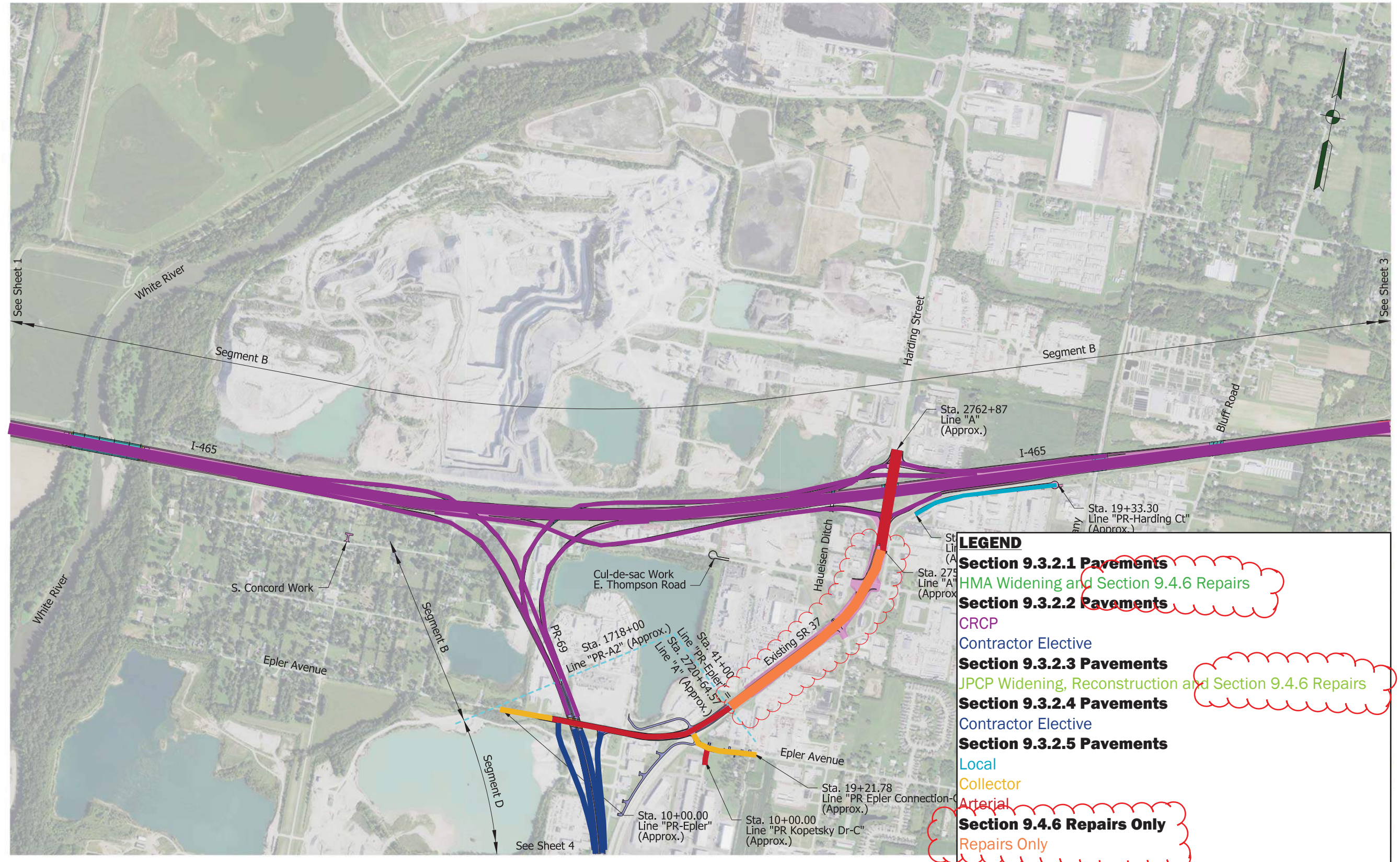
Section 9.3.2.3 Pavements
 JPCP Widening, Reconstruction and Section 9.4.6 Repairs

Section 9.3.2.4 Pavements
 Contractor Elective

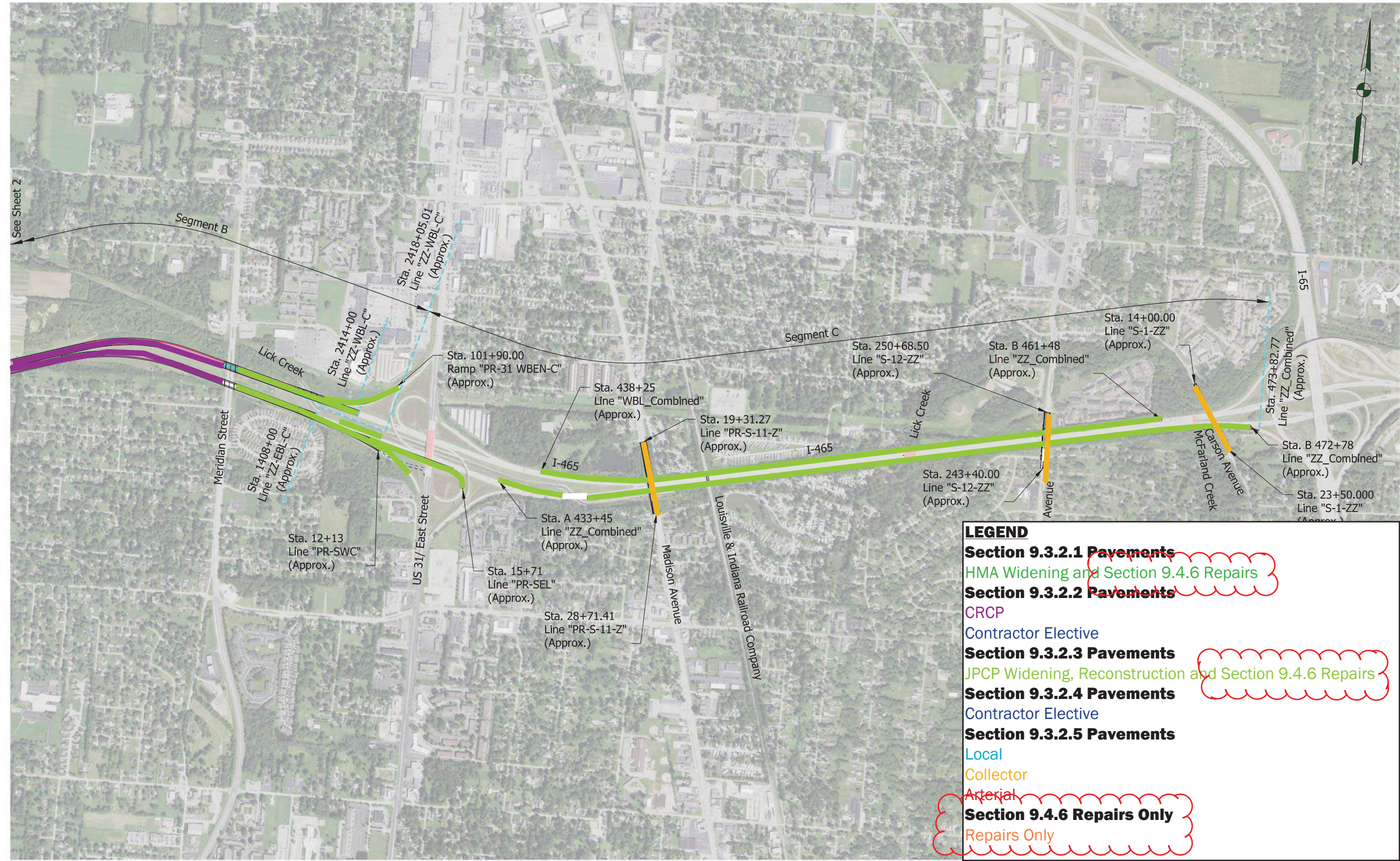
Section 9.3.2.5 Pavements
 Local
 Collector
 Arterial

Section 9.4.6 Repairs Only
 Repairs Only

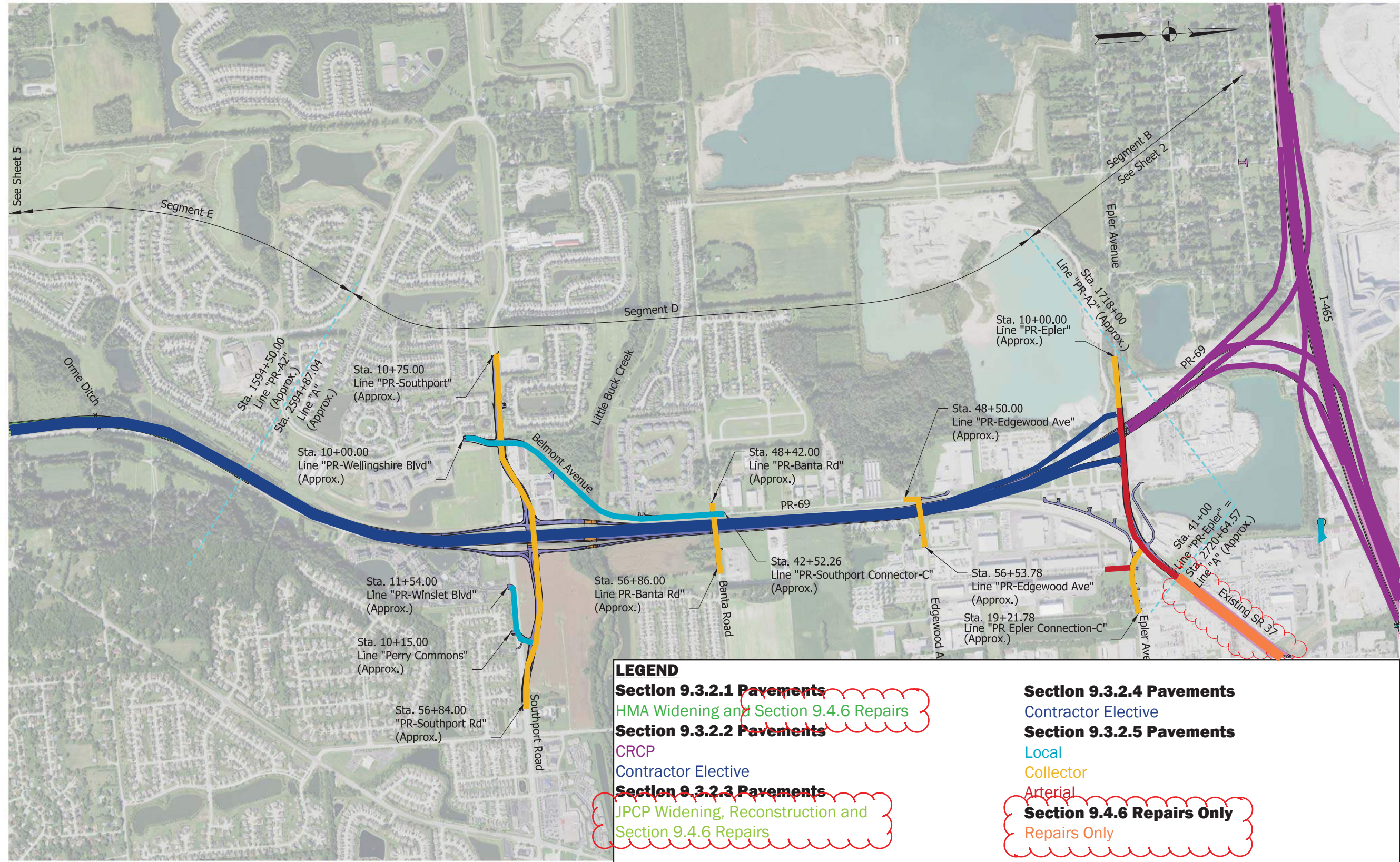
Revised 7-15-20: Added Old SR 37 Work Limits and revised Legend



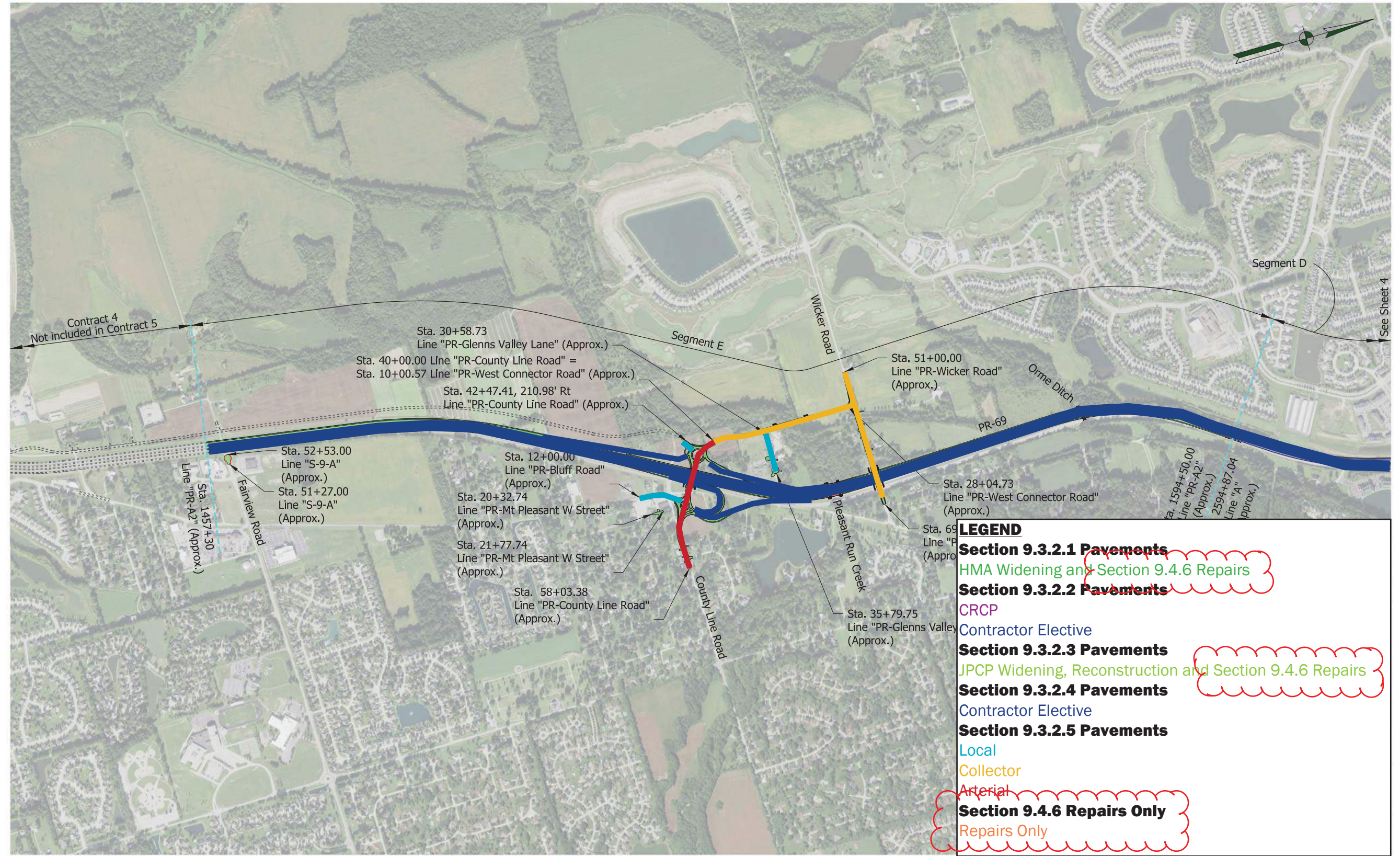
I-69 SECTION 6 CONTRACT 5



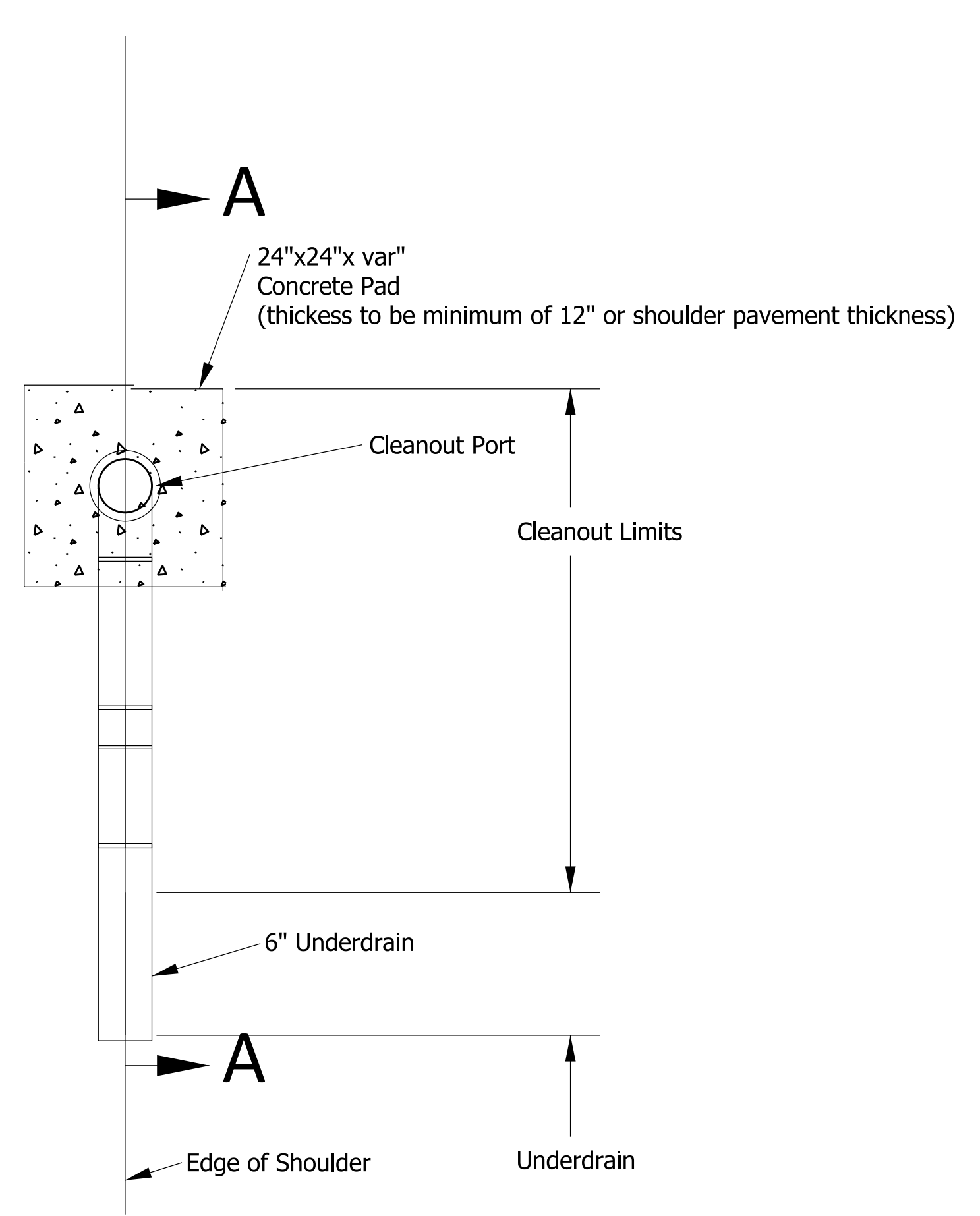
I-69 SECTION 6 CONTRACT 5



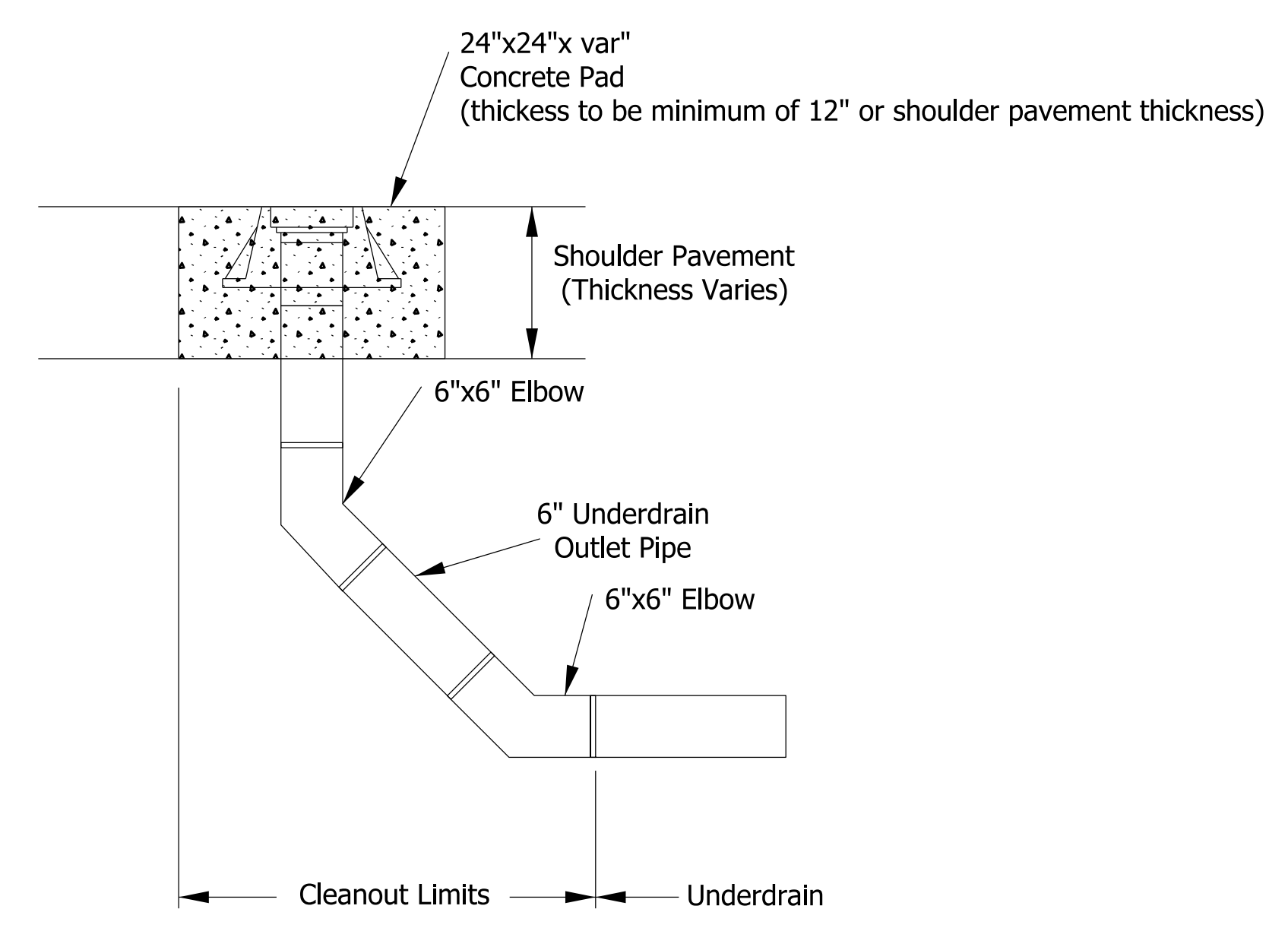
I-69 SECTION 6 CONTRACT 5



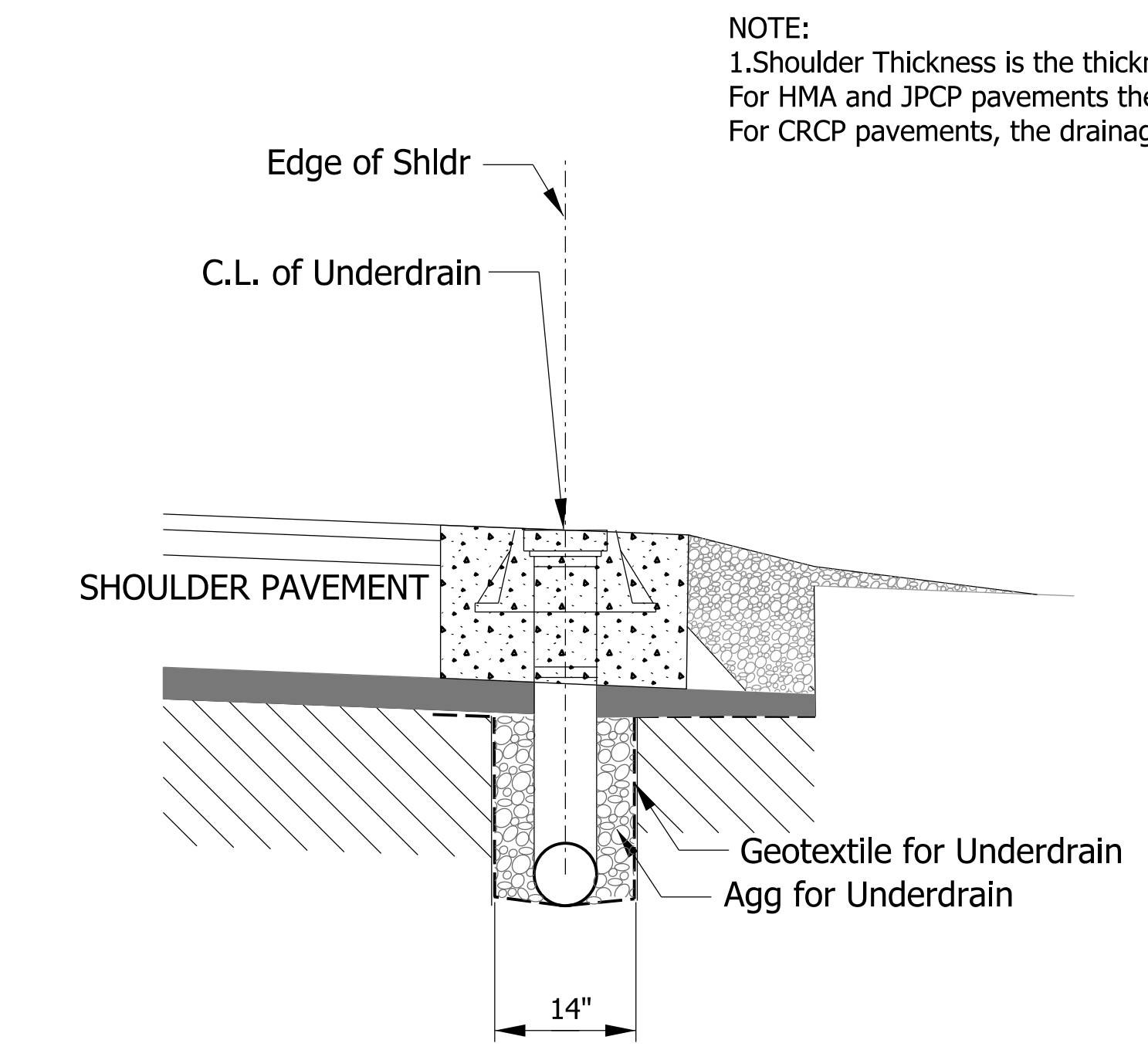
I-69 SECTION 6 CONTRACT 5



TYPE 1 CLEANOUT - PLAN VIEW
 SHOWN FOR FLOW TO THE BOTTOM OF FIGURE, REVERSE AS NECESSARY

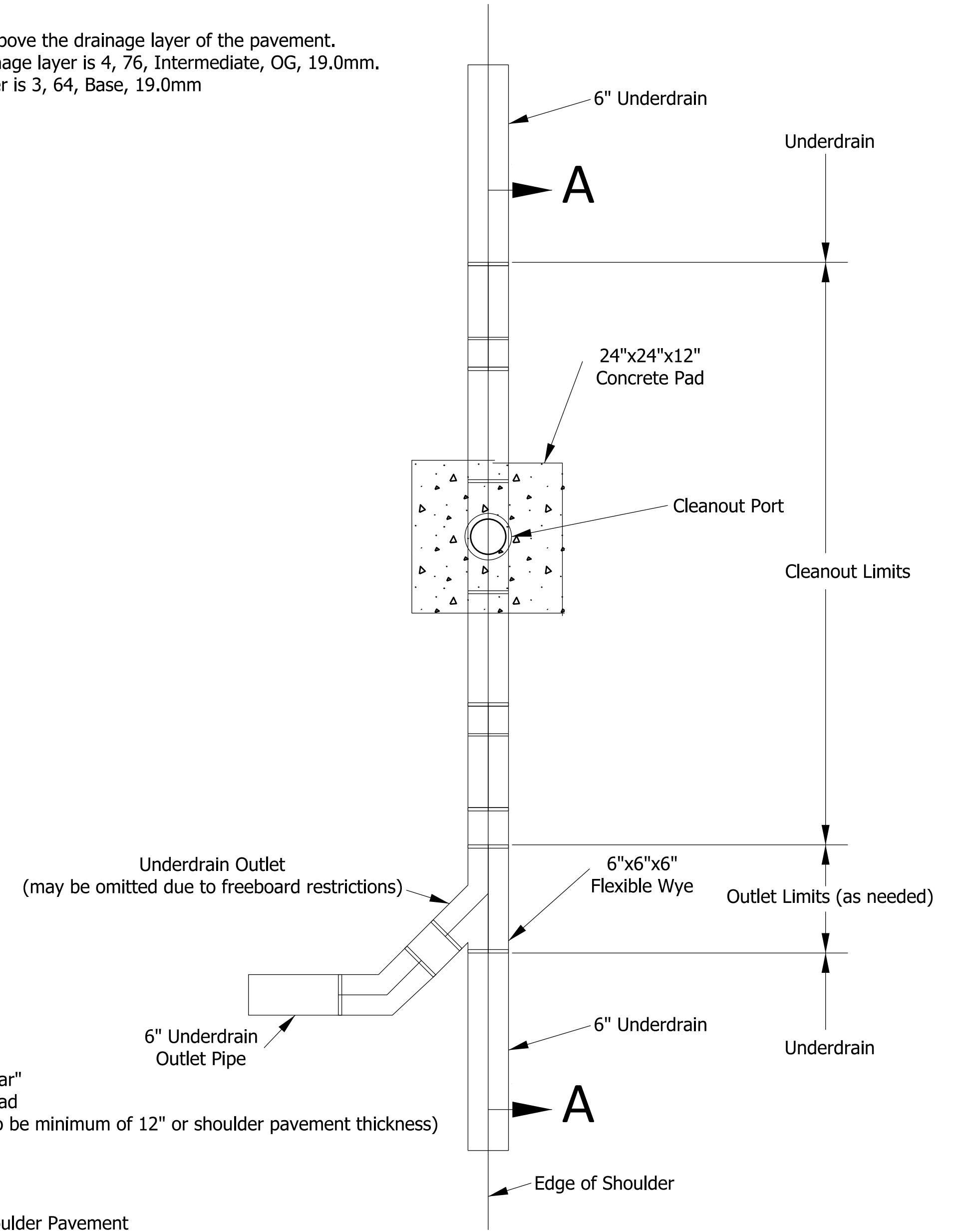


TYPE 1 CLEANOUT - ELEVATION VIEW
 SHOWN FOR FLOW TO THE RIGHT OF FIGURE, REVERSE AS NECESSARY

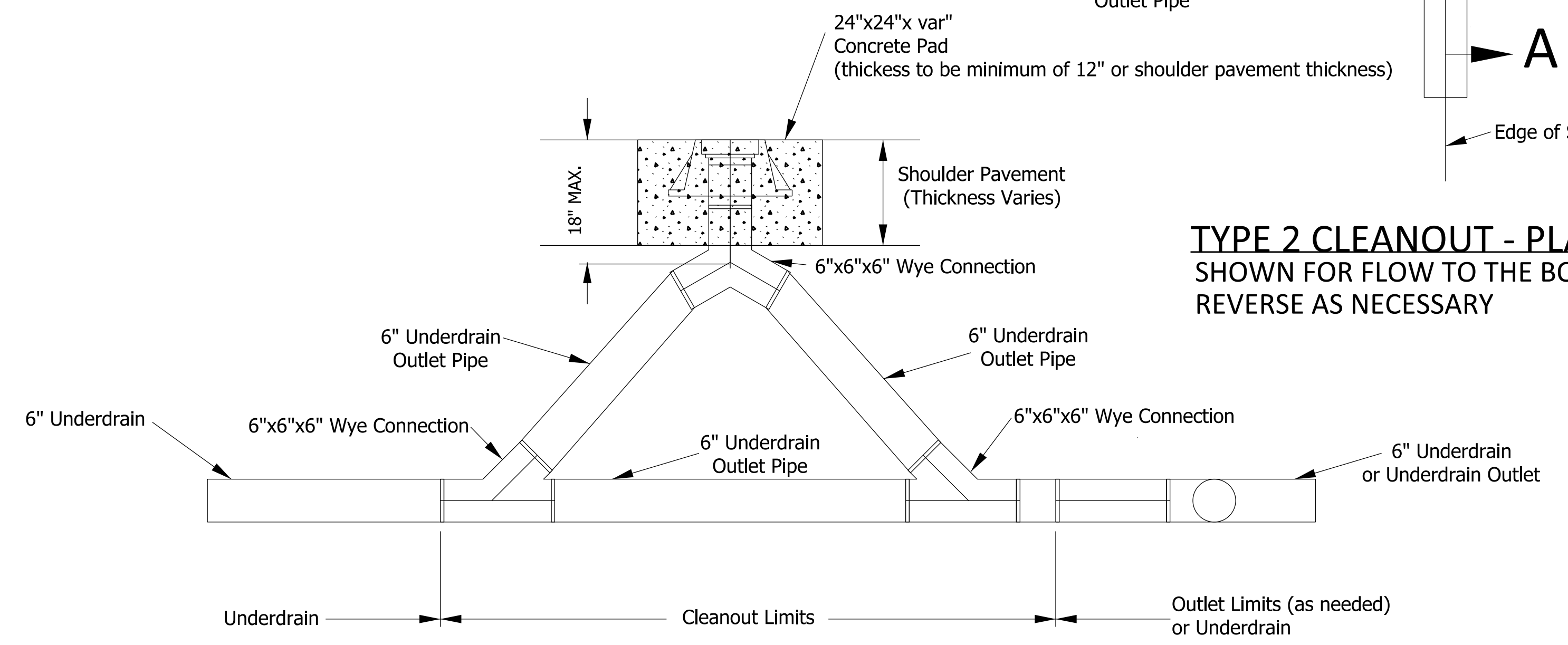


TYPE 1 AND TYPE 2 CLEANOUT SECTION VIEW

NOTE:
 1. Shoulder Thickness is the thickness above the drainage layer of the pavement.
 For HMA and JPCP pavements the drainage layer is 4, 76, Intermediate, OG, 19.0mm.
 For CRCP pavements, the drainage layer is 3, 64, Base, 19.0mm



TYPE 2 CLEANOUT - PLAN VIEW
 SHOWN FOR FLOW TO THE BOTTOM OF FIGURE, REVERSE AS NECESSARY



TYPE 2 CLEANOUT - ELEVATION VIEW
 SHOWN FOR FLOW TO THE RIGHT OF FIGURE, REVERSE AS NECESSARY

| | | | | |
|--|----------------------------------|--|----------------|--|
| RECOMMENDED FOR APPROVAL _____ DESIGNED: _____ DRAWN: _____ CHECKED: _____ | DESIGN ENGINEER _____ DATE _____ | INDIANA DEPARTMENT OF TRANSPORTATION | SCALE _____ | BRIDGE FILE _____ |
| | | ATTACHMENT 9-8 UNDERDRAIN CLEANOUT DETAILS | | DESIGNATION _____ |
| | | | | SURVEY BOOK _____ SHEETS _____ of _____ |
| | | | CONTRACT _____ | PROJECT _____ |

UNDERDRAIN CLEANOUT PORT

The Standard Specifications are revised as follows:

SECTION 718, LINES 3 THROUGH 5 INSERT AS FOLLOWS:

718.01 Description

This work shall consist of constructing underdrains using pipe, granular aggregates, outlet protectors, *cleanout ports* or geotextiles in accordance with 105.03.

SECTION 718, AFTER LINE 61, INSERT AS FOLLOWS:

(c) Underdrain Cleanout Ports

Cleanout ports shall be installed in trenches prepared for underdrains in accordance with 718.03(a) or 718.03(b). The cleanout port assembly shall be secured to ensure that the profile and horizontal alignment of the cleanout assembly is maintained. Pipes and fittings shall be joined securely with the appropriate couplings, fittings or bands. Structure backfill shall be used for trench backfill within the limits of the Cleanout Port.

The concrete pad shall be stamped with “UDCO” and arrow(s) indicating the direction(s) of underdrain runs to and from the cleanout port. The lettering shall not have a height of less than 2 in.

SECTION 718, AFTER LINE 156, INSERT AS FOLLOWS:

Cleanout ports shall be measured by the number of assemblies placed.

SECTION 718, AFTER LINE 185, INSERT AS FOLLOWS:

Cleanout port.....EACH

SECTION 718, AFTER LINE 210, INSERT AS FOLLOWS:

The cost of Underdrain Cleanout Ports shall include trenching, fittings, piping, cleanout port casting, concrete pad and any incidental labor and materials required to assemble and place the Underdrain Cleanout Port.

CURED-IN-PLACE PIPE LINER, CIPP

Description

This work shall consist of the fabrication, installation, and curing of a tight-fitting, resin-impregnated fabric, cured-in-place pipe liner, hereinafter referred to as CIPP, into existing circular or deformed pipe structures in accordance with 105.03.

Materials

CIPP shall be in accordance with ASTM D 5813, Type III, grade 1, 2, or 3, and shall be UV and abrasion resistant. The manufacturer shall determine the proper grade of the CIPP to be used under the installation and operation conditions that will exist for the location in which the CIPP is to be used. CIPP shall be designed in accordance with ASTM F 1216 and appendix X1 for a fully deteriorated condition.

Construction Requirements

Pre-Installation Requirements

Before beginning the CIPP installation operation, three copies of design calculations shall be submitted in accordance with 105.02. The design calculations shall be sealed by a registered professional engineer in the state of Indiana and shall certify:

- (a) the proposed CIPP thickness was determined in accordance with ASTM F 1216,
- (b) the required curing pressure,
- (c) the proposed waterway opening is in accordance with the plans,
- (d) the minimum required temperature for the initial cure
- (e) the minimum required temperature and duration for the post-cure, and
- (f) the temperature profile and time required for cool down.

The Design-Build Contractor shall submit a Water Collection Plan to the IFA for review and acceptance a minimum of 14 days prior to site operations. The plan shall include phasing and implementation of the effluent collection process, storage, accidental spill procedure, transportation and disposal of effluent generated during the curing or washing process. The Design-Build Contractor shall provide to the IFA proof of disposal of effluent and documentation from a State authorized facility receiving the effluent. Copies of any test results required by the disposal site shall be submitted to the IFA. An IC 203 shall be submitted to cover the disposal site.

Prior to installing the CIPP, a video inspection of the structure shall be performed. This inspection is to identify cavities in the structure that need to be repaired, identify connecting structures that shall be perpetuated. The video shall become the property of the IFA. Cavities adjacent to the existing structure shall be filled in accordance with 725.05. Existing jagged edges or other deformities that impact the CIPP operation or function shall be repaired in accordance with the manufacturer's recommended procedures. All foreign material shall be removed from the existing structure in accordance with the ASTM specifications for the installation method and disposed of in accordance with 203.10.

Installation Requirements

The CIPP shall be installed by the inversion method or the pulled-in-place method. Inversion installation of the CIPP liner shall be in accordance with ASTM F 1216. Pulled-in-place installation of the CIPP liner shall be in accordance with ASTM F 1743.

If the Design-Build Contractor elects to use polyester resin, all condensate water and all water in contact with the inside or outside of the CIPP during the curing and cleanup process shall be collected. If the Design-Build Contractor washes the inside of the CIPP after curing has occurred, then that water shall also be collected.

The Design-Build Contractor shall monitor and record the temperatures during the initial cure, post-cure, and cool down periods. Remote temperature sensors shall be placed between the existing pipe and the liner in the bottom of the existing pipe at locations as directed by the IFA. A continuous monitoring system utilizing a fiber optic cable sensing system may be used in lieu of individual sensors. The minimum curing time is the sum of the initial and post curing times. Post-curing time shall be added for any deviations from the recommended post-curing temperature levels. A copy of these records shall be provided to the IFA.

All Cured-In-Place Pipe installations shall be performed in dry conditions.

Prior to the liner installation, the Design-Build Contractor shall place an approved impermeable catchment immediately upstream and downstream of the existing pipe. The impermeable catchment shall work in conjunction with coffer dams to create an impermeable basin to trap contaminated effluent. Any spillage of raw resin during the installation shall also be captured. The liner shall be continuous with no over laps and leak-free. The Design-Build Contractor shall ensure there is no loss of impermeability of the inner and outer plastic films or pre-liner during the installation. Any pinholes, gaps and tears in the plastic film or pre-liner shall be properly repaired before proceeding with the liner installation. Where such damaged areas cannot be repaired, the Design-Build Contractor shall promptly replace the impermeable plastic films or pre-liner before proceeding with the installation. Coffers dams shall remain in place until effluent collection processes are complete and secured.

Cured CIPP shall be inspected and videotaped for workmanship. Defects in workmanship as defined in ASTM D 5813 section 6.2 shall be repaired or the CIPP shall be replaced so it meets the requirements of these specifications. The repaired or replaced CIPP shall be re-videotaped. The video tape shall become the property of the IFA. The installed CIPP shall be tested for delamination in accordance with the appropriate ASTM specification. The cured CIPP shall be cut within 6 in. of the ends of the existing structure. Where beveled inlets are required, the details shown on the plans shall be followed. Existing connections, including underdrains or another pipe structure, to the structure to be lined shall be perpetuated through the CIPP.

The CIPP shall be permanently marked with a stainless steel label with a minimum thickness of 0.080 in. located above the structure low water elevation and within 6 in. of the structure end. The information shown on the

label shall be at least 1/2 in. tall and include the month and year of installation, the CIPP source, and the ASTM material specifications.

QC/QA Procedure

For each existing structure lined, a Type A certification in accordance with 916 and a test report in accordance with ASTM D 5813, section 7.3 shall be submitted.

An independent laboratory shall test field-cured samples from each CIPP installation. Appropriate documentation for the independent laboratory shall be provided prior to installation of the CIPP. Testing results shall be provided to the IFA within seven days of receipt.

At each structure to be lined, two flat plate samples shall be field cured and submitted for testing. The samples shall be taken directly from the wet out tube, clamped between flat plates and cured in the downstream end of the tube. As an alternative, two restrained end samples may be used for CIPPs installed in pipes between 8 and 18 in. in diameter, or equivalent. The field-cured samples shall be submitted to the laboratory within three days of the completion of the installation.

The field-cured samples shall be conditioned, prepared, and tested in accordance with ASTM D 5813. The wall thickness and flexural tests need only be performed on the structural portion of the CIPP only.

Warranty

The Design-Build Contractor shall warrant, for a period of five years, all defects which will adversely affect the integrity or strength of the liner. The Design-Build Contractor shall repair or replace, at no additional cost to the IFA, such defects in a manner mutually agreed upon by the IFA and the Design-Build Contractor.

Basis of Item

CIPP shall be quantified by the linear foot, complete in place, for the area or size specified, complete in place.

| Item No. | Item Description | Unit Symbol |
|-----------------|---|--------------------|
| 725-XXXXX | Pipe Liner, Cured-In-Place, _____ area | sq ft.....LFT |
| 725-XXXXX | Pipe Liner, Cured-In-Place, _____ diameter | in.....LFT |

The following shall be considered incidental to this item:

Collection, storage, transportation, and disposal of water produced by the curing or washout process.

Repairing jagged edges or deformities to existing pipe, filling cavities around the existing pipe with flowable backfill or grout, cleaning and surface preparation of existing pipe, acquisition and restoration of required right-of-entry areas, erection, maintenance, and removal of temporary fence, removal and reattachment of end sections for access, removing foreign material from the existing pipe, maintaining existing water flow, perpetuation of connections to the structure to be lined, warranties

TECHNICAL PROVISIONS – Attachment 10-1
USP: Cured-In-Place Pipe Liner

and all other incidentals shall be included in the cost of the pay items in this section.

Removing debris removal, filling existing voids, or trimming, cutting, jacking, or other corrective measures performed on jagged edges or other deformities of the existing pipe in order to facilitate installation of the CIPP.

Developing the Water Collection Plan and the collection, storage, transportation, and disposal of water produced by the curing or washout process.

Visual or video inspection of the existing pipe and new CIPP.

If the existing pipe or other objects not designated for removal are damaged while performing this work, it shall be considered unauthorized work and shall be repaired or replaced in accordance with 105.11.

Installation or removal of any liner that cannot be successfully installed due to the condition of the existing pipe.

PAVEMENT MARKINGS

The Standard Specifications are revised as follows:

SECTION 808.04, BEGIN LINE 52, DELETE AND INSERT AS FOLLOWS:

808.04 Longitudinal Markings and Milled Corrugations

All longitudinal lines shall be clearly and sharply delineated, straight and true on tangent, and form a smooth curve where required. Lines shall be square at both ends, without mist, drip or spatter.

A solid line shall be continuous. A broken line shall consist of 10 foot line segments with 30 foot gaps *on HMA pavement. On PCCP, a broken line shall consist of 20 foot line segments with the first 10 feet white in color and the last 10 feet black in color and 20 foot gaps between segments.* A dotted line shall consist of 3 foot line segments with 9 foot gaps unless otherwise indicated on the Plans *on HMA pavement. On PCCP, a dotted line shall consist of 6 foot line segments with the first 3 feet white in color and the last 3 feet black in color and 6 foot gaps between segments.*

SECTION 808.04, BEGIN LINE 97, DELETE AND INSERT AS FOLLOWS:

(b) Lane Lines

Lane lines shall be used to separate lanes of traffic moving in the same direction. Normal width lane line markings *on HMA pavement* shall be white in color and shall be 5 inches wide on interstates and freeways, and 4 inches wide on all other roads. *Normal width lane line markings on PCCP shall be of preformed plastic material, white and black in color, and shall be 5 inches wide on interstates and freeways, and 4 inches wide on all other roads.* Lane lines shall be offset 4 inches to the right of longitudinal pavement joints or divisions between traffic lanes. Wide lane lines for lane drops, route splits, or auxiliary lanes *on HMA pavement* shall be white in color and shall be 8 inches wide. *Wide lane lines for lane drops, route splits, or auxiliary lanes on PCCP shall be white and black in color and shall be 8 inches wide.* White solid lines shall be used to mark lane lines only when specified or directed.

(c) Edge Lines

Edge lines shall be used to outline and separate the edge of pavement from the shoulder. Edge line markings shall be 4 to 6 inches in width. *The edge lines* shall be placed such that the edge of the marking nearest the edge of the pavement shall be offset 4 inches from the edge of the pavement except as otherwise directed. Right edge lines shall be marked with a white solid line and left edge lines shall be marked with a yellow solid line.

The Standard Specifications are revised as follows:

SECTION 808.07, BEGIN LINE 284, INSERT AS FOLLOWS:

(b) Durable Pavement Marking Material

Durable pavement marking material consists of thermoplastic, preformed plastic or multi-component markings. Durable pavement marking materials used for center lines, lane lines, or edge lines shall be installed within a groove in the pavement unless otherwise shown on the Plans. Durable pavement marking materials used for barrier lines, pavement message, and transverse markings shall be surface applied unless otherwise indicated on the Plans.

Durable pavement marking materials used for center lines, lane lines, and edge lines on mainline I-69 and I-465 shall be supplemented with wet-reflective elements in accordance with 921.02(e)4. Material application shall be in accordance with manufacturer recommendations. The cost of the wet-reflective elements shall be included in the cost of the markings. The wet retro-reflectivity of the durable markings may be measured by the Department in accordance with ASTM E 2177 for informational purposes only. The testing period will be not less than 14 days to not more than 30 days after the materials are applied.

Durable pavement marking materials used for lane lines on mainline I-69 and I-465 on this Contract shall be wet-reflective preformed plastic markings. Material application shall be in accordance with manufacturer recommendations. The cost of the wet-reflective elements in the preformed plastic shall be included in the cost of the markings. The wet reflective preformed plastic markings shall be chosen from the following manufacturers:

- (a) 3M Company, St. Paul, MN
Stamark High Performance Tape Series 380 AW for white lane lines
Stamark High Performance Tape Series 380IES for the black segments of any contrast lines on PCCP.
- (b) Approved Equal

The wet retro-reflectivity of the preformed plastic markings may be measured by IFA in accordance with ASTM E 2177. The testing period will be not less than 14 days to not more than 30 days after the materials are applied. The initial wet retro-reflectivity of the preformed plastic markings shall be a minimum of 275 mcd/lux/m² for white markings and a minimum of 175 mcd/lux/m² for yellow markings when tested in accordance with ASTM E 2177.

A type C certification in accordance with 916 shall be furnished for the wet reflective preformed plastic markings.

SECTION 921.02, BEGIN LINE 124, DELETE AND INSERT AS FOLLOWS:

4. Supplemental Elements

These shall be for ~~color, skid resistance, or wet weather retro-reflectivity and may~~ shall be used ~~provided they do~~ but shall not exhibit a characteristic of toxicity referenced in AASHTO M 247. The supplemental elements shall be chosen from the following manufacturers:

- 3M Company, St. Paul, MN
- Potters Industries, LLC, Malvern, PA
- SWARCO Industries, Inc., Columbia TN

The supplemental elements shall be in accordance with the following:

| <i>SUPPLEMENTAL ELEMENTS MATERIAL REQUIREMENTS</i> | | |
|---|--------------------|---|
| <i>Property</i> | <i>Test Method</i> | <i>Requirements</i> |
| <i>Gradation</i> <i>Sieve Designation:</i> <i>No. 10 (2.00 mm)</i> <i>No. 14 (1.40 mm)</i> <i>No. 20 (0.85 mm)</i> | <i>AASHTO T 27</i> | <i>Percent Passing:</i> <i>95-100</i> <i>0-40</i> <i>0-5</i> |
| <i>Initial wet retro-reflectivity</i> <i>with durable markings:</i> <i>White (mcd/lux/m²)</i> <i>Yellow (mcd/lux/m²)</i> | <i>ASTM E 2177</i> | <i>Minimum:</i> <i>275</i> <i>175</i> |

A type D C certification in accordance with 916 shall be furnished for the supplemental elements.

PAVEMENT MESSAGE MARKINGS

The Standard Specifications are revised as follows:

SECTION 808.05, BEGIN LINE 147, INSERT AS FOLLOWS:

(b) Pavement Message Markings

Pavement message markings shall be used as specified or directed for railroad crossing approaches, intersection approaches, crosswalk approaches, ADA accessible parking space symbols, *interstate route shields*, and other messages applied to the pavement with pavement marking material. The markings shall consist of all necessary lines, words, and symbols as specified or directed, and shall be in accordance with the MUTCD.

Interstate route shields shall be 6 feet wide and have a length of 15 feet. Interstate route shields shall be thermoplastic and shall be chosen from the following manufacturers:

(a) Ennis-Flint, Inc.

(b) Approved Equal

Interstate route shields shall be supplemented with cardinal direction pavement message markings. The cardinal direction pavement message markings to be used with the interstate route shields shall be made of thermoplastic and have white letters on a blue background. The cardinal direction pavement message marking for “NORTH” or “SOUTH” shall be 9 feet wide and have a length of 10 feet. The cardinal direction pavement message marking for “EAST” or “WEST” shall be 8 feet wide and have a length of 10 feet. The cardinal direction pavement message markings shall be chosen from the following manufacturers:

(a) Ennis-Flint, Inc.

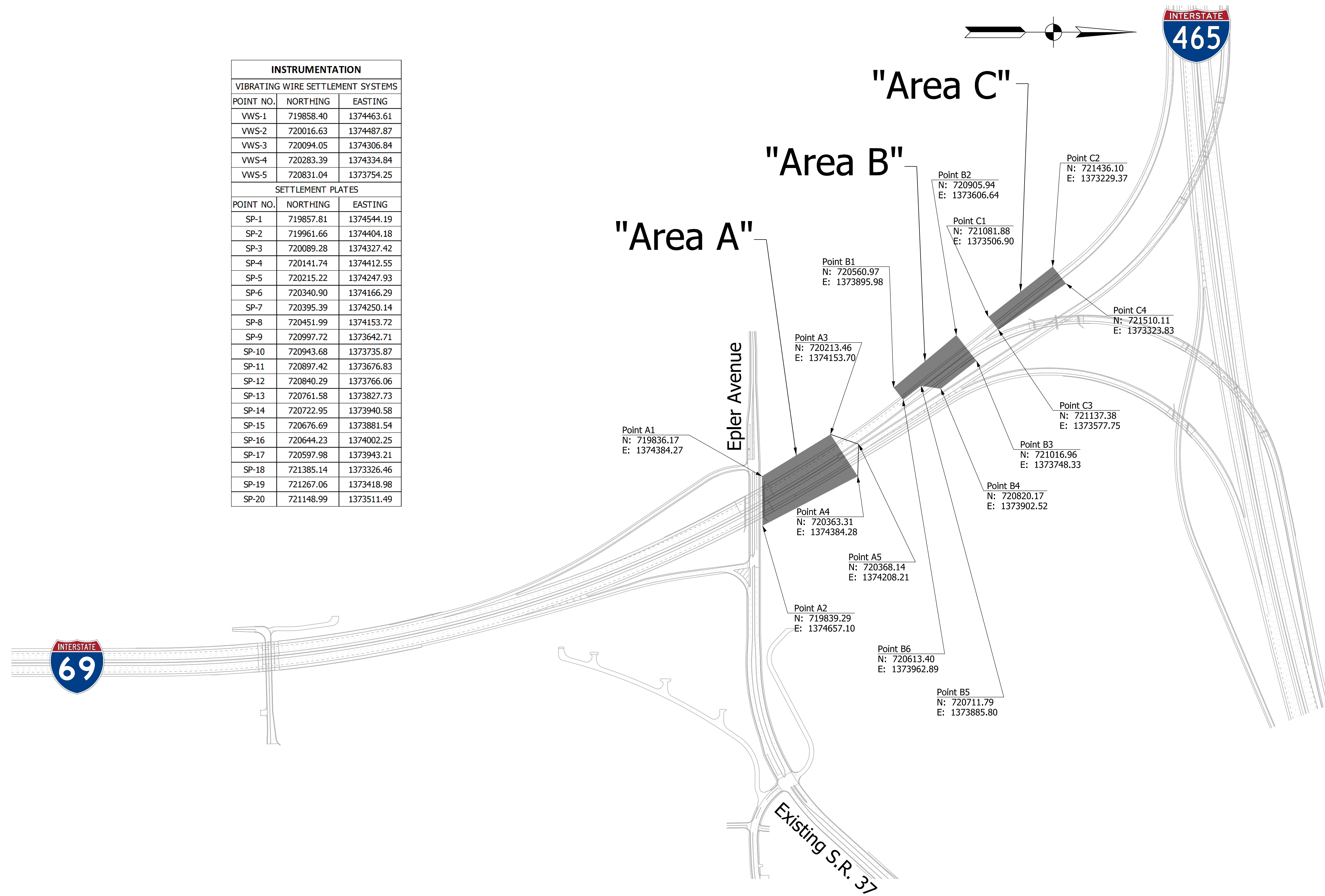
(b) Approved Equal

A type C certification in accordance with 916 shall be furnished for the interstate route shields and cardinal direction pavement message markings.

SECTION 808.12, BEGIN LINE 621, INSERT AS FOLLOWS:

Grooving for pavement markings will be measured as the total distance of grooving for each pavement marking line in linear feet. Pavement message markings *except interstate route shields and cardinal direction pavement message markings* will be measured by the total number of each type placed. *Interstate route shields and cardinal direction pavement message markings will not be measured.*

| INSTRUMENTATION | | |
|-----------------------------------|-----------|------------|
| VIBRATING WIRE SETTLEMENT SYSTEMS | | |
| POINT NO. | NORTHING | EASTING |
| VWS-1 | 719858.40 | 1374463.61 |
| VWS-2 | 720016.63 | 1374487.87 |
| VWS-3 | 720094.05 | 1374306.84 |
| VWS-4 | 720283.39 | 1374334.84 |
| VWS-5 | 720831.04 | 1373754.25 |
| SETTLEMENT PLATES | | |
| POINT NO. | NORTHING | EASTING |
| SP-1 | 719857.81 | 1374544.19 |
| SP-2 | 719961.66 | 1374404.18 |
| SP-3 | 720089.28 | 1374327.42 |
| SP-4 | 720141.74 | 1374412.55 |
| SP-5 | 720215.22 | 1374247.93 |
| SP-6 | 720340.90 | 1374166.29 |
| SP-7 | 720395.39 | 1374250.14 |
| SP-8 | 720451.99 | 1374153.72 |
| SP-9 | 720997.72 | 1373642.71 |
| SP-10 | 720943.68 | 1373735.87 |
| SP-11 | 720897.42 | 1373676.83 |
| SP-12 | 720840.29 | 1373766.06 |
| SP-13 | 720761.58 | 1373827.73 |
| SP-14 | 720722.95 | 1373940.58 |
| SP-15 | 720676.69 | 1373881.54 |
| SP-16 | 720644.23 | 1374002.25 |
| SP-17 | 720597.98 | 1373943.21 |
| SP-18 | 721385.14 | 1373326.46 |
| SP-19 | 721267.06 | 1373418.98 |
| SP-20 | 721148.99 | 1373511.49 |



Attachment 13-4: Undercut Areas and Instrumentation

N.T.S.

ATTACHMENT 14-1

UNIQUE SPECIAL PROVISIONS

STRUCTURES

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BRIDGE INSPECTION COORDINATION

The following routine, fracture critical, underwater or special bridge inspections are due to be performed by the INDOT's Bridge Inspection Office, or its authorized representative, on each bridge within the construction limits of the Project.

| Structure Number | NBI Number | Location | Inspection Type | Last Inspection Date (MM/DD/YY) | Frequency (Mos.) | First Scheduled Inspection (MM/YY) | Second Scheduled Inspection (MM/YY) |
|------------------------|------------|--------------------------------------|-----------------|---------------------------------|------------------|------------------------------------|-------------------------------------|
| 037-49-05024 BNBL | 012430 | 0.4 miles north of County Line Road | Routine | 07/03/19 | 24 Months | 07/21 | 07/23 |
| 037-49-05024 JASB | 012440 | 0.4 miles north of County Line Road | Routine | 07/03/19 | 24 Months | 07/21 | 07/23 |
| CV 037-049-141.56 | 93003305 | 1.07 miles north of County Line Road | Culvert | 08/05/19 | 60 Months | 08/24 | 08/29 |
| 037-49-05025 BNBL | 012450 | 2.23 miles south of I-465 | Routine | 07/03/19 | 24 Months | 07/21 | 07/23 |
| 037-49-05025 JASB | 012460 | 2.23 miles south of I-465 | Routine | 07/03/19 | 24 Months | 07/21 | 07/23 |
| I465-157-04721 B | 051000 | 0.34 miles east of SR 67 | Routine | 08/14/18 | 24 Months | 08/20 | 08/22 |
| I465-158-04459 B | 051010 | 1.19 miles east of SR 67 | Routine | 08/14/18 | 24 Months | 08/20 | 08/22 |
| I465-158-04458 CEBL | 051020 | 2.44 miles west of SR 37 | Routine | 08/14/18 | 24 Months | 08/20 | 08/22 |
| I465-158-04458 CWBL | 051030 | 2.44 miles west of SR 37 | Routine | 08/14/18 | 24 Months | 08/20 | 08/22 |
| I465-159-04456 FEBL | 051040 | 1.97 miles west of SR 37 | Routine | 08/13/18 | 24 Months | 08/20 | 08/22 |
| I465-159-04456 FEBL | 051040 | 1.97 miles west of SR 37 | Underwater | 10/30/18 | 60 Months | 10/23 | 10/28 |
| I465- | 05105 | 1.97 | Routine | 08/13/18 | 24 | 08/20 | 08/22 |

| | | | | | | | |
|---------------------|--------|--------------------------|-------------------|----------|-----------|-------|-------|
| 159-04456 FWBL | 0 | miles west of SR 37 | | | Months | | |
| I465-159-04456 FWBL | 051050 | 1.97 miles west of SR 37 | Underwater | 10/30/18 | 60 Months | 10/23 | 10/28 |
| I465-161-08742 | 051058 | 0.17 miles west of SR 37 | Routine | 08/13/18 | 24 Months | 08/20 | 08/22 |
| I465-161-04455 BEBL | 051060 | 2.1 miles west of US 31 | Routine & Special | 08/13/18 | 24 Months | 08/20 | 08/22 |
| I465-161-04455 BWBL | 051070 | 2.1 miles west of US 31 | Routine & Special | 08/13/18 | 24 Months | 08/20 | 08/22 |
| I465-161-02246 BEBL | 051080 | 0.53 miles east of SR 37 | Routine | 07/27/18 | 24 Months | 09/20 | 09/22 |
| I465-161-02246 JBWB | 051090 | 0.53 miles east of SR 37 | Routine | 07/27/18 | 24 Months | 09/20 | 09/22 |
| I465-162-04454 CEBL | 051100 | 0.81 miles east of SR 37 | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465-162-04454 BWBL | 051110 | 0.81 miles east of SR 37 | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465-162-04452 CEBL | 051120 | 0.45 miles west of US 31 | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465-162-04452 BWBL | 051130 | 0.45 miles west of US 31 | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465-162-04451 BWBL | 051140 | 0.31 miles west of SR 31 | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465-162-04451 BWBL | 051140 | 0.31 miles west of SR 31 | Special | 04/18/18 | 60 Months | 04/23 | 04/28 |
| (I465)31-49-04450 B | 051150 | 0.10 miles west of US 31 | Routine & Special | 07/25/18 | 24 Months | 07/20 | 07/22 |
| 031-49-04448 B | 009440 | 0.22 miles | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |

| | | | | | | | |
|--------------------------------|--------------|---|----------------------|----------|--------------|-------|-------|
| | | north of SR 135 | | | | | |
| (I465)3 1-49- 04449 B | 05116 0 | 0.10 miles east of US 31 | Routine & Special | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465- 163- 04447 BEBL | 05117 0 | 0.38 miles east of US 31 | Routine | 07/25/18 | 24 Months | 07/20 | 07/22 |
| (I465)4 31-49- 04445 B | 03256 5 | 0.57 miles east of US 31 | Routine & Special | 07/25/18 | 24 Months | 07/20 | 07/22 |
| I465- 164- 02245 | 05118 0 | 0.71 miles east of US 31 | Routine | 07/24/18 | 24 Months | 07/20 | 07/22 |
| I465- 164- 04444 CEBL | 05119 0 | 1.21 miles east of US 31 | Routine | 07/24/18 | 24 Months | 07/20 | 07/22 |
| I465- 164- 04444 BWBL | 05120 0 | 1.21 miles east of US 31 | Routine | 07/24/18 | 24 Months | 07/20 | 07/22 |
| I465- 164- 04798 A | 05121 0 | 0.68 miles west of the intersect ion of I- 65 and I- 465 | Routine | 07/24/18 | 24 Months | 07/20 | 07/22 |
| CV I465- 049- 00.30 | 93002 944 | 0.031 miles west of Carson Ave | Culvert | 03/28/19 | 60 Months | 03/24 | 03/29 |
| I465- 165- 04442 B | 05122 0 | 1.96 miles east of US 31 | Routine | 07/24/18 | 24 Months | 07/20 | 07/22 |
| I465- 155- 09161 | 07648 8 | 0.44 miles south of I-70 | Routine | 08/20/18 | 24 Months | 08/20 | 08/22 |
| I465- 156- 02152 JBNB | 05098 0 | 0.79 miles south I- 70 | Routine | 08/20/18 | 24 Months | 08/20 | 08/22 |
| I465- 156- 02152 BSBL | 05099 0 | 0.79 miles south of I-70 | Routine | 08/20/18 | 24 Months | 08/20 | 08/22 |
| 49- 3710L | 49003 73 | 0.58 miles | Routine | 07/12/18 | 24 Months | 07/20 | 07/22 |

| | | | | | | | |
|--|--|----------------------|--|--|--|--|--|
| | | east of Mann Road | | | | | |
|--|--|----------------------|--|--|--|--|--|

Each bridge inspection shall be identified in the schedule of Work in accordance with 108.04 and in accordance with the Technical Provisions. Portions of each bridge replaced, reconstructed, or repaired and subsequently used for maintenance of traffic will be inspected prior to being opened to traffic. Design-Build Contractor shall notify IFA a minimum of two weeks prior to the construction completion of a bridge and prior to being opened to traffic for INDOT to perform its initial inspection.

Notice from IFA will be given no less than seven days prior to each bridge inspection. Access, coordination and cooperation for the required bridge inspections shall be provided by the Design-Build Contractor.

TERMINAL JOINT RETROFIT, POLYMER MODIFIED ASPHALT

Description

This Work shall consist of constructing a terminal joint with a 3 in. polymer modified asphalt product topping in accordance with 105.03.

Materials

Polymer modified asphalt shall consist of polymer modified asphalt binder and manufacturer-specific aggregate. The product shall be one of the following:

FibreJoint by Fibrecrete Preservation Technologies
131 St. James Way
Mount Airy, NC 27030
www.fibrecretept.com

Matrix 501 or Matrix 502 by Crafco, Inc.
420 N. Roosevelt Ave.
Chandler, AZ 85226
www.crafco.com

RP 6297 or 6297 W/AGG by Right Pointe
234 Harvestore Drive
Dekalb, IL 60115
www.rightpointe.com

Thorma-Joint by Dynamic Surface Applications
373 Village Road
Pennsdale, PA 17756
www.dsa-ltd.com

Wabo Expandex by Watson Bowman Acme Corp.
95 Pineview Drive
Amherst, NY 14228
www.wbacorp.com

The backer rod and steel plate components of the above products shall be omitted. The binder and aggregate may be pre-blended or blended on site. The product shall be in accordance with ASTM D 6297, Standard Specification for Asphaltic Plug Joints for Bridges. A Type C certification shall be submitted and shall include the product trade name and manufacturer.

Construction Requirements

The Design-Build Contractor shall construct the sleeper slab, polyethylene bond breaker, and HMA intermediate mixtures in accordance with 503.03. The intermediate HMA layers shall end 3 in. below the surface of the adjacent pavement to place the required thickness of polymer modified asphalt. The total thickness of the polymer modified joint material shall not exceed 4 in. HMA Surface, Type B shall be omitted.

The manufacturer's instructions for the polymer modified asphalt product shall be provided to IFA at least one week prior to placement. Instructions shall cover the 3 in. surface placement and all product modifications required for patching a depth in excess of 3 in.

The existing terminal joint asphalt material shall be removed to the top of the existing sleeper slab. Removal shall be by milling in accordance with

306 or as directed by IFA. The exposed vertical faces of the adjacent concrete shall be clean, free of asphalt or other contaminants, and dry prior to polymer modified asphalt placement. Damage to adjacent concrete surfaces during removal shall be repaired as directed by IFA.

The polymer modified asphalt shall be prepared in accordance with the manufacturer's instructions. Each lift shall be allowed to cool for a minimum of 15 minutes prior to placing successive lifts. The binder and aggregate shall be mixed and placed in lifts not to exceed 2.5 in. The top lift shall be between ½ in. and 1.0 in. The completed joint surface shall match the grade of the adjacent pavement.

The completed joint shall be allowed to cool to a surface temperature less than 150°F and shall not be tacky prior to being opened to traffic.

Basis of Item

The polymer modified asphalt terminal joint shall be quantified by the square foot. Asphalt removal and surface preparation shall not be quantified.

The items list shall include the following:

| Item No. | Item Description | Pay Unit Symbol |
|-----------------|---|------------------------|
| 503-12480 | Terminal Joint, Retrofit Polymer Modified Asphalt | SFT |

The following shall be considered incidental to this item:

Removing existing asphalt joint material, surface preparation, repairing sleeper slabs and adjacent pavement, and all incidental labor, equipment, and materials required to complete this Work.

MODIFIED TERMINAL JOINTS

SECTION 503, BEGIN LINE 9, DELETE AND INSERT AS FOLLOWS:

503.02 Materials

Materials shall be in accordance with the following:

| | |
|------------------------------------|-------------|
| Chemical Anchor System..... | 901.05 |
| Dowel Bars..... | 910.01(b)10 |
| Epoxy Coated Reinforcing Bars..... | 910.01(b)9 |
| Joint Filler..... | 906.01 |
| Joint Materials..... | 906 |
| PCC Sealer/Healers..... | 901.06 |
| Reinforcing Bars..... | 910.01 |
| Concrete, Class A..... | 702 |
| Support Devices..... | 910.01(b)9 |
| Threaded Tie Bar Assembly..... | 910.01(b)2 |
| Curing Materials..... | 912.01 |

For Jointed Reinforced Concrete Pavement, materials for the concrete shall be in accordance with 502.03 and the concrete mix criteria shall be in accordance with 502.04.

SECTION 503, BEGIN LINE 114, DELETE AND INSERT AS FOLLOWS:

(e) Terminal Joints

~~Terminal joints shall consist of a sleeper slab, polyethylene bond breaker, and HMA mixtures. The polyethylene bond breaker shall be an approved polyethylene sheeting having a thickness of 6 mils or greater. HMA mixtures shall consist of type B surface and intermediate mixtures in accordance with 402.04. A MAF in accordance with 402.05 will not apply. Aggregate requirements of 904.03(d) do not apply. The portion of the sleeper slab on which the polyethylene bond breaker is to be placed shall be finished to a smooth trowel finish.~~

A terminal joint of the type specified shall be constructed at the locations as shown on the Design Documents. The embankment shall be shaped to the required grade and section, free from all ruts, corrugations, or other irregularities, and uniformly compacted and approved in accordance with 203. The embankment shall be furnished within a tolerance of 1/2 in. from the grade as shown on the Design Documents. The subgrade shall be prepared as shown on the Design Documents and in accordance with 207. The sleeper slab shall be placed on top of the prepared subgrade.

A modular joint is required for an integral structure with an expansion length greater than 400 ft. to the terminal joint. The modular joint shall be in accordance with 724.

1. Terminal Joint, Type CRCP

Terminal joint, type CRCP shall consist of sleeper slabs, polyethylene bond breaker, pre-compressed foam joint, and CRCP transition slab. The polyethylene bond breaker shall be an approved polyethylene sheeting having a thickness of 10 mils or greater. The portion of the sleeper slab on which the polyethylene bond breaker is to be placed shall be finished to a smooth trowel finish. The pre-compressed foam joint shall be in accordance

with the Recurring Special Provision titled “Pre-Compressed Foam Joint” and as shown on the Design Documents. The CRCP transition slab shall be in accordance with the Special Provision titled “Continuously Reinforced Concrete Pavement” and as shown on the Design Documents.

2. Terminal Joint, Type PCCP

Terminal joint, type PCCP shall consist of a sleeper slab, polyethylene bond breaker, pre-compressed foam joint, and jointed reinforced concrete pavement, JRCP, transition slabs. The polyethylene bond breaker shall be an approved polyethylene sheeting having a thickness of 6 mils or greater. The portion of the sleeper slab on which the polyethylene bond breaker is to be placed shall be finished to a smooth trowel finish. The pre-compressed foam joint shall be in accordance with the Recurring Special Provision titled “Pre-Compressed Foam Joint” and as shown on the Design Documents. The longitudinal and transverse joints of the jointed reinforced concrete pavement transition slabs shall be in accordance with 503 and as shown on the Design Documents. The concrete delivery and placement of concrete for JRCP shall be in accordance with 502 and as shown on the Design Documents. Steel reinforcement shall be epoxy coated and placed in accordance with 703. The metal chairs, spacers, clips, wire, or other mechanical means used for fastening or holding reinforcement in place shall be epoxy coated.

3. Terminal Joint, Type HMA

Terminal joint, type HMA, shall consist of a sleeper slab, concrete lug, polyethylene bond breaker, and pre-compressed foam joint. The polyethylene sheeting having a thickness of 6 mils or greater. The portion of the sleeper slab on which the polyethylene bond breaker is to be placed shall be finished to a smooth trowel finish. A type A construction joint shall be constructed as shown on the plans. The pre-compressed foam joint shall be in accordance with 724 and as shown on the Design Documents.

The saw cut shall be sealed with hot pour joint sealant in accordance with 906.02(a)2.

SECTION 503, AFTER LINE 151, INSERT AS FOLLOWS:

(h) Expansion Joint with Load Transfer

Expansion joints with load transfer shall be constructed at the locations shown on the Design Documents. The joint shall be an assembly of dowel bars, expansion caps, and joint filler components as shown on the Design Documents. The components shall be supported by an approved welded wire assembly which holds the components rigid and in proper alignment during placement of the concrete.

Damaged or repaired joint filler shall not be used. The joint filler shall be held in a position which is normal to the surface and secured in place. The bottom of the joint filler shall be set firmly in place on top of the subgrade. The top of the joint filler shall be parallel to the pavement surface and be the full width of the pavement. The expansion joint assembly shall be held in place in accordance with 503.04(g). Finished joints shall deviate no more than ¼ in. in the horizontal alignment from a straight line. There shall be no offsets between adjacent sections when the joint filler consists of more than one section. No plugs or leakage of concrete shall be allowed to occur through the joint filler or into the air gap of expansion caps.

The expansion joint opening shall be sealed with hot pour joint sealant in accordance with 906.02(a)2.

SECTION 503, DELETE LINES 239 THROUGH 250.

SECTION 503, LINE 239, INSERT AS FOLLOWS:

503.07 Basis of Item

D-1 contraction joints, expansion joint with load transfer, pre-compressed foam joints, structural expansion joint M, and terminal joints shall be quantified by the linear foot as measured along the centerline of the joint. The sleeper slabs, reinforcing bars, bond breaker, sealants shall not be quantified. When required, removing an existing terminal joint or sleeper slab shall not be quantified.

Jointed reinforced concrete pavement shall be quantified by the square yard.

Subgrade treatment, type IC shall be quantified in accordance with 207.

Retrofitted tie bars shall be quantified by the number of units installed.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|--|--------------------|
| 503-05240 | D-1 Contraction Joint | LFT |
| 503-03489 | Retrofitted Tie Bars | EACH |
| 503-12476 | Jointed Reinforced Concrete Pavement, 13 in. | SYS |
| 503-12478 | Terminal Joint, Type PCCP | LFT |
| 503-05310 | Terminal Joint, Type CRCP | LFT |
| 503-12477 | Terminal Joint, Type HMA | LFT |
| 503-12479 | Expansion Joint with Load Transfer | LFT |
| 724-12103 | Pre-Compressed Foam Joint | LFT |
| 724-51927 | Structural Expansion Joint, M | LFT |

The following shall be considered incidental to these items:

Furnishing and placing all materials.

Dowels, dowel bar assemblies, expansion caps, joint filler, and joint sealants.

Sleeper slab, reinforcing bars, bond breaker, sealants, JRCP and CRCP transition panels, and removing an existing joint and sleeper slab.

Retrofitted tie bars or CRCP replacement used to repair damaged CRCP due to fault or negligence, remediation of random cracking, or the replacement of broken deformed bars.

SECTION 503, DELETE LINES 245 THROUGH 271.

METALLIZED STRUCTURAL STEEL

Description

This Work shall consist of applying a thermal sprayed, metallized, coating system to new structural steel and includes requirements for surface preparation, application of metallic coating by wire arc spray, sealer, and topcoat in accordance with SSPC-CS 23.00/AWS C2.23M/NACE No. 12, 105.03, the Design Documents, and as described herein.

Materials

Materials furnished shall be marked by the manufacturer with a batch number or marking to identify each batch to be used. The coating materials shall be in accordance with the specifications of the material manufacturer and the requirements of this specification. The Design-Build Contractor shall provide manufacturer's product data sheets and manufacturer's data with respect to procedures and material specifications for the coating wire, sealer, topcoat, or any other materials used in this process and manufacturer's material safety data sheets in accordance with 29 CFR 1910.1200 for all hazardous materials to be used at the job site prior to beginning any Work outlined in this specification.

Abrasive

Abrasives shall be hard and sharp to produce an angular surface profile on the steel substrate as described in the Surface Preparation section below. The blast cleaning abrasive shall be angular aluminum oxide, chilled iron grit, steel grit, or garnet. Steel grit hardness shall be Rockwell C of 51 or greater. Garnet abrasive shall conform to the requirements of SSPC-AB 1, Type 1, Class A, and shall be an appropriate grade to produce the specified blast profile. Aluminum oxide abrasives shall be commercially pure materials of the appropriate gradation to produce the specified blast profile.

Shot or other abrasives producing a round surface profile shall not be used. Coal slag shall not be used.

Mineral and slag abrasives

Mineral and slag abrasives and non-metallic abrasives shall be selected and evaluated per SSPC-AB 1. The results of the tests specified in section 4.1 thru 4.4 of SSPC-AB 1 and documented in accordance with section 5.4 of SSPC-AB 1 shall be provided on the Type A certification.

Recycled Abrasives

The abrasive shall be cleaned of paint, chips, rust, mill scale, and other foreign material after each use and before each reuse according to SSPC-AB 2. The Design-Build Contractor shall use equipment specifically designed for cleaning the abrasive. The abrasive shall be checked for oil content and water-soluble contamination according to SSPC-AB 2 at the frequency defined in the Surface Preparation section.

Metallic Abrasive

Recycled ferrous metallic abrasives shall be in accordance with the chemical and physical properties of SSPC-AB 2.

Non-metallic Abrasive

Recycled non-metallic abrasive shall meet all requirements of SSPC-AB 1 each time that it is placed in the blast pot.

Metallic Abrasive

New and remanufactured steel grit shall be selected and evaluated per

SSPC-AB 3. The results of the tests specified in Section 4.1.3 and section 5 of SSPC-AB 3 shall be provided on the Type A certification.

Metallizing Wire

The metallizing wire shall be in accordance with AWS C.25 or ASTM B833. The zinc wire shall be 99.99% Zinc - UNS (Z13005). The following shall be provided to IFA in the Type A certification for the metallizing wire:

- a manufacturer's certification that the raw material used to manufacture the wire meets the requirements of this provision
- a copy of all the chemical composition test results
- wire diameter measurements

The chemical composition analysis and wire diameter measurements shall be tested at the frequency defined in ASTM B833.

Sealers and Topcoats

The sealer shall be compatible with the topcoat and with the metallized substrate. The sealer and topcoat shall be provided by a single manufacturer. The cured film of the sealer and topcoat shall not contain any contaminants in concentrations which exceed the regulatory levels of 40 CFR 261.24, table 1, when tested in accordance with EPA TCLP, or contain any other material which will require characterization as a hazardous waste for the disposal of the dried film.

Sealer

The sealer shall be a low viscosity acrylic, epoxy, phenolic, silicone, or polyurethane, and shall be colored white. The sealer shall be formulated to penetrate and fill the pores in the metallized coating. The sealer shall have a minimum fineness of grind of 5 Hegman when determined in accordance with ASTM D1210. The information specified in section 10 of ASTM D1210 shall be provided on the Type A certification.

Topcoat

The topcoat shall be a two-component polyester or acrylic aliphatic polyurethane suitable for use as a topcoat over metallizing sealers. The general requirements as specified in 909.01 shall apply.

The mixed paint shall be in accordance with the following requirements.

| | |
|---|---------|
| Volatile organic compounds, ASTM D3960, Max. | 336 g/L |
| Volume solids, ASTM D2697, Min. | 60% |
| Set-to-touch, ASTM D1640, 5 mils wet film thickness, 25 ± 1°C, 50 ± 10% relative humidity, Min..... | 30 min |
| Total solids ASTM D2369, Min. | 70% |
| Specular gloss, 60°, ASTM D 523, Max. | 50 |
| Viscosity, ASTM D562, Krebs Units, Max. | 100 |
| Contrast ratio, ASTM D2805, 5 ± 0.5 mils wet film thickness, dried 24 h @ 25 ± 2°C on Leneta Form 2A or 2C, Min..... | 0.95 |
| Dry hard, ASTM D1640, 5 mils wet film thickness, 25 ± 1°C, 50 ± 10% relative humidity, Max..... | 24 h |

The color of the dried paint film shall match color number 26270, medium-gray, of Aerospace Material Specification Standard 595A.

Inaccessible Areas

Areas inaccessible to the metal spraying equipment as determined by IFA shall use the structural steel paint system in accordance with 619.09(a) with

the exception that the topcoat shall be in accordance with the Topcoat section of this provision.

Construction Requirements

The Design-Build Contractor performing the Work shall be SSPC-QP2 certified in accordance with 619.03. The area to be coated includes all steel surfaces including, but not limited to, inside box sections and bearings. If exposed, the top of the top flange of the girders or beams shall not be coated.

Reference Standards

Listed below are the industry standards which shall apply to this Work. At least one copy of each of these referenced standards, manufacturer's product data sheets for application of sealer, or sealer and topcoat and manufacturer's material safety data sheets for each hazardous material shall be provided to IFA.

ASTM

| | |
|------------|---|
| ASTM B833 | Standard Specification for Zinc Wire for Thermal Spraying (Metallizing) |
| ASTM C633 | Test Method for Adhesive/Cohesive Strength of Flame Sprayed Coatings |
| ASTM D1200 | Standard Test Method for Viscosity by Ford Viscosity Cup |
| ASTM D3276 | Standard Guide for Painting Inspectors (Metal Substrates) |
| ASTM D3925 | Sampling Liquid Paints and Related Pigmented Coatings |
| ASTM D4285 | Method for Indicating Oil or Water in Compressed Air |
| ASTM D4417 | Test Method for Field Measurement of Surface Profile of Blasted Steel |
| ASTM D4541 | Test Method for Pull-Off Strength of Coating Using Portable Adhesion Testers |
| ASTM E337 | Standard Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet- and Dry-Bulb Temperatures) |

AWS

| | |
|-------------------|--|
| AWS C2.16/C2.16M | Guide for Thermal-Spray Operator Qualification |
| ANSI/AWS C2.18-93 | Guide for the Protection of Steel with Thermal Spray Coatings of Aluminum, Zinc, and their Alloys and Composites |
| AWS C2.23M/C2.23 | Specification for the Application of Thermal Spray Coatings of Aluminum, Zinc, and their Alloys and Composites for the Corrosion Protection of Steel |
| AWS C.25/C2.25M | Specification for Thermal Spray Feedstock - Solid and Composite Wire and Ceramic Rods |
| AWS TS 1 | Recommended Safety Practices for Thermal Spraying, 1973 |

2.3 ISO

ISO 8502-3 Preparation of Steel Substrates Before Application of Paint and Related Products - Tests for the Assessment of Surface Cleanliness - Part Assessment of Dust on Steel Surfaces Prepared for Painting (Pressure-Sensitive Tape Method)

NACE

NACE Std RP0287 Field Measurement of Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a Replica Tape

SSPC

SSPC Publication The Inspection of Coatings and Linings: A Handbook of Basic Practice for Inspectors, Owners, and Specifiers

SSPC-AB 1 Mineral and Slag Abrasives

SSPC-AB 2 Cleanliness of Recycled Ferrous Metallic Abrasives

SSPC-AB 3 Newly Manufactured or Re-Manufactured Steel Abrasives

SSPC-PA 1 Shop, Field, and Maintenance Painting

SSPC-PA 2 Measurement of Dry Paint Thickness with Magnetic Gages

SSPC-PA Guide 3 A Guide to Safety in Paint Application

SSPC-QP 2 Standard Procedure for the Qualification of Painting Contractors (Field Removal of Hazardous Coatings from Complex Structures)

SSPC Guide 6 Guide for Containing Debris Generated During Paint Removal Operations

SSPC Guide 7 Guide for the Disposal of Lead-Containing Surface Preparation Debris

SSPC-SP COM Surface Preparation Commentary

SSPC-SP 1 Solvent Cleaning

SSPC-SP 5/
NACE No. 1 White Metal Blast Cleaning

SSPC-SP 7 Brush-Off Blast Cleaning

SSPC-SP 10/
NACE No. 2 Near-White Blast Cleaning

SSPC-TR 3 Dehumidification and Temperature Control During Surface Preparation, Application, and Curing for Coatings/Linings of Steel Tanks, Vessels, and Other Enclosed Spaces

SSPC-VIS 1 Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning

Design-Build Contractor Submittals

Quality Control Plan, QCP

A QCP in accordance with Section 8.0 of Indiana Test Methods, ITM, 803 shall be submitted at the preconstruction conference. The following revisions are made to Section 8.5.2 of ITM 803:

- (k) Metallizing application and recoatability;
- (l) Seal coat application and recoatability;
- (m) Topcoat application and cure;

In addition to the requirements above, the QCP shall also include quality control procedures for training and qualification requirements for blast cleaning, thermal spray operation, and quality control inspection. The thermal spray operation procedure shall also be in accordance with the arc spray equipment supplier's recommended procedures. The Design-Build Contractor shall also include the detailed procedures that will be used to meet the requirements of this specification for surface preparation, metallizing, applying the sealer and topcoat and quality control. The procedures shall detail application process, in-process quality control, and job control record to be used for the contract Work as well as the Design-Build Contractor's safety plan, inspection standards, inspector qualifications and tools, test procedures, pollution control system, safety plan, and inspection/test logs. The information shall also include the in-process quality control checkpoints and procedure for repairing the metallized coating.

No Work described in this specification may begin until written notice has been received that the QCP has been accepted by IFA.

Equipment List

The Design-Build Contractor shall provide a list to IFA of the equipment to be used for surface preparation, thermal spraying, sealing and topcoating, and in-process quality control.

Qualifications of Key Personnel and Thermal Spray Operators

The Design-Build Contractor shall submit evidence for each individual that is in direct charge of the thermal spray operators has successfully performed the surface preparation and application of metallized coatings on a minimum of three steel structures similar in scope and complexity to the project covered by this specification. The Design-Build Contractor shall list information by individual and include the following:

1. Name of individual and proposed position for this Work
2. Information about each previous assignment including:
 - a. Position or responsibility
 - b. Employer, if other than the current Design-Build Contractor
 - c. Name and location of the facility owner
 - d. Dates Work was carried out
 - e. A brief description of structure
 - f. Description of Work carried out on structure by the individual

Operator Testing

Each thermal spray operator shall be evaluated according to AWS C2.16/C2.16M:2017 (Sections JK-1, and AS-1), and pass the relevant tests prior to performing any thermal spray Work. The quality control inspector, as described in the Quality Control Inspector, QCI, section shall witness and certify in writing that each thermal spray operator has been tested and passed the relevant tests prior to performing any thermal spray Work. Unless waived

by IFA in writing, the operator tests shall be performed in the presence of IFA. At the discretion of IFA or QCI, any operator may be required to be retested at any time. The Design-Build Contractor shall provide all materials and equipment necessary for these tests at no additional cost to IFA.

Job Reference Standard, JRS

The Job Reference Standard, JRS, shall be representative of the whole job or major sections of the job. The JRS shall be prepared by the Design-Build Contractor performing the metallizing under the supervision of the quality control inspector and shall be the pass/fail sample for all Work including blast cleaning, metallizing, sealing, and topcoating.

The JRS is made with the actual field equipment, the process parameters and procedures for surface preparation; thermal spraying; sealing and topcoating and in process QC check points that will be used for the contracted Work. The JRS is made on a steel plate approximately 18 in. by 18 in. by 1/4 in. that has any sharp edges ground smooth. The JRS shall be blast cleaned, metallized, sealed and topcoated in accordance with this specification and AWS C2.23M/C2.23:2018. Two JRSS are required. One will remain the property of IFA. The other will become the property of INDOT Central Office - Office of Materials Management and is deliverable after acceptance by IFA.

The JRS shall be processed to illustrate the four coating steps: blast cleaning, metallizing, sealing and topcoating each in equal parts. The entire coupon is blast cleaned; one quarter remains blast cleaned only; one quarter is blast cleaned/metallized; one quarter is blast cleaned/ metallized/sealed; one quarter is blast cleaned/metallized/sealed/ topcoated.

The QCI shall make thickness and tensile bond measurements of the unsealed metallized coating as required in the Quality Control and Assurance section of this specification. This plate, when accepted by IFA, will be used as the visual standard to determine the acceptability of the thermal sprayed coating system.

Quality Control and Assurance

Quality Control Inspector, QCI

The Design-Build Contractor shall provide a quality control inspector, QCI. The QCI shall have documented training in the applicable test procedures of ASTM D3276 and SSPC-CS 23.00 and shall have a minimum of two years of verifiable experience in the inspection of metallizing bridges or similar structures. The QCI shall be employed by a company possessing a valid SSPC-QP 5 certification and a copy of the QP 5 certification shall be provided with the QCP. The QCI shall be either a NACE Certified Coatings Inspector or have an SSPC Protective Coating Specialist Certification. The QCI shall be available for inspection and not delay coating operations.

Compressed Air Quality

Blast cleaning and metallizing compressed air shall be tested daily in accordance with ASTM D4285, Standard Test Method for Indicating Oil or Water in Compressed Air. If the cloth or blotter retains oil or other contaminants, the QCI shall suspend abrasive blasting operations until retests verify that the problem is corrected.

Visual Inspection Requirements

Prior to sealing, the thermal sprayed coating shall have a uniform appearance, in accordance with the Spray Pattern specifications. If the coating is inferior to the JRS, the Design-Build Contractor shall correct the coating

by an acceptable repair method, as defined in the QCP.

Metal Thickness Conformance

The QCI shall inspect the Work for thickness conformance as necessary to ensure a uniform coating of the specified thickness. The QCI's thickness inspection procedure shall be as specified in the QCP.

Coating thickness shall be measured in accordance with SSPC-PA 2, using a mutually approved magnetic thickness and eddy current gauge with a digital readout and a probe. Such gauge shall be furnished to IFA but shall remain the property of the Design-Build Contractor. The gauge shall be:

PosiTector 6000 FRS3 with separate probe by DeFelsko Corporation.

The gauge shall be calibrated according to SSPC-PA 2.

The metallized coating thickness shall be measured according to AWS C2.23M/C2.23. One measurement line or spot measurement shall be taken every 100 to 200 sq ft of applied metallized coating. The Design-Build Contractor shall use a measurement line for flat surfaces. The Design-Build Contractor shall take the average value of five readings taken in a line at 1 in. intervals. The Design-Build Contractor shall use a measurement spot for complex geometries and geometry transitions. The spot measurement should be approximately 1 to 2 sq in. A gauge reading that is unusually high or low shall be discarded provided it is not consistently repeated. No single spot measurement shall be less than 80% of the specified minimum thickness or greater than 25 mils.

Thickness Less Than Contract Specification

If upon inspection and prior to sealer application, the metallized coating thickness is less than the contract requirement, the Design-Build Contractor shall apply, within the same work day, additional coating to meet the minimum thickness requirement.

Bend Test

The bend test is used as a qualitative test for proper surface preparation, equipment setup, and spray parameters. The bend test coupons shall be low carbon steel, 0.050 in. thick, 2 in. wide by 4 in. to 8 in. long. These coupons shall be blast cleaned and arc sprayed according to the requirements of this specification. The bend test is a pass/fail test. Once sprayed, the coupons shall be bent 180 degrees around a 1/2 in. diameter mandrel. The bend test passes if on the bend radius there is no cracking or spalling or only minor cracking that cannot be lifted from the substrate with a knife blade. The bend test fails if the coating cracks with lifting from the substrate. Every operator is subject to a complete re-test at the sole discretion of IFA.

Tensile Bond, Adhesion, and Measurement Schedule

The metallized coating's tensile bond strength shall be measured according to ASTM D4541 using a self-aligning adhesion tester and the results shall be documented. One portable tensile-bond measurement shall be made every 500 sq ft at a location randomly selected by IFA. The adhesion test shall be performed in the presence of IFA. The minimum tensile bond strength for the metallized zinc coating shall be 500 psi.

If the tensile bond is less than the contract specification, the degraded metallized coating shall be removed and reapplied. The tensile bond strength of the metallized coating shall be measured before the application of the sealer. Damage to the coated surface shall be repaired as directed in the specifications.

Sealer and Topcoat Conformance

Each coat of the sealer and topcoat shall be inspected for compliance with the manufacturer's requirements and the JRS. Acceptance of each coat is required prior to application of the next coat.

Repair of Defective Areas

All coated areas which have been rejected or damaged shall be repaired according to the Design-Build Contractor's written repair procedure and shall meet the requirements of this specification. Any touch-up of rejected or damaged areas shall be completed by the Design-Build Contractor prior to final acceptance of the Work.

Pre-Construction Meeting

A pre-construction meeting shall be held prior to beginning any Work described in this specification. At a minimum, specific items addressed for metallizing shall include the Design-Build Contractor's work plan, safety plan, inspection standards, inspector qualifications and tools, test procedures, pollution control system, safety plan, and inspection/test logs. All of the above-mentioned items shall also be included in the Design-Build Contractor's QCP.

Equipment

Equipment and Techniques

The metal spraying equipment shall be of electric arc spray type. Flame spray is not permitted. The equipment shall be portable and capable of spraying 3/16 in. diameter maximum wire of zinc at a controllable rate. The wire shall be automatically dispensed to the spray gun. The spray gun shall be equipped with an arc shorting control device. The spray gun shall operate with oil-free and dry compressed air at 90 psi minimum. The air quality shall be in accordance with ASTM D4285. The spray equipment shall be capable of the following:

- 1) Spray for 3 minutes without sputtering or shutdown.
- 2) Produce test specimens that are acceptable for visual standards, the bend test, minimum three repetitions, and the tensile bond strength specified in the Visual Inspection Requirements, Bend Test, and Tensile Bond, Adhesion, and Measurement Schedule sections.
- 3) Start and stop spraying test consisting of eight "10-second spray, 5-second off" sequences without fusing or sputtering that could cause discontinuities or clumps of improperly melted sprayed metal on the work surface. This proof of equipment function shall be demonstrated by spraying the feedstock material specified in this specification.

The equipment shall be operated in accordance with the manufacturer's latest written instructions including, but not limited to, air pressure, gun to work piece standoff distance, and gun angle relative to the work surface.

Stages of Work

Thermal spray safety procedures in AWS TS 1 shall be followed when thermal spraying. The safety precautions recommended for thermal spray applicators are generally the same as those for welders. At a minimum, the applicator shall be concerned with eye, respiratory, and noise protection. In addition to following procedures described in the equipment manufacturer's operating manual, the precautions set forth in the spray material manufacturer's Material Safety Data Sheets shall be observed. The Design-Build Contractor shall provide a detailed safety program to IFA for acceptance prior to commencing Work. Any safety devices such as respirators deemed necessary by IFA shall be provided to IFA personnel. Additional safety information is available in AWS C2.16/C2.16M, Annex A. The Design-Build Contractor shall not use open combustion in the

enclosure.

Pollution, environmental, control and hazardous waste disposal shall be in accordance with 619.07, SSPC Guide 6 - Class 2A or better with method A, level 0 emission containment, and SSPC Guide 7, as well as all current regulations and laws as may apply. The Design-Build Contractor shall be responsible for all containment and disposal, and as such, bears the entire liability if the Indiana Department of Environmental Management, IDEM, Indiana Department of Natural Resources, IDNR, or any other jurisdictional agency finds pollution of the ground or water resulting from improper or poor containment and disposal practices.

When the QCI believes a section of Work is ready for acceptance, the QCI shall contact IFA and arrange for inspection of the Work to proceed to the next quality control checkpoint.

Precleaning

The structure shall be precleaned in accordance with 619.08(a) and (b) prior to any blast cleaning. The pressure washing shall remove only the contaminants, oils, greases, asphalt cement, diesel fuel deposits, and other petroleum products that interfere with coating adhesion or reduce coating life and not remove large amounts of paint.

Removal of Surface Defects

Surface irregularities interfering with the performance of the coating, such as sharp edges or carburized edges, shall be removed by grinding before any blast cleaning is performed.

Surface Preparation

The surface shall be abrasive blast cleaned to an SSPC-SP 5/NACE No. 1 white metal blast. The abrasive type, size, and hardness shall be selected to produce an angular surface profile of 2.5 to 5.0 mils. Shot blasting or peening is not acceptable. The abrasive shall be checked at the beginning of each shift and at 4 hour intervals for oil content and water-soluble contamination according to SSPC-AB 2.

The surface profile shall be measured in accordance with ASTM D4417, Method B or C. Surface profile readings shall be taken at least one per every 200 sq ft of blasted surface. Profile readings shall be taken at random locations including, but not limited to, flanges, webs, and cross frames.

The level of soluble salts on the blast cleaned steel substrate shall be measured in accordance with SSPC-TU 4, class A cell retrieval method. Soluble salt concentration levels shall be taken at least once per every 200 sq ft of blasted surface. The maximum allowable concentration will be 5 µg/cm². For areas where the level of soluble salt concentration exceeds 5 µg/cm², corrective action shall be proposed and submitted in writing. Corrective action measures shall not begin until written notice has been received that the corrective action is accepted by IFA.

The blast cleaned surface shall be inspected for surface profile, oil contamination, dust, blasting residue, and soluble salts, and accepted prior to the application of the metallized coating.

The Design-Build Contractor performing the metallizing Work shall also perform the abrasive blast operation in preparation for all metallized coatings. This responsibility shall not be passed to any other contractor or sub-contractor.

Waste Residue Sampling

After the first day of existing coating removal operations, the Design-Build Contractor, under the supervision of the QCI and in the presence of IFA, shall collect two 4 ounce random samples of blast/paint residue. One of these samples will be shipped for testing within 24 h in a manner described in the QCP. IFA will retain custody of each waste residue sample until it is shipped. The other waste residue sample will be retained by IFA. The samples shall be analyzed for full Toxicity Characteristic Leaching Procedure, TCLP. Waste residue shall be placed in an approved container. The containers shall be labeled and maintained to comply with 40 CFR 264. On bridges with hazardous-based coatings, the waste residue generated shall be treated at a facility rendering it to a non-hazardous state and disposed of in accordance with all applicable federal, state, and local regulations.

Holding Period and Flash Coat

The holding period, or time between the completion of the final anchor-tooth blasting, or final brush blasting, and completing the thermal spraying, shall be no greater than 6 h or before flash rusting occurs. In high-humidity and damp environments, shorter holding periods may be used. If rust bloom occurs, the Design-Build Contractor shall blast clean the surface to meet the requirements of the blast cleaning/surface finish requirements in the Waste Residue Sampling section of this specification. Rust bloom shall be the overriding consideration. In low-humidity environments or in enclosed spaces, it may be possible to retard the oxidation of the steel and hold the surface finish for more than six h using industrial dehumidification equipment. The Design-Build Contractor shall validate the temperature-humidity envelope for the work enclosure by spraying and analyzing bend coupons, by tensile-bond test, or both. For small and movable parts, if more than 15 minutes is expected to elapse between completion of surface preparation and the start of thermal spraying, or if the part is moved to another location, the prepared surface shall be protected from moisture, contamination, and finger/hand marks. Wrapping with clean print-free paper is normally adequate.

A flash coat of at least 2 mils of metallized coating shall be applied within 6 h of blasting or before flash rusting occurs, whichever is sooner. This single layer shall cover the peaks of the surface profile. This thin coating is intended to temporarily preserve the surface preparation. Before applying additional sprayed metal to the specified thickness, the first layer of coating shall be visually inspected to verify that the coating surface has not become contaminated. Any contamination between coats shall be removed in accordance with the Design-Build Contractor's written procedures before any additional material is applied. The coating shall be sprayed to achieve the specified thickness as soon as possible and within 36 h after initial coating.

The flash coat, holding period, and final metallized coating will be acceptable provided the final coating meets the quality requirements of the Application of Metallized Coating section below.

Application of Metallized Coating

Steel Surface

The steel surface to be thermal sprayed shall be inspected and meet the requirements of the Waste Residue Sampling section prior to applying metallic coating.

Environmental Conditions

Metallizing shall not be performed when the steel surface temperature is

32°F or lower. The temperatures shall be monitored using a recording thermometer. The Design-Build Contractor may use a heated enclosure in accordance with SSPC-TR3/NACE -6A192 that uniformly and continuously heats the enclosure to maintain the minimum required steel surface temperature during all blasting, metallizing, sealing, and topcoating operations.

If the Design-Build Contractor elects to use industrial dehumidification equipment within an enclosure, the steel surface temperature shall be maintained at a temperature above 32°F and at least 15°F above the dew point and the maximum relative humidity within the enclosure shall not exceed 54%.

Metallizing shall not be applied to a surface which shows any sign of surface moisture. Metallizing or abrasive blasting shall not be performed when the steel temperature is less than 5°F above the dew point; if the steel surface is wet, damp, frosted, or ice-coated; during periods of rain, fog, or mist unless the above moisture criteria is met; or if the relative humidity is 85% or greater.

Surfaces to be metallized shall be dust free.

Spray Pattern

The metallized coating shall be applied in multiple, overlapping passes to ensure uniform coverage. Each layer or pass shall be applied at right angles to the previous layer. Spraying shall be performed in a block pattern, typically 2 ft square. The metallized coating shall not exceed 4 mils in thickness in a single layer.

Metallized Coating Thickness

The applied metallized coating thickness shall be between 10 mils and 12 mils.

Metallized Coating Properties

The coating shall be firmly adherent, free of spots, lumps, blisters, chips, or loosely adhering particles. The metallized coating shall be inspected and accepted according to all the requirements of this section before application of the sealer.

Application of Sealers and Topcoats

The sealer and topcoat shall be applied according to manufacturer's recommendations.

Sealer

Sealer shall be applied at a rate to obtain a nominal dry film thickness of 2.0 mils and shall be applied the same day as the metallized coating. If the sealer cannot be applied within 8 h of the completion of metallizing, the metallized coating shall be visually inspected to verify that the metallized coating has not been contaminated. The metallized coating shall be inspected to ensure that it is dust free by using the clear cellophane tape test method ISO 8502-3 before applying the sealer. The sealed metallized coating shall be inspected and accepted prior to application of the topcoat.

Topcoat

The topcoat shall be applied over the sealed metallized coating according to the manufacturer's recommended procedures for use of the product with a thermal sprayed coating system and SSPC-PA1. The topcoat shall be applied within one to five calendar days of application of the sealer, but in no instance shall the topcoat be applied before the sealer has cured according to temperature and moisture considerations as furnished by the sealer manufacturer. The topcoat

shall be applied at a rate to obtain a nominal dry film thickness of 4.0 mils or the dry film thickness as recommended by the manufacturer for use with a thermal sprayed coating system.

Stencil Information

After the topcoat has been approved, project identification information shall be painted with a stencil in 2 in. black capital letters onto the outside of both fascia beams or girders, at the right end of the beam or girder and near the end bent, which reads as follows:

Bridge Number

Contract Number

METALLIZED-Zn _____
Date

Final Acceptance

IFA will base final acceptance upon the results of the adhesion tests and dry film thickness measurements obtained during the Work. The Design-Build Contractor shall supply a report certified in writing by the QCI that documents and contains the raw field data demonstrating compliance to all aspects of this specification. IFA will review this report, progressive project documentation, and progressive field measurements to determine the final acceptability of the metallized coating.

Basis of Item

Pollution control, surface preparation, metallizing, seal coating, topcoating, and the structural steel paint system shall not be quantified.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|-------------------------|--------------------|
| 619-03778 | Metallizing | LS |

The following shall be considered incidental to this item:

Maintaining traffic including furnishing, placing, moving, removal, remobilization/demobilizing of all temporary traffic control devices, and maintenance of all temporary traffic control devices.

Pollution control including devices and equipment required when cleaning and coating the structure, labor and material necessary to provide this item, including class 2A or better method A level 0 emission containment and disposal of spent materials.

Sampling, testing, grinding, repair of test areas, performing corrective actions.

QCI, tests, testing equipment, the JRS.

Removing the existing coating and obtaining the specified surface profile.

Using the structural steel paint system in areas deemed inaccessible to the metal spraying equipment.

SOUND BARRIER FIRE HYDRANT ACCESS DOOR FEATURES

Description

This Work shall consist of designing, furnishing and installing doors, handles, signs, and raised pavement markers (RPM), in accordance with 105.03.

Materials

The door shall have no locks. The handle shall be of the lever type. Signs and RPMs shall meet the requirements of 919.01 and 921.02, respectively. The door shall have a plunging type deadbolt that is controlled by the highway side lever handle with no key or locking mechanism. An exterior grade closing mechanism shall be included to cause the door to close automatically.

Construction Requirements

One handle shall be placed on the highway side of the fire hydrant access door to make it accessible from the highway side only. The right-of-way side shall not have a handle. The gap between the door's threshold and the bottom of the door shall have enough clearance to accommodate vegetation growth, snow and ice, or any other potential obstructions.

There shall be three signs for each door, mounted on the highway side. The first sign above the door frame shall state, "Fire Hydrant Access". The legend of the second sign, mounted just below the first sign, shall be the street name or highway number of the roadway the hydrant is accessed from. The third sign shall be positioned on the door itself and shall indicate the perpendicular distance in feet between the nearest point on the highway edge line to the fire hydrant.

A blue RPM shall be installed in the shoulder edge line at the nearest point perpendicular to the door.

Basis of Item

Access doors shall not be quantified. Furnishing access doors and all materials, equipment, and labor necessary to install access doors shall be considered incidental to the quantity of pay items in accordance with Recurring Special Provision 620-R-483.

PILE SLEEVES FOR MECHANICALLY STABILIZED EARTH RETAINING WALLS

Description

This Work shall consist of installing 24 in. diameter, Type 3 Pipe as pile sleeves through mechanically stabilized earth retaining wall fill in accordance with 105.03 and at the locations shown on the Design Documents.

Materials

Materials shall be in accordance with 701.02 and the following:

- Ribbed Polyethylene Pipe.....907.20
- Smooth Wall Polyethylene Pipe.....907.21
- Profile Wall Polyvinyl Chloride Pipe.....907.22
- Smooth Wall Polyvinyl Chloride Pipe.....907.23
- Corrugated Aluminum Alloy Pipe.....908.04

The minimum thickness of 2 5/8 in. by 1/2 in. corrugated aluminum alloy pipe, lock seam, shall be 1/16 in. The minimum thickness of 2 5/8 in. by 1/2 in. corrugated aluminum alloy pipe, riveted, shall be 1/16 in. The dimension ratio for smooth wall polyethylene pipe shall be 26.

Bentonite Grout.....913.06

The piles shall be backfilled with uncrushed gravel, class D or higher, in accordance with 904 and the following gradation requirements.

| <u>Sieve Size</u> | <u>% Passing</u> |
|-------------------|------------------|
| 1/2 in. | 100 |
| No. 50 | 0-5 |
| No. 100 | 0-2 |

#11 or #12 gravel or pea gravel from an INDOT approved CAPP source will meet these gradation requirements.

Construction

The piles shall be driven and sleeved in accordance with the applicable portions of 701 prior to the construction of the mechanically stabilized earth retaining walls.

The pile sleeves shall extend from the base of the excavation for the mechanically stabilized earth retaining walls to 2 in. below the bottom of the bridge end bents. The pile sleeves shall be placed within 1 in. of the plan location and shall be sufficiently braced so that the sleeves shall remain within 2 in. of the plan location after placing the embankment material. The area between the pile and the pile sleeves shall be backfilled with uncrushed gravel. The top of the pile sleeves shall be sealed with bentonite grout to prevent concrete and structural backfill from entering the annular space between the pile and the pile sleeve. The bottom of the bridge bent shall be isolated from the top of the pile sleeve by expanded polystyrene.

Basis of Item

Pile sleeves shall be quantified per each.

The items list shall include the following:

| Item No. | Item Description | Pay Unit Symbol |
|-----------------|-------------------------|------------------------|
| 701-08253 | Pile Sleeve | EACH |

The following shall be considered incidental to this item:

Maintaining pile sleeve placement during construction of mechanically stabilized earth retaining walls, backfilling pile sleeves with uncrushed gravel, sealing and isolating the top of the pile sleeves and all miscellaneous materials, equipment, and other necessary incidentals.

FILE DRIVING VIBRATION MONITORING

Description

This Work shall consist of seismograph monitoring during pile driving of all piles at all substructures in accordance with 105.03, the Design Documents, and as described herein.

Definitions

Geophone or vibration transducer: A sensor used to monitor ground vibrations, particle velocity components.

Peak particle velocity: The maximum of any one of the three mutually perpendicular ground motion velocity components of a vibration measured in directions vertical, radial, and perpendicular to the vibration source in inches per second, in./sec.

Seismograph: An instrument used to record the magnitude and frequency of ground vibrations sensed by a geophone.

Quality Assurance

The Design-Build Contractor shall engage the service of a qualified, independent Registered Professional Engineer in the State of Indiana, acceptable to IFA to conduct the vibration monitoring.

Prior to starting pile driving, the Design-Build Contractor, IFA, and the Registered Professional Engineer shall jointly conduct a pre-construction survey of the existing site.

Monitoring shall be performed by personnel trained in the use of a seismograph, records shall be analyzed and results reported by personnel familiar with analyzing and reporting the frequency content of a seismograph record.

Prior to pile driving, the data collector shall obtain baseline readings of ambient vibrations. The vibration during the pile driving shall be measured with the seismograph sensor placed at a location closest to the piles being driven. The vibration during pile driving shall be limited to a peak particle velocity of not more than 0.5 in./sec. Vibration shall be monitored during driving of all piles at all substructures and throughout all pile driving if peak particle velocity measurements exceed 0.3 in./sec.

The Design-Build Contractor shall be responsible for all damages resulting from the pile driving operations and shall take whatever measures are necessary to maintain peak particle velocity within the specified limits.

Basis of Item

Vibration monitoring shall be quantified as a lump sum.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|--|--------------------|
| 701-05787 | Instrumentation, Integrity Testing and Data Collection, Vibration Monitoring | LS |

ALTERNATE CLASS C CONCRETE

SECTION 702, BEGIN LINE 11, DELETE AND INSERT AS FOLLOWS:

Concrete in superstructure, integral *and semi-integral* bents-diaphragms, approach slabs, and railings shall be *alternate* class C. Concrete in bent caps, unless poured integrally with the superstructure; pier caps; abutment caps; pier stems; abutment walls; mudwalls; columns; crashwalls; collision walls; and wingwalls, unless poured with integral end bents, shall be class A. Concrete in footings shall be class B.

SECTION 702, LINE 37, INSERT AS FOLLOWS:

Silica Fume 901.04

SECTION 709, BEGIN LINE 80, DELETE AND INSERT AS FOLLOWS:

In lieu of concrete surface sealing for concrete barrier wall, bridge decks, reinforced concrete bridge approaches, ~~pier and bent caps~~, bridge railing, and bridge railing transitions, an alternate concrete mix design ~~may~~ shall be used. *In lieu of concrete surface sealing for pier and bent caps an alternate concrete mix design may be used.*

The concrete mix design shall be as specified, except either 3% silica fume by weight of cementitious material shall be added to the mix design or 30% ground granulated blast furnace slag substitution based on the required cement content shall be incorporated into the mix. The substitution of ground granulated blast furnace slag shall be in accordance with 702.05. A water-reducing admixture or a water-reducing retarding admixture shall be used in the mix design, and the amount of water added shall be adjusted accordingly. The use of these admixtures shall be in accordance with 702.05.

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~~When one of these alternate concrete mix designs are used in lieu of a concrete surface sealer, a A finish in accordance with 702.21 will~~ shall be required.

STRUCTURAL MASS POUR CONCRETE

Description

This Work shall consist of furnishing and placing a concrete structural element, of large cross section, that is free of cracks resulting from thermal gradients created by the heat of hydration during the curing process in accordance with 105.03 and as described herein.

This shall be accomplished through appropriate mix design and management of the concrete temperature and temperature differential. Structural mass pour concrete is defined as any Class A or Class C concrete placements with a least dimension of 4 ft or greater and as shown on the Design Documents. This specification shall not apply to concrete placed in drilled shafts.

Materials

The mass pour concrete structural element shall utilize Class A or Class C concrete in accordance with 702.02 and 702.03, except as follows:

1. The coarse aggregate shall be size No. 5 or No. 8. An AASHTO M 43 size coarse aggregate meeting the gradation requirements of #467, #4 or #357 may be used if approved by IFA. In addition, the minimum clearance between reinforcing bars shall be at least 1.5 times the nominal maximum size of the coarse aggregate.
2. The maximum slag cement substitution is 60% based on the required cement content. Increased slag cement percentage may be considered but is subject to IFA review and approval.
3. Cooling of materials prior to addition to the mixer will be allowed to reduce the temperature of the concrete in its plastic state. The normal practices as identified in ACI 207.4R - 05 are considered acceptable for pre-cooling materials prior to and at the time of concrete batching.
4. Other acceptable methods that are developed by the Design-Build Contractor and approved by IFA in writing may be used.

Thermal Control

The maximum concrete temperature at time of placement shall not exceed 70°F and shall not be less than 40°F. The maximum concrete temperature during the period of heat dissipation shall not exceed 150°F. The temperature differential between the interior of the section and the outside surface of the section shall not exceed the limits specified in the following table:

| Hours After Placement | Maximum Temperature Differential |
|-----------------------|----------------------------------|
| Hours | °F |
| 0-24 | 20 |
| 24-48 | 30 |
| 48-72 | 40 |
| >72 | 50 |

Thermal control of each placement shall be maintained until the temperature of the interior is within 50°F of the average outside air temperature. The average outside air temperature shall be determined by

averaging the daily high and low temperature of the preceding seven calendar days.

Thermal Control Plan

A thermal control plan shall be written to describe the procedures used during the period of heat dissipation following concrete placement. The thermal control plan shall describe the procedures used to ensure that the maximum temperature and temperature differential between the interior of the section and the outside surface of the section do not exceed the restrictions specified. The thermal control plan shall be submitted to IFA at least 30 days before the first intended structural mass pour concrete placement. Compliance with this specification may result in long cooling times. Therefore, consideration shall be given to options that control heat of hydration which are compatible with the desired construction schedule and erection procedures.

Mass pour concrete shall not be placed until the thermal control plan has been approved by IFA, and the equipment and materials necessary to facilitate the plan are on site and ready for use.

For mass pour concrete placements, the thermal control plan shall be developed by a Registered Professional Engineer in the State of Indiana who is competent in the modeling, design, and temperature control of mass pour concrete in structural elements. The Registered Professional Engineer shall be known as the Thermal Control Engineer, TCE. The TCE shall be knowledgeable of Section 207.02R-95 of the ACI Manual of Concrete Practice entitled "Effect of Restraint, Volume Change and Reinforcement on Cracking of Mass Concrete". The TCE shall follow the guidelines outlined in Section 207.4R-05 of the ACI Manual of Concrete Practice entitled "Cooling and Insulating Systems for Mass Concrete" to formulate, implement, administer, and monitor a thermal control plan.

The TCE shall have administered at least three mass pour concrete projects of similar dimension and thermal control requirements to those shown on the Design Documents and the projects shall have been completed within the past three years. The TCE shall be responsible for making adjustments as necessary to ensure compliance with these specifications.

The thermal control plan shall include, but is not limited to, the following:

1. The mix design for the mass pour concrete.
2. The adiabatic heat generation for the mix design being used. This shall be determined by laboratory testing in accordance with ASTM C186.
3. Identification of any modeling software used to predict maximum temperature and temperature differential resulting from the heat of hydration generated in mass pour concrete.
4. Methods to monitor and control the maximum temperature and the temperature differential temperature within the concrete to prevent thermal cracking. Methods of curing and a remedial action plan shall be defined.
5. List at least three mass pour concrete projects of similar dimension and thermal control requirements to those shown on the Design Documents. The projects shall have been administered by the TCE and shall have been completed within the past three years. The list of

projects shall include the names and phone numbers of the owner's representative who can verify the TCE's participation on those projects.

6. Qualifications of all technicians employed to inspect or monitor mass pour concrete placements.
7. If necessary, design of a post-cooling system consisting of non-corrosive piping to be embedded in the structural mass. Details of the grouting operations shall be provided. The grout shall be a pre-packaged material and shall be identified on the Design Documents.
8. Provide information on the temperature sensing and recording equipment to be used and the details of the installation and location of the temperature probes for each planned mass pour concrete placement.
9. Details of mass pour concrete placement to ensure prevention of cold joints during placement.

Temperature Sensing and Recording

For each placement of structural mass pour concrete, two temperature sensors shall be installed at each of the following five locations, for a total of 10 temperature sensors. Additional sensors may be installed at other locations within the concrete placement, as required and detailed in the thermal control plan.

- Center of the placement.
- Midpoint of the side which is the shortest distance from the center, having 2 to 3 in. of cover.
- Midpoint of the top surface, having 2 to 3 in. of cover.
- Corner of the placement which is furthest distance from the center, having 2 to 3 in. of cover.
- Air temperature.

The purpose of the two sensors at each location is to provide a primary sensor and secondary back up sensor. A back-up readout device for the sensors shall also be provided. The back-up system is intended to be used to complete the monitoring of a placement should the primary system fail.

Temperatures shall be electronically recorded automatically by an approved recorder furnished by the Design-Build Contractor. The equipment shall be capable of continuously recording at least one reading every 30 minutes for the duration of the mass concrete temperature monitoring period. The sensors and recorder shall be accurate to within $\pm 2^{\circ}\text{F}$ in the temperature range of the 32°F to 212°F .

Production

The TCE, or qualified technician employed by the TCE, shall personally inspect and approve the installation of monitoring devices and verify that the process for recording temperature data is effective for the first placement of each size and type of concrete component. Recording of temperature data shall begin when the concrete placement is complete and shall continue past the maximum temperature differential, not maximum temperature, and a decreasing temperature differential is confirmed for compliance with these

specifications. For placements other than the first, a qualified technician may inspect and monitor the temperature sensing and recording system for the purpose of:

1. Reviewing temperature data.
2. Being in contact with the TCE during mass pour concrete placement should adjustments be made as a result of the temperature differential being exceeded.
3. Implement adjustments to temperature control measure for mass pour concrete as directed by the TCE.
4. If conditions change, such as a drop in the ambient temperature or a change in insulation resulting in an increase in the temperature differential, the recording of the temperature data shall be resumed. A copy of all recorded temperature data shall be furnished to IFA as they are determined.

The TCE or qualified technician shall report temperature data at intervals not exceeding four hours. The TCE shall furnish IFA a final report within three days of completing monitoring of each structural element. The report shall include all recorded temperature data and pertinent information and actions taken to implement the thermal control plan.

If the maximum concrete temperature or differential temperature within the structural mass pour concrete placement exceeds the specified limits, immediate corrective action as directed by the Design-Build Contractor or the TCE shall be taken. Future placement of structural mass pour concrete shall be suspended and a revised thermal control plan shall be submitted to IFA for approval. Further placement of mass pour concrete shall not occur without written approval from IFA.

Acceptance

Application of loads and acceptance of mass pour concrete shall be in accordance with 702.24, except that sulfate resistant concrete will be tested for compliance based on flexural strength of beam specimens. ITM 402 may be used as an alternate method to determine flexural strength.

If the maximum temperature of the mass pour concrete after placement exceeds 150°F, but is less than 160°F, the concrete will be accepted if no cracking or other unacceptable defects are identified. If cracking or unacceptable defects are identified, the mass pour concrete will be adjudicated as a failed material in accordance with 105.03. If the maximum concrete temperature equals or exceeds 160°F, the mass pour concrete will be adjudicated as a failed material in accordance with 105.03.

If a temperature differential between the internal center of concrete placement and the concrete 2 to 3 in. from the exposed surface exceeds the specified amount, the mass pour concrete will be accepted if no cracking or other unacceptable defects are identified. If cracking or unacceptable defects are identified, the mass pour concrete will be adjudicated as a failed material in accordance with 105.03.

The mass pour concrete shall be inspected for cracks after the temperature monitoring is discontinued. The Design-Build Contractor shall provide access for inspection. The Design-Build Contractor shall be responsible for repair of cracks identified. A clear concrete sealer shall be applied in accordance with 709 to a crack that is less than 0.007 in. in width. A crack that is 0.007

in. or greater in width shall be repaired by epoxy injection in accordance with 727.

Basis of Item

Class A and Class C structural mass pour concrete shall be quantified by the cubic yard in accordance with the neat lines and quantities shown on the Design Documents, or as directed by IFA. No deductions shall be made for the volume of embedded reinforcement, encased piles, temperature sensors or mechanical cooling ducts.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|---|--------------------|
| 702-51005 | Concrete, A, Substructure, Modified | CYS |
| 702-92857 | Concrete, C, Substructure, Modified | CYS |

The following shall be considered incidental to this item:

Material, forms, falsework, falsework piling, placement, curing, finishing and necessary incidentals.

Thermal control plan; temperature sensing and recording of structural mass pour concrete; monitoring and implementation of thermal control; installation, operation and grouting of post-cooling system; and any incidentals.

FORMLINER FOR PIERS AND MSE WALLS

Description

This Work shall consist of constructing simulated natural split-face block masonry textured surfaces on all areas so designated on the Design Documents for barrier, piers, and MSE walls, in accordance with 105.03 and 702.

Formed Textured Surfaces

Where formliner is designated, concrete surfaces shall be formed using a form lining system made of high-strength urethane elastomer materials capable of withstanding anticipated concrete pour pressures without leakage or causing physical defects. Formliners shall attach easily to forms and be removable without causing concrete surface damage. Provide drafts to all patterns to ensure clean release of formliners. The formliners shall be designed to form surfaces conforming to the design intent including the shape, lines and dimensions described herein and on the Design Documents.

Formliners shall produce a highly realistic finish. Textured surfaces shall exhibit rough and natural finishes. Simulated stones surfaces should exhibit the rough, natural, split finish of real stone laid in place and have a maximum surface relief of no more than 3/4 in. and an average relief of 3/8 in. Simulated textured surfaces having a smooth, slick or shiny surface will be rejected. Recesses and texture shall be formed with crisp, sharp edges and a natural relief to the shape and dimensions described herein and shown on the approved Working Drawings.

Formliner for the "I-69 Smooth Geometric" MSE wall panels shall be as follows based on an assumed panel size, exposed panel dimensions, of 10 ft long by 5 ft high:

- Stacked, smooth stone block pattern
- Thirteen rows high
- See Attachment 6-1 (Conceptual Aesthetics and Landscape Plans) for smooth stone block sizes.
- See Attachment 6-1 (Conceptual Aesthetics and Landscape Plans) for stone block relief above the nominal panel thickness. Where adjacent surfaces have the same relief, insert a 1/4 in. by 1/4 in. reveal to continue the horizontal pattern.
- Panels shall be sized to allow for full size blocks without simulated grout lines around the perimeter of the panel.

Formliner for the "I-69 Concise Hex" MSE wall corner pilaster shall be as follows:

- One vertical centered recess in each face.
- Recess shall be a v-shaped cut 8 in. wide by 3 in. deep.

Formliner for the "I-69 Concise Hex" pier shall be as follows:

- One vertical recess in the front and back face of the column.
- Recess shall be a v-shaped cut 1 ft-2 in. wide by 4 in. deep.
- V-shaped recess shall start at the bottom of the pier cap and proceed down to the top of crashwall or footing.

Formliner for the "I-465 Split-Face Geometric" MSE wall panels shall be as follows based on an assumed panel size, exposed panel dimensions, of 10 ft long by 5 ft high:

- Stacked split-face stone pattern

- See Attachment 6-1 (Conceptual Aesthetics and Landscape Plans) for split-face stone block sizes.
- See Attachment 6-1 (Conceptual Aesthetics and Landscape Plans) for split-face stone block relief above the nominal panel thickness.
- Panels shall be sized to allow for full size blocks without simulated grout lines around the perimeter of the panel.

Formliner for the "I-465" MSE wall corner pilaster shall be as follows:

- Stacked, smooth stone block pattern
- Simulated grout lines shall be 1 in. wide by 1 in. deep between blocks.
- Smooth stone blocks shall be 4 ft wide by 1 ft-6 in. high. Full size blocks shall start at the bottom of the coping and proceed as full-sized blocks to 1 ft below finished grade.

Formliner for the "I-465" piers shall be as follows:

- Stacked, smooth stone block pattern
- Simulated grout lines shall be 1 in. wide by 1 in. deep between blocks.
- Smooth stone blocks shall be 1 ft 5 in. high. Full size blocks shall start at the bottom of the pier cap and proceed down as full-sized blocks with the bottom most block just above the crashwall or footing reduced in height as necessary to fit.
- Smooth stone blocks shall wrap the full perimeter of the pier column
- Formliner shall be used on all surfaces of the pier columns.

If snap ties are to be used, the ties shall be made of non-corrosive materials when the portion permanently embedded in the concrete is less than 1 1/2 in. from the finished surface.

Form release agents shall be fully compatible with the formliner material and the modified surface seal finish to be applied to the textured surfaces.

Submittals

Within 60 calendar days of execution and approval of the commencement of construction, the Design-Build Contractor shall submit the following to IFA for approval:

1. Product data including the manufacturer's technical information and use instructions for formliner placement and release.
2. Actual samples of formliners to be used.
3. Qualification data for firms and the person specified below under Quality Assurance to demonstrate their capabilities and experience. Design-Build Contractor shall include a list of completed projects with project names, addresses, names of architects, engineers and owners, plus any other pertinent information.
4. Working Drawings indicating formliner layout and termination details. Design-Build Contractor shall indicate backup, rustication, reveal, and chamfer strip locations. Include jointing, form tie location, pattern placement, pattern match details, and end, edge and other special conditions. Design-Build

Contractor shall indicate tolerances and procedure of installation and separation.

After IFA approves the Working Drawings and prior to commencement of production or construction of the piers and MSE wall panels, the Design-Build Contractor shall submit the following to IFA for approval:

1. Test Panel Mock-ups and Concrete Test Panels as specified below under Quality Assurance.

Quality Assurance

1. Manufacturer's Qualifications: The formliner manufacturer shall have five years minimum experience making liners used to create formed concrete surfaces matching natural stone shapes and textures.
2. Installer Qualifications: The formliner installer shall have had a minimum of five consecutive years of experience in textured formed concrete construction.
3. Test Panel Mock-ups and Test Panels, Split-Face block Patterns Only: Design-Build Contractor shall construct test panel mock-ups of textured and formed surfaces to be used for the pier columns and MSE wall panels for quality control comparison of surface texture and pattern characteristics between the approved sample mock-ups and the actual Work as it is installed. The test panel mock-ups shall be constructed using urethane foam or other suitable lightweight material to produce a surface that simulates that produced when casting concrete. The test panel mock-ups shall be a minimum of 3 in. thick, 5 ft wide, and 5 ft high. The test panel mock-ups shall be provided near the Project Site or field office and IFA shall be notified at least one week in advance.

Upon approval of the test panel mock-up, three concrete test panels shall also be constructed and shall be provided near the Project Site or field office. At a minimum, each concrete test panel for the pier column shall be 2.5 ft thick by 5 ft tall by 10 ft long providing a half-section of the column including the recess on the sides. At a minimum, each concrete test panel for the MSE walls shall be 6 in. thick by 5 ft tall by 10 ft long. Materials used in constructing the concrete test panels shall comply with the applicable requirements of 702 for formwork and concrete. Concrete mix for the concrete test panels shall be Class A. The formliner used for the concrete test panels shall produce the same pattern that is intended for use on the structures. Surface seal shall also be applied to the test panels. Additional concrete test panels will be required if results of the initial test panel do not meet the requirements of these special provisions. IFA shall be notified at least one week in advance.

Following completion of the structure, the Design-Build Contractor shall remove and dispose of the test panels in accordance with 202.

Test panels shall be considered incidental to the Work.

Construction Requirements

Design-Build Contractor shall match pattern features at formliner joints to make the formed concrete surface appear uniform and continuous without grout leakage at the joints. When concrete vertical and horizontal construction joints

are required, the Design-Build Contractor shall place formliner joints in the valley of the grooves, or as approved by IFA. Following removal of forms, the Design-Build Contractor shall finish improperly formed joints to achieve a smooth and uniform cast concrete surface. No visible vertical and horizontal seams or conspicuous form marks created by butt-joining formliners will be allowed. Where it is not possible to locate a vertical or horizontal groove at a construction joint, the concrete surface shall be finished to reduce visibility of the construction joints.

Formwork shall be stripped in accordance with the formliner manufacturer's recommendations to avoid concrete surface deterioration or weakness planes in the substrate. Form tie holes shall be finished in accordance with 702 using approved patching materials.

Surfaces of formliners to be re-used shall be cleaned and repaired. Split, frayed, delaminated or otherwise damaged formliner material will not be acceptable for exposed surfaces. Formliners shall be cleaned and free of concrete buildup prior to each pour. Design-Build Contractor shall not use "patched" forms for exposed concrete surfaces unless approved by IFA.

Basis of Item

Formliner for piers and MSE wall panels shall not be quantified. Formliner for piers and MSE wall panels shall be considered incidental and shall be included in the quantity of Concrete, A, Substructure, and Face Panels, Concrete in accordance with 702.28 and 731.13.

EMBEDDED GALVANIC ANODES

Description

This Work shall consist of furnishing and placing discrete embedded galvanic anodes in accordance with 105.03.

Materials

The galvanic anodes shall be supplied by one of the following:

BASF Construction Chemicals, LLC
889 Valley Park Drive
Shakopee, MN 55379
(800) 443-9517

The Euclid Chemical Company
19218 Redwood Road
Cleveland, OH 44110
(800) 321-7628

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
(800) 933-7452

Vector Corrosion Technologies, Inc.
8413 Laurel Fair Circle, Ste 200A
Tampa, FL 33610
(813) 830-7566

The galvanic anodes shall conform to the requirements of ASTM B418, Type II and shall contain no less than 100 grams of zinc per anode. A Type C Certification in accordance with 916, including the vendor name, product names, and a statement certifying the compatibility of the galvanic anode and the patching material, shall be furnished for the galvanic anodes.

Construction Requirements

The galvanic anode manufacturer shall prepare and submit Working Drawings in accordance with 105.02. The Working Drawing shall include calculations for the manufacturer's recommended spacing, calculations showing the provided zinc content meets or exceeds the minimum required zinc content, manufacturer's installation instructions and details, and certification by the manufacturer that the proposed patching materials are compatible with the galvanic anodes.

A qualified representative of the galvanic anode manufacturer shall be present at the beginning of the Work to ensure adequate workmanship and inspection of the anode installation.

Galvanic anodes shall be kept dry and stored in their original unopened box at temperatures less than 100 °F.

Discrete galvanic anodes shall be installed within partial and full depth cavities, new portions of bridge deck, and along the perimeter of the cavity interface with existing concrete as shown on the Design Documents. The spacing of the anodes shall be as per the manufacturer's recommendations, but shall not exceed 28 in. The minimum required zinc content in each direction shall be calculated as follows:

$$\text{Zinc} = 1.7 \times \gamma_{\text{Steel}} + 4.0$$

where:

Zinc = minimum required zinc content, grams/inch

γ_{Steel} = steel density ratio defined as the ratio of the total surface area of all of the reinforcing bars within or below the patch to the surface area of the patch that could be exposed to chlorides. In locations where two or more layers of reinforcing bars have more than 12 in. of space between them, and the lower layer of reinforcing is located below the depth of the patch, only the reinforcing bar layer closest to the surface is required to be included in the calculation. The surface area of each bar = $3.14 \times$ bar diameter \times length of bar within the patch. At locations where the existing concrete is being widened, the steel density ratio shall be calculated based on a one-foot tributary width of the existing concrete section.

The anodes shall be placed at the required spacing in each direction for partial depth patches and at the required spacing around the perimeter of full depth patches. At locations where existing concrete structures are being widened, the anodes shall be placed at the required spacing along the interface of the existing and new concrete. Anodes shall be attached to the layer of reinforcing steel closest to the surface that could be exposed to chlorides.

Existing concrete shall be removed in accordance with the applicable sections of 202, 710, and 722. Any reinforcement that has lost 50% or more of its original cross-sectional area or any reinforcement that has been damaged during concrete removal shall be removed and replaced in accordance with the applicable sections of 202, 710, and 722. After all loose or unsound concrete has been removed in the areas to be repaired and as shown on the Design Documents and as directed by IFA, the continuity of the existing reinforcing bars within the repair area shall be tested. The DC resistivity between all reinforcing bars, as measured with a multi-meter, shall be less than 1.0 ohms. Continuity between bars shall be restored at locations where the resistivity is greater than 1.0 ohms by use of uncoated tie wires.

The discrete galvanic anodes shall be positioned no further than 4 in. and no less than 1 in. from the edge of the patch. The surface of the reinforcing bars in the areas to be connected to the anodes shall be prepared by removing all concrete and cleaning to a near-white surface condition. The anodes shall be firmly and securely attached to the reinforcing bars by tightly wrapping the wire ties around the exposed uncoated and cleaned reinforcing bars at least one full turn in opposite directions, and in accordance with the manufacturer's recommendations. Attachment shall be made immediately after reinforcing bar surface preparation, and the anodes should be positioned in the plane of the reinforcing with a minimum cover of 1 in. to the surface of the patch. Anodes shall have a minimum of 1 in. clearance to the bottom of the patch and shall allow the patching material to completely encase the anode. Where sufficient space is available, the anode may be positioned below the reinforcing bars. The DC resistivity between the anodes and the reinforcing bars, as measured with a multi-meter, shall be less than 1.0 ohms.

The anodes shall be pre-wet to a saturated surface dry condition immediately prior to installing the patching material in order to minimize moisture loss of the anode mortar and to improve adhesion.

Basis of Item

Embedded galvanic anodes shall be quantified per each, complete in place.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|-------------------------------|--------------------|
| 703-08247 | Embedded Galvanic Anode | EACH |

The cost material, labor, equipment, incidental work to establish continuity of reinforcement, shall be included in the cost of embedded galvanic anode.

The cost of removing portions of existing concrete structures shall be included in present structure remove portion pay item.

The cost of material, labor, equipment, and incidental work for patching existing concrete piers, end bents, abutments, wingwalls, retaining walls, concrete structure surfaces other than bridge decks, and patching concrete drainage structures shall be included in patching concrete structures pay item.

The cost of material, labor, equipment, and incidental work for patching existing bridge decks shall be included in the bride deck overlay or bridge deck patching pay item.

PRECAST PRESTRESSED HIGH STRENGTH CONCRETE

Description

This Work shall consist of fabricating, furnishing, and installing precast prestressed high strength concrete structural members having a design 28 day concrete compressive strength, f'c, as specified herein, in accordance with 105.03, 707, and the Design Documents.

Materials

Materials shall be in accordance with 702.03 and the following:

| | |
|---|----------------|
| Admixtures and Admixture Systems | 912.03 |
| Coarse Aggregates, Class A or Higher, Size No. 91 | 904 |
| Concrete Curing Materials | 912 |
| Concrete Sealers | 909.09, 909.10 |
| Elastomeric Bearings | 915.04 |
| Fine Aggregates, Size No. 23 | 904 |
| Portland Cement, Types I, II, or III | 901.01 |
| Reinforcing Bars | 910.01 |
| Silica Fume | 901.04 |
| Uncoated 7 Wire Strand | 910.01(b)7 |
| Water | 913.01 |

Prestressing strands used in high strength concrete shall be uncoated 7 wire, low-relaxation, Grade 270 strands.

Structural steel for steel intermediate diaphragms shall be in accordance with 910.02(a) and shall be galvanized in accordance with ASTM A123 after cutting, bending, and welding. Bolts for steel intermediate diaphragms shall be 7/8 in. and in accordance with 910.02(f), except they shall be Type 1. All bolts, nuts, washers, and similar threaded fasteners shall be galvanized in accordance with ASTM A123 or may be mechanically zinc coated in accordance with ASTM B695, Class 50.

All high strength concrete structural members shall be manufactured in an INDOT approved plant in accordance with ITM 814.

High Strength Concrete Mix Design

The high strength concrete mix design shall be in accordance with the mix criteria stated herein. The mix design shall be submitted a minimum of 14 days prior to the trial batch and shall include the following:

- (a) A list of all ingredients
- (b) The source of all materials
- (c) The gradation of the aggregates
- (d) The absorption of the aggregates
- (e) The SSD bulk specific gravity of the aggregates
- (f) The specific gravity of silica fume
- (g) The batch weights
- (h) The names of all admixtures
- (i) The range of admixture dosage rates as recommended by the manufacturer

Mix Design Criteria

The mix design shall be air entrained and shall produce concrete having the following properties:

| | |
|------------------------------------|---------------|
| Concrete Properties Requirements: | |
| Maximum cementitious content | 800 lbs/cu yd |

Silica fume content5.0%-6.5% of cementitious by weight
Air content6.5%±1.5%
Maximum water cementitious ratio0.340
Maximum Concrete Temperature78°F
Minimum release strength8,000 psi
Minimum 28 day strength10,000 psi
Slump4 in. to 8 in.
Relative Yield1.000 ± 0.020

Air entraining cement will not be permitted.

Chemical admixture types F or G shall be used in combination with an air entraining admixture. High range water reducing, HRWR, and high range water reducing retarding, HRWRR, admixture systems may be used.

Chemical admixture types B, C, and E will be allowed only with IFA's written permission.

The amount of water present in the chemical admixtures shall be included when determining the water cementitious ratio.

Concrete temperature requirement is after delivery to the casting site, but prior to placement in the structural members.

Trial Batch

A trial batch shall be produced at least four weeks prior to beam fabrication. The concrete will be tested to verify that the mix design meets the concrete mix criteria. A minimum of 3 cu yds of concrete shall be batched at the plant facility to accurately represent the mix design and provide an amount of concrete to perform all tests from the same batch. The concrete shall be batched and mixed in accordance with the applicable requirements of 702.06 and 702.07. To ensure adequate dispersion of the silica fume, the batching sequence shall be reviewed for concurrence prior to batching of the concrete.

The Design-Build Contractor will test the trial batch and submit results to IFA. Trial batch concrete shall not be used for more than one test, except the concrete used for the unit weight may be used to conduct the air content test.

Four 6 in. diameter by 12 inch cylinders shall be cast. Two cylinders shall be tested for compressive strength at 3 days and averaged for a result. Two cylinders shall be tested for compressive strength at 28 days and averaged for a result.

All facilities and materials necessary to prepare and initially cure cast specimens shall be provided.

Following the trial batch demonstration all required test results and final mix design shall be submitted to IFA.

Except for adjustments to compensate for routine aggregate moisture fluctuations, changes in aggregate, SSD, batch weights shall be documented and submitted to the DMTE for approval, prior to use. Changes to the dosage amounts of admixtures will be allowed. A new mix design shall be prepared and successfully demonstrated for changes in the source of a material, the amounts of cementitious materials, increase in target water cementitious ratio, or the addition or deletion of admixtures.

Test Methods and Procedures

The following test methods and procedures shall apply for the Design-Build Contractor's process control and acceptance, with exceptions as listed below.

Air Content (a)AASHTO T 152
 Compressive StrengthAASHTO T 22
 Making and Curing SpecimensAASHTO T 23
 Moisture Content, AggregateAASHTO T 255
 Relative YieldAASHTO T 121
 Sampling Fresh Concrete (b)AASHTO T 141
 Sampling Stockpiles AggregatesITM 207
 Sieve Analysis of Aggregates (c)AASHTO T 27
 SlumpAASHTO T 119
 Specific Gravity and Absorption, Coarse Aggregate (d) AASHTO T 84
 Specific Gravity and Absorption, Fine Aggregate (d) ...AASHTO T 85
 Temperature of ConcreteAASHTO T 309
 Water Cementitious RatioITM 403

(a) The exceptions for determining the air content shall be as follows:

1. The aggregate correction factor shall be determined in accordance with 6.4.3 except that the volume of water shall not be removed from the assembled and filled apparatus.
2. The aggregate correction factor test shall be rerun for confirmation if the test results for gravel are greater than 0.4% or if the test results for crushed stone are greater than 0.6%.

(b) The exception for sampling fresh concrete in the field shall be that the entire sample may be obtained from one portion of the load after at least 0.25 cu yds of concrete has been discharged.

(c) The exceptions for conducting a sieve analysis on aggregates are in accordance with 904.06.

(d) The exceptions for determining SSD bulk specific gravity and absorption for fine and coarse aggregate shall be that bulk specific gravity will be reported to the nearest 0.001 and the absorption reported to the nearest 0.01% point.

CONSTRUCTION REQUIREMENTS

General Requirements

Production of high strength concrete structural members shall not begin until the compression strength test results from the 28 day trial batch cylinders are acceptable to IFA.

Dimensions and design requirements for structural members shall be as shown on the Design Documents. Lengths and dimension tolerances shall be as shown on the Design Documents or as otherwise specified by IFA. A beam which is to include a field attached curb shall have curb reinforcement located longitudinally within 3/4 in. of the locations shown on the Design Documents. If detailed drawings are not included in the Design Documents, Working Drawings shall be submitted for approval in accordance with 105.02. Certified mill test

reports shall be furnished for all uncoated 7 wire strands.

Where temperature requirements are specified herein, the Design-Build Contractor shall provide IFA with written verification that the temperature requirements have been met.

Prior to the beginning of fabrication, a prefabrication meeting shall be held at the fabrication facility or another agreed upon location. The meeting shall be conducted by the Design-Build Contractor and attended by the fabricator's production supervisor and quality control inspector, and IFA. The Design-Build Contractor shall take notes of the meeting and distribute copies to all attending parties within five days of the date of the meeting. Items to be discussed at the meeting shall include a minimum of: fabrication and shipping schedule including hours of operation; line of communication between Design-Build Contractor and IFA; material test reports; Working Drawings; special fabrication methods; fabrication hold points for inspection; final inspection and acceptance of materials; method of shipment.

Structural steel diaphragms shall be fabricated and erected in accordance with 711. Steel diaphragms shall include all connection angles, plates, and associated hardware required for a complete installation. The Design-Build Contractor shall replace, re-galvanize, or repair all damaged galvanized material.

Steel and Concrete Requirements

(a) Reinforcing Bars

A tight coat of concrete grout extending 1/2 in. maximum from the top of high strength concrete structural members will be allowed to remain on reinforcing bars extending from high strength concrete structural members. All loose and flaky material on these reinforcing bars shall be removed. Lap splices shall be in accordance with 703.06.

(b) Prestressing Strands

The splicing of straight prestressing strands is acceptable provided that the location of the splice does not occur within a concrete structural member. Splicing of draped strands is not allowed. Spliced prestressing strands shall have the same twist or lap. For single strand tensioning, slippage of the splices should be considered in computing the elongation. For multiple strand tensioning, either all of the strands shall be spliced or not more than 10% of the strands shall be spliced. If all of the strands are spliced the average splice slippage shall be considered in computing the elongation. If 10% or less of the strands are spliced, no slippage allowance will be required.

Wire breaks will be allowed to remain on the prestressed concrete casting bed as follows:

| Number of Strands in Bed | Wire Breaks |
|--------------------------|-------------|
| 19 or fewer | 0 |
| 20 through 39 | 1 |
| 40 through 59 | 2 |
| 60 or more | 3 |

The ends of each allowed wire break shall be tied to the strand. If more than the permissible number of wire breaks appears in a particular strand pattern, or if more than one broken wire appears in an individual strand, such strands shall be removed and replaced.

The tolerance for the center of gravity for a prestressing strand group shall be $\pm 1/4$ in. The tolerance for the longitudinal position of handling devices shall be ± 6 in.

(c) Concrete

The amount of time from mixing to placement and consolidation shall be a maximum of 30 minutes. The concrete shall not be retempered with additional amounts of chemical admixture types F or G after the initial mixing has been completed.

1. Cold Weather Concrete

Cold weather concrete shall be in accordance with 702.11, except the maximum concrete temperature shall be as specified herein.

2. Hot Weather Concrete

When it is necessary to fabricate high strength concrete structural members during times of hot weather the mix water may be chilled or an appropriate amount of ice may be added to the concrete mix to produce concrete of the temperature specified herein.

3. Acceptance Testing

Acceptance of high strength concrete structural members will be based on tests for slump, air content, and compressive strength. All slump, air content, and compressive strength tests shall be performed in the presence of IFA. Slump and air content measurements shall be obtained each time cylinders are made. Compressive strengths of the structural members shall be determined from cylinder sets described herein. The 28 day compressive strength shall be equal to or greater than the specified concrete compressive strength. The compressive strength of the concrete for each structural member will be determined from the average strength of the cylinder set representing that member. No individual compressive strength within a cylinder set representing a structural member shall be less than 90% of the specified concrete compressive strength.

All molds, facilities, labor, and materials necessary to prepare, cure, and test the cylinder sets shall be furnished.

a. Cylinder Set

A cylinder set shall consist of at least three cylinders obtained from three separate batches or loads of concrete used in casting a structural member. The batches or loads to be sampled may be as directed by IFA. All cylinders for acceptance shall be 6 in. diameter by 12 in., molded and field cured in accordance with ASTM C31. The Design-Build Contractor may make additional cylinder sets for use in acceptance testing.

All cylinders shall be identified by use of IFA-marked cylinder identification tags which are inserted a maximum of 3/8 in. into the top of each freshly molded cylinder. The cylinder number, a unique structural member identification number, temperature, air content, and slump of the concrete represented by each cylinder shall be referenced to the numbers on these cylinder identification tags and provided to IFA by the end of each day in which cylinders are cast.

Cylinders shall be stored as near as possible to the point of deposit of the concrete represented. All surfaces of the cylinders shall be protected from the elements in the same manner as the formed structural members. Cylinders shall be cured at the same temperature and moisture environment as the structural members.

Cylinders shall be in the moisture condition resulting from the selected curing treatment prior to testing. To meet these conditions, the cylinders shall be removed from the molds at the time the structural member is removed from the form Work. Cylinders shall be tested in accordance with ASTM C39. The Design-Build Contractor shall have on file a certificate of calibration for the testing machine. All cylinders in a cylinder set, for a given age, shall be broken within the time tolerances shown in ASTM C39. IFA will remove cylinder identification tags prior to the Design-Build Contractor testing the cylinders.

b. High Strength Concrete Structural Members

A minimum of two cylinder sets shall be made for each structural member cast. One cylinder set shall be tested and used to determine when the high strength concrete structural member has met or exceeded the required strength for detensioning the prestressing bed. If an additional cylinder set has been made, the Design-Build Contractor may test this set to determine if the required strength for detensioning of the prestressing bed has been met or exceeded, or if the required 28 day compressive strength has been met or exceeded prior to an age of 28 days. IFA will accept the results from compression testing of the additional cylinder set, in place of either the detensioning strength test results, or the 28 day compressive strength test results, if the results equal or exceed the respective compressive strength requirements. If an additional cylinder set was not made, or if the additional cylinder set does not meet or exceed the 28 day compressive strength requirement, the remaining cylinder set shall be tested at 28 days of age to determine the acceptability of the structural members.

Coring of high strength concrete structural members shall not be performed. High strength concrete structural members that have been cored will not be accepted. Compressive strength results for cylinders that exceed 28 days in age or results from cylinders that do not have the marked cylinder identification tag intact will result in the high strength concrete structural members not being accepted.

(d) Other Requirements

Inspection of the high strength concrete structural member during manufacture and checking and testing aggregates, cement, concrete, and steel specimens shall be performed. Inspection, checking, and testing performed will not relieve the Design-Build Contractor or the fabricator from performing their own quality control inspection, testing, and checking as necessary to maintain quality control over the manufacturing, handling, and curing procedure. A permanent record of the force applied to and measured elongation obtained for each prestressing strand and the identification of the strand and high strength concrete structural member to which the record applies shall be provided. This record shall be certified that it accurately represents the force applied and measured elongation by the fabricator's production supervisor and provided to IFA prior to shipment.

Forms

High strength concrete structural members shall be manufactured in steel forms which are unyielding, smooth, mortar-tight, and of sufficient rigidity to prevent distortion due to pressure of the concrete. They shall be designed so that the finished concrete is in accordance with the required dimensions and contours. The design of the forms shall take into account the effect of vibration of the concrete as it is placed. Forms shall be chamfered 3/4 in. in accordance with 702.13(a). Exposed edges of curbs shall be beveled or edged. Forms shall be set and maintained true to the lines designated until the concrete is sufficiently hardened or for periods hereinafter specified. Interiors of forms

shall be treated with an approved formulated form coating which allows them to be released without adhering, discoloring, or otherwise damaging the concrete. Form coating materials shall not come in contact with either reinforcing bars or prestressing strands.

Placing and Finishing Cement Concrete

The temperature of the prestressing strands and forms shall be monitored between the time of the application of prestressing force and the placing the concrete. During hot weather, approved means shall be undertaken to cool the forms immediately prior to placing the concrete.

When abutment anchorage set-ups where prestressing strands are anchored to abutments that are independent from the form, thermal adjustments shall be made if the temperature of the prestressing strands at the time of tensioning differs by more than 25°F from the temperature of the concrete mixture during placement. This requirement will not apply to self-stressing beds.

Void boxes, inserts, and attachments shall be securely fastened to maintain the proper position during concrete placement and consolidation. All voids shall have weep holes or otherwise be vented during beam production until after the initial concrete set, then sealed before the beams are shipped.

Concrete, during and immediately after depositing, shall be consolidated with vibrators and suitable spading tools. Vibration shall be applied at the point of deposit and in the area of freshly deposited concrete. The vibrators used may be internal, external, or a combination of both. Internal vibration shall be of sufficient duration and intensity to consolidate thoroughly but shall not be continued so as to cause segregation. Vibration shall not be continued at any one point so that localized areas of grout are formed.

The entire operation of depositing and consolidating the concrete shall be conducted so that the concrete will be smooth, dense, and free from any honeycomb or pockets of segregated aggregates. The concrete in each HSHPC structural member shall be placed in one continuous operation. The outside vertical faces of fascia high strength concrete structural members and the exposed face and top of the curb section, if applicable, shall be finished in accordance with 702.21. The tops of all beams and the outside faces and bottom flanges of the fascia beams shall be sealed in accordance with 709.

Removal of Forms and Curing

Curing shall be in a suitable enclosure to minimize heat and moisture loss and insulated blankets may be used. The concrete in the form shall be maintained at a minimum temperature of 50°F during the entire curing cycle. Curing for high strength concrete structural members shall be done by wet curing without supplemental heat or by accelerated curing. During the period of initial set of the high strength concrete structural member and during the accelerated curing by radiant heat, the concrete shall be kept wet by the method outlined below for wet curing without supplemental heat. Side forms may be removed when no distortion, slump, or misalignment of the concrete will result.

Approval shall be obtained before curing is done by any means other than those outlined below.

(a) Wet Curing without Supplemental Heat

When wet curing without supplemental heat is used, the exposed surfaces of the high strength concrete structural members shall be covered by two layers of wet burlap and the burlap shall be kept wet to ensure that free water is present at all times. In lieu of using wet burlap, the Design-Build Contractor

may propose an alternate method which provides a moist environment with free water being present at all times. The Design-Build Contractor shall receive written approval from IFA prior to using the proposed alternate method. Additional curing of high strength concrete structural members will not be required provided the minimum specified ultimate strength can be obtained.

In high strength concrete structural members, wet curing without supplemental heat shall continue until such time as the compressive strength of the concrete reaches or exceeds the strength specified for transfer of prestress or detensioning. At this point wet curing is considered to have concluded. Detensioning shall be performed after wet curing has concluded, provided the compressive strength of the concrete in the high strength concrete structural member has met or exceeded the required strength for detensioning.

(b) Accelerated Curing

When accelerated curing of the concrete is used, it shall be done by low pressure steam or radiant heat curing. Radiant heat may be applied by means of pipes circulating steam, hot oil or hot water, or by electric heating elements. When steam is used, the jets shall be positioned so that they do not discharge directly on the concrete, forms, or cylinders. The steam shall be at 100% relative humidity to prevent loss of moisture and to provide moisture for proper hydration of the cement.

Except to maintain a minimum concrete temperature of 50°F, heat shall not be applied until the concrete has attained initial set. The time of initial set may be determined by ASTM C403. Once the penetration resistance, as performed in accordance with ASTM C403, equals or exceeds 500 psi accelerated curing may begin. When the initial set is not determined by ASTM C403, the initial application of heat shall be a minimum of 4 h after final concrete placement. When retarders are used and the initial set is not determined by ASTM C403, this time shall be increased to a minimum of 6 h after final concrete placement. Heat shall always be applied at a controlled rate following the initial set of the concrete, and an effective method of retaining the heat and moisture in the concrete shall be used during the entire curing cycle.

During the initial application of radiant heat or live steam, the temperature measured in the concrete shall increase at an average rate not exceeding 36°F/h. The maximum concrete temperature shall not exceed 158°F. A minimum of three time and temperature recording devices capable of recording temperatures in degrees Fahrenheit at intervals not exceeding 15 minutes shall be provided throughout a contiguous form group and common heat source. The time and temperature recording devices shall be located at the portions of the contiguous form group likely to experience the maximum temperatures during curing.

The curing temperature shall be sustained until the concrete has reached the minimum required strength for detensioning the high strength concrete structural members.

As the application of heat is discontinued, the concrete temperature shall decrease at a rate not to exceed 50°F/h. When the concrete temperature has reached 40°F or less above the ambient temperature outside the curing enclosure, accelerated curing is considered to have concluded. Detensioning shall be performed after accelerated curing has concluded, provided the compressive strength of the concrete in the high strength concrete structural member has met or exceeded the required strength for detensioning. A thermometer shall be provided to monitor ambient air temperatures. This thermometer does not need to have recording capabilities.

The time and temperature recording devices shall be used to verify compliance with the heating and cooling rates contained herein.

When multiple high strength concrete structural members are cast in the same bed, all members shall meet or exceed the specified release strength prior to detensioning. Additional curing of high strength concrete structural members will not be required provided the minimum specified ultimate strength can be obtained.

A grinder or other methods that induce minimal amounts of heat into the prestressing strand shall be used to cut off prestressing strands. The ends of the concrete high strength concrete structural member where prestressing strands have been cut to be flush with the end of the member shall be coated with bituminous mastic sealant in accordance with 907.11. All prestressing strands that are exposed and protrude from the end of the beam shall be protected from rusting by use of a spray, brush, or roller-applied rust-inhibiting paint or other material that is not considered detrimental to bonding with concrete.

Handling and Shipping

High strength concrete structural members shall not be subjected to excessive abuse which produces crushing or undue marring of the concrete. All high strength concrete structural members damaged during handling, storing, transporting, or erecting shall be replaced. Unless otherwise approved, high strength concrete structural members shall be handled with a suitable hoisting device provided with a spreader sling. The spreader shall be of sufficient length to prevent horizontal forces being produced in the structural member due to lifting and shall be equipped with leads and hooks at each end. The high strength concrete structural members shall be lifted by the devices shown on the Design Documents. Proposed alternate lifting devices and procedures shall be approved prior to use and shown on the Working Drawings. If any other method of handling is used, it shall be shown on the Working Drawings and approved prior to use. If the method produces horizontal forces in the structural member, sufficient reinforcement shall be added to compensate for them.

The high strength concrete structural members shall remain in an upright position at all times and shall be supported as indicated herein when in storage and during transportation to the construction site.

In storage, all high strength concrete structural members shall be fully supported across their width on battens not less than 4 in. wide with one being placed at each end at the centerline of the bearing. The supports of the structural members while in storage shall be maintained in a level position so no twisting occurs.

During transportation, the high strength concrete structural members shall be supported with truck bolsters or battens no less than 4 in. wide which are padded with no less than 1/2 in. of rubber. The ends of I-beams, U-beams, and bulb-T beams shall extend no more than the depth of the beam and not more than 3.5 ft beyond the supports. The ends of box-beams shall extend no more than 1 1/2 times their depth and not more than 3 feet beyond the supports. The ends of slabs shall extend no more than the depth of the beam beyond the supports. Supports of cantilever beams shall be as shown on the Design Documents. Trucks with double bolsters will be allowed, provided the beams are fully seated on the outer bolsters and the inner bolsters are no more than 8 ft from the ends of the beams. Wood blocks or other suitable material shall be placed under the tie chains to prevent chipping the concrete.

Placing High Strength Concrete Structural Members

Erection of high strength concrete structural members shall commence at the centerline and proceed out to the curb, one member at a time. As each structural member is placed, the transverse tie bars, if shown on the Design Documents, shall be inserted and secured. Any shifting of the structural members shall be done while they are held free of the supports by the hoisting device. The use of a steel pinch bar will not be allowed. High strength concrete structural members shall be set to proper line and grade with uniform bearing on bridge seats, mortar joints, or bearing pads as required on the Design Documents. When required, high strength concrete structural members shall be secured to the pier or bent with dowel rods. Holes for dowels shall be filled with mortar at fixed ends and with crack or joint filler at expansion ends. Longitudinal keyway joints shall be cleaned. A coat of cement mortar shall be scrubbed on the surface. The joint shall be filled with a non-shrinking grout composed of one part portland cement, two parts No. 23 fine aggregate, and an approved non-shrinking additive or a non-shrink, non-metallic cementation grout in accordance with ASTM C1107. All bolts or drains shown on the Design Documents as necessary or desirable to be placed in the concrete shall be placed by the methods and at the locations shown on the Design Documents. Necessary tie rods, tie bolts, and hardware for tying high strength concrete structural members together shall be furnished.

Dowel holes shall not be grouted nor concrete or the forming thereof, be placed in floor slabs, diaphragms, or shear keys prior to receipt of complete documentation of the acceptability of the high strength concrete structural members and bearing pads, including the satisfactory laboratory reports and certifications in accordance with 915.04(e). Neither the high strength concrete structural members, nor the bearings will be considered incorporated into the Work, and neither will be paid for until this documentation is accomplished satisfactorily.

Railing, when required, shall be of the type shown on the Design Documents. The component parts shall be in accordance with 706, unless otherwise indicated on the Design Documents. Other high strength concrete structural members shall be placed in the structure in accordance with the Design Documents and the specifications or special provisions indicated for the type of structure being built.

Cranes or other heavy erection equipment may be operated on the high strength concrete structural members only if approved in writing and if a proposed operating procedure is submitted showing loading, distribution of loads, resulting stresses, and that the design of the high strength concrete structural members is satisfactory to allow. However, such approval shall not relieve the Design-Build Contractor of any damage from this operation.

Basis of Item

Precast prestressed high strength structural members shall be quantified per linear foot for structural member, concrete, of the type and size specified. Structural steel for intermediate diaphragms shall not be quantified.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|--|--------------------|
| 707-XXXXX | Structural Member, Concrete, _____, _____ type size |LFT |

The following shall be considered incidental to this item:

Conducting a trial batch, high strength concrete, reinforcing bars, elastomeric bearing pads, modifications to bearing pads, bearing beams or bearing assemblies, bearing plates, expanded polystyrene, threaded reinforcing bars, threaded inserts in fascia beams, hex bolts, sealer on the outside face and bottom flange of fascia beams and on the tops of all beams, and other necessary incidentals.

Providing all molds, cylinder identification tags, facilities, labor, and materials necessary to prepare and cure the test specimens.

Removing and replacing prestressing strands due to excessive wire breakage and replacing high strength concrete structural members damaged during handling, storing, transporting or erecting.

All materials, including galvanizing, labor, and equipment necessary for furnishing and installing steel intermediate diaphragms.

Time and temperature recording devices and their monitoring.

Field office and providing the field office items listed herein.

POST-TENSIONING WORKS

Description

This Work shall consist of post-tensioning precast or cast-in-place concrete by furnishing, placing, tensioning, and grouting prestressing steel in accordance with details shown on the Design Documents, in accordance with 105.03, 707, and as described herein. It includes prestressing by either the pretensioning or post-tensioning methods or by a combination of these methods.

This Work shall include furnishing and installing any appurtenant items necessary for the particular post-tensioning system to be used, including ducts, anchorage assemblies, post-tensioning strands, grouting ducts, local zone reinforcing bars, all documentation of the operation, and testing.

Materials

Ducts

Duct material shall be corrugated plastic and made from either polyethylene or polypropylene. Ducts shall be embedded in concrete. The minimum acceptable radius of curvature shall be established by the duct supplier according to standard methods. The duct shall have a thickness as shown in Table 1. Ducts shall have a white coating on the outside or shall be of white material with ultraviolet stabilizers added.

Polyethylene duct shall be fabricated from resins meeting or exceeding the requirements of ASTM D3350 with a cell classification of 345464A.

Polypropylene duct shall be fabricated from resins meeting or exceeding the requirements of ASTM D4101 with a cell classification range of PP0340B14541 to PP0340B67884. Resin containing antioxidants with a minimum oxidation induction time, in accordance with ASTM D3895 of not less than 20 minutes shall be used.

Rigid smooth black polyethylene ducts for use where the tendon is not embedded in concrete shall be rigid pipe manufactured from 100% virgin polyethylene resin meeting the requirements of ASTM D3350 with a minimum cell class of 344464C. A resin containing antioxidants with a minimum OIT according to ASTM D3895 of not less than 40 minutes shall be used. The duct shall be manufactured with a dimensional ratio, DR, of 17.0 as established by either ASTM D3350 or ASTM F714 as appropriate for the manufacturing process used.

The duct areas shall be in accordance with Article 5.4.6.2 of the AASHTO LRFD Bridge Design Specifications.

Table 1

| Duct Shape | Duct Diameter (inch) | Duct Thickness (inch) |
|------------|----------------------|-----------------------|
| Flat | Any size | 0.08 |
| Round | I.D. < 2.375 | 0.08 |
| Round | 2.375 < I.D. < 4.0 | 0.10 |
| Round | I.D. > 4.0 | 0.12 |

A type C certification in accordance with 916 shall be provided for the duct.

Duct Fittings

Coupling and transition fittings for ducts formed by sheathing shall be

polyethylene or polypropylene and shall be air and watertight and of sufficient strength to prevent distortion or displacement of the ducts during concrete placement and tendon grouting.

A type C certification in accordance with 916 shall be provided for the duct fittings.

Inlets, Outlets, Valves and Plugs

Grout inlets, outlets, and threaded plugs shall be made of either ASTM A240 Type 316 stainless steel, nylon, or polyolefin materials. Products made of nylon shall have a cell class of either S-PA0141, weather resistant, S-PA0231, or S-PA0401, with an ultimate strength not less than 10,000 psi with UV stabilizer added, in accordance with ASTM D5989. Products made of polyolefin shall contain antioxidants with a minimum oxidation induction time of not less than 20 minutes in accordance with ASTM D3895.

Inlets, outlets, valves, and plugs shall be designed and tested to resist a minimum pressure of 150 psi. Inlets and outlets shall have a minimum inside diameter of 3/4 in. for multi-strand tendons and 3/8 in. for single-bar or four-strand tendons.

A type C certification in accordance with 916 shall be provided for the inlets, outlets, valves, and plugs.

Permanent Grout Caps

Permanent grout caps shall be made from polymer or ASTM A240 Type 316L stainless steel. The resins used in the polymer shall be nylon, Acrylonitrile Butadiene Styrene (ABS) or polyester. For products made from nylon, the cell class of the nylon according to ASTM D5989 shall be S-PA0141, weather resistant, S-PA0231 or S-PA0401, with an ultimate strength not less than 10,000 psi with UV stabilizer added. The cap shall be sealed with "O" ring seals or precision fitted flat gaskets placed against the bearing plate. A grout vent shall be placed on the top of the cap. Grout caps shall be rated for a minimum pressure rating of 150 psi. ASTM A240 Type 316L stainless steel bolts shall be used to attach the cap to the anchorage.

A type C certification in accordance with 916 shall be provided for the permanent grout caps.

Grout

Grout shall be a cement-based, thixotropic, prebagged grout supplied by a grout manufacturer. The grout shall be prebagged in plastic lined or coated containers, stamped with the date of manufacturer, lot number, and mixing instructions. Materials with a total time from manufacturer to usage shall not exceed six months, and on-site storage shall be limited to one month. Grout materials shall be stored in a weatherproof location, and any grout exposed to excessive moisture which contain clumps shall be rejected. Storage in the open may be allowed by IFA, in which case a raised platform and adequate waterproof covering shall be provided.

The grout shall be mixed in accordance with the manufacturer's recommendations. The water used in the grout shall be potable, clean, and free of injurious quantities of substances known to be harmful to portland cement or prestressing steel.

Grouts shall achieve a non-bleeding characteristic. Grout shall contain no aluminum powder or gas generating system that produces hydrogen, carbon dioxide, or oxygen. Cementitious grout shall meet or exceed the specified

physical properties stated in 10.9.3 of the AASHTO LRFD Bridge Construction Specifications.

A type B certification in accordance with 916 shall be provided for the prebagged grout. The limits of the physical properties stated in the AASHTO LRFD Bridge Construction Specifications shall be shown on the certification.

Epoxy Grout for Anchorage Protection

The epoxy grout used for encapsulation and protection of post-tensioning anchorages shall be a three component epoxy grout consisting of resin, hardener, and aggregate, with all components supplied by the epoxy grout manufacturer. No additional fillers shall be added. Products shall be delivered in original containers with manufacturer's name, date of manufacture, product identification label and batch numbers. Materials shall be used within the manufacturer's recommended shelf life and shall be stored in full compliance with manufacturer's recommendations. The epoxy grout shall be mixed and installed in accordance with the manufacturer's recommendations.

The epoxy grout system shall meet the following requirements.

| Physical Test | Specification | Requirement |
|---|---------------|----------------------------------|
| Compressive Strength Cubes 7 Day Cure at 77°F | ASTM C 579B | >10,000 psi |
| Tensile Strength at 7 days | ASTM C 307 | >2,100 psi |
| Flexural Strength at 7 Day Cure at 77°F | ASTM C 580 | >3,600 psi |
| Modulus of Elasticity 7 day Cure at 77°F | ASTM C 580 | < 2,100,000 psi |
| Coefficient of Thermal Expansion at 74 to 210°F | ASTM C 531 | < 20 x 10 ⁻⁶ in/in/°F |
| Peak Exotherm, Specimen 12 x 12 x 3 in. | ASTM D 2471 | < 150°F |
| Slant Shear at 7 days (Bond Strength to Concrete) | ASTM C 882 | > 3000 psi |
| Thermal Compatibility | ASTM C 884 | 5 Cycles Passed |
| Linear Shrinkage at 7 days | ASTM C 531 | 0.025% |
| Flowability and Bearing Area | ASTM C 1339 | 90% Contact area |
| Gel Time, Specimen 12 x 12 x 3 in. | ASTM D 2471 | < 4 h |

A type B certification in accordance with 916 shall be provided for the epoxy grout. The limits of the physical tests shown above shall be shown on the certification.

Elastomeric Coating System

An elastomeric coating system shall be used to provide a waterproof barrier over post-tensioning anchorages or other areas shown on the Design Documents. The components of the coating system shall be supplied by a single manufacturer and sold as a waterproof coating system. The surface preparation and application of the coating system shall be applied in accordance with the manufacturer's specifications.

Upon curing, all coatings and/or coating systems shall produce an adherent coating that is visually uniform and capable of performing according to its designated purpose for a service life greater than 20 years. The composition of the coating shall be at the discretion of the manufacturer, but the finished product shall meet all requirements of this specification. All coatings shall be designed for a marine, coastal environment and shall be self-curing. Coatings that are multi-component shall be prepackaged in required ratios for ease of mixing.

A type C certification in accordance with 916 shall be provided for the elastomeric coating system.

Tendons

Tendons shall be uncoated 7 wire stand and shall be in accordance with 910.01(b) 7.

Anchorage Assemblies and Couplers

Post-tensioning anchorages shall be designed and tested to resist at least 95% of the actual ultimate tensile strength of the prestressing steel, when tested in an unbonded state, without exceeding the anticipated anchor set. Tendon couplers shall not be used unless shown on the Design Documents or approved by IFA. All embedded portions of the anchorage assembly shall be galvanized in accordance with ASTM A123. All local zone reinforcing required by the design calculations provided in accordance with the Working Drawings shall be epoxy coated and in accordance with section 910.01.

A type C certification in accordance with 916 shall be provided for the anchorage assemblies and couplers.

Material Traceability

Stored and installed post-tensioning system shall be fully traceable to production lots and installation records. The post-tensioning system supplier shall maintain a complete list of all traceability numbers and documentation for materials supplied to the Project. Records kept by Design-Build Contractor shall maintain traceability of stored and installed post-tensioning system materials to specific tendon numbers. Traceability documentation and records shall be formally transferred to IFA.

Traceability shall be provided for all load-bearing or load-transfer components of the post-tensioning system. Specifically included are the following components/materials: strand, bar, bearing plates, wedge plates, wedges, nuts, couplers, duct, duct couplers, pipe, trumpets, grout tubes, and permanent grout caps. Traceability for miscellaneous installation aids not permanently incorporated in the structure is not required.

Construction Requirements

Personnel Qualifications

The Foremen of each installation and stressing crew shall have a minimum of five years of bridge construction experience with a minimum of two years of

experience in post-tensioning related operations and a minimum of one year as the foreman in responsible charge of post-tensioning related operations. The Foremen shall be certified as PTI Level 1 and 2 Multistrand and Grouted PT Specialist. At least one other member of each installation and stressing crew shall be certified as PTI Level 1 Multistrand and Grouted PT Specialist.

The Foremen of each grouting crew shall have a minimum of five years of bridge construction experience with a minimum of two years of experience in post-tensioning related operations and a minimum of one year as the foreman in responsible charge of post-tensioning related operations. The Foremen and the person operating the grouting and pumping equipment shall each be certified as ASBI Certified Grouting Technicians. At least one other member of each grouting crew shall be certified as having completed the ASBI Grouting Training program.

Working Drawings and Grout Plan

The Design-Build Contractor shall prepare and submit to IFA Working Drawings and Grout Plan, in accordance with 105.02, for the post-tensioning system proposed for use. Preparation of the post-tensioning Working Drawings and grout plan shall be completed by a Registered Professional Engineer in the State of Indiana with a minimum of five years' experience in post-tensioned concrete. Fabrication or installation of post-tensioning material shall not begin until IFA has approved the drawings.

The Working Drawings and Grout Plan of the post-tensioning system shall show complete details and substantiating calculations of the method, materials, and equipment the Design-Build Contractor proposes to use in the post-tensioning operations.

The Working Drawings, including stressing calculations, shall be in accordance with section 5.0 of PTI/ASBI M50.3-12 Guide Specification for Grouted Post-Tensioning.

The grouting procedures shall be devised to ensure that the ducts shall be properly filled by grout. These procedures shall cover in detail, the following:

- (a) Type, quantity and brand of materials used in grouting, including all certifications required;
- (b) Type of equipment needed, including capacity in relation to demand and Working condition, as well as provisions for back-up equipment and spare parts;
- (c) Types and locations of inlets and outlets;
- (d) Types and sizes of grout hoses and connections;
- (e) Duct cleaning methods prior to grouting;
- (f) Mixing and pumping procedures;
- (g) Direction of grouting;
- (h) Sequence of use of the inlets and outlets;
- (i) Procedures for handling blockages; and
- (j) The names of the persons in charge and the other personnel who will perform the grouting operation, including their relevant experience and skill.

The Design-Build Contractor shall record the progress of the grouting operations for each duct in accordance with section 5.6.7 of PTI M55.1-12 and submit a written report to IFA within 72 h of grouting.

Working Drawings and Grout Plan shall be submitted in accordance with 105.02.

Construction Hold Points

A hold point is a mandatory verification point that requires the Design-Build Contractor to notify or submit the identified items to IFA beyond which work shall not proceed until approval is given by IFA. The following hold points shall apply:

- (a) Prior to placement of concrete around the ducts, inspection and approval of the PT ducts, inlets and outlets, anchorage, reinforcing steel, and pre-concreting duct pressure test;
- (b) Prior to beginning the installation of PT strand, inspection and approval of the strands, PT duct proving and post-concreting duct pressure testing;
- (c) Prior to commencement of grouting operations, inspection and approval of the grouting apparatus and set up, and approval of the stressing records;
- (d) Prior to commencement of the preparation and encapsulation of the anchor heads, inspection and approval of grouting.

Duct Placement

Ducts shall be rigidly supported at the proper locations in the forms by ties to reinforcing bars which are adequate to prevent displacement during the concrete placement. Supplementary support bars shall be used where needed to maintain proper alignment of the duct. Hold-down ties to the forms shall be used when the buoyancy of the ducts in the fluid concrete would lift the reinforcing bars. Duct for longitudinal or transverse post-tensioning in the flanges shall be supported at intervals not to exceed ft. Ducts in webs for longitudinal post-tensioning shall be tied to stirrups at intervals not to exceed 2 ft and shall be supported on each side of a duct joint.

Joints between sections of duct shall be coupled with positive connections which do not result in angle changes at the joints and will prevent the intrusion of cement paste.

After placing ducts, reinforcement and forming is complete, an inspection shall be made to locate possible duct damage. All unintentional holes or openings in the duct shall be repaired prior to concrete placing.

Grout openings and vents shall be securely anchored to the duct and to either the forms or to reinforcing bars to prevent displacement during concrete-placing operations. After installation in the forms, the ends of ducts shall at all times be sealed to prevent the entry of water or debris.

Duct Position Tolerances

| Tolerances | Vertical Position (inch) | Lateral Position (inch) |
|--|--------------------------|-------------------------|
| Horizontal tendons in slabs or in slab regions of larger members | ± 1/4 | ± 1/2 |
| Longitudinal draped superstructure tendons in webs. Tendon over supports or in middle third of span. | ± 1/4 | ± 1/4 |
| Tendon in middle half of web depth | ± 1/2 | ± 1/4 |
| Longitudinal, generally horizontal, superstructure tendons usually in top or bottom of member | ± 1/4 | ± 1/4 |
| Horizontal tendons in substructure and foundations | ± 1/2 | ± 1/2 |

| | Longitudinal position (inch) | Transverse position (inch) |
|---------------------------------|------------------------------|----------------------------|
| Vertical tendons in webs | ± 1 | ± 1/4 |
| Vertical tendons in pier shafts | ± 1/2 | ± 1/2 |

Additionally, the following shall apply:

1. In all other cases, locate tendons within ± 1/4 in. in any direction.
2. Entrance and exit angles of tendon paths at anchorages or at faces of concrete shall be within ±3° of desired angle measured in any direction and any deviations in the alignment are accomplished with smooth transitions without any kinks.
3. Angle changes at duct joints shall not be greater than ±3° in any direction and shall be accomplished with smooth transitions without any kinks.
4. Locate anchorages within ±1/4 in. of desired position laterally and ±1 in. along the tendon except that minimum cover requirements shall be maintained.
5. Position anchorage confinement reinforcing in the form of spirals, multiple U-shaped bars or links, to be properly centered around the duct and to start within 0.5 in. of the back of the main anchor plate.
6. If conflicts exist between the reinforcement and post-tensioning duct, the Design-Build Contractor shall adjust the reinforcing.

Inlets and outlets shall be at least ¾ in. diameter. Connection to ducts shall be made with metallic or plastic structural fasteners. The inlets and outlets shall be mortar tight, taped as necessary, and constructed with either mechanical or shrink wrap connections. Inlets and outlets shall provide means for injection of grout through the vents and for sealing to prevent leakage of grout. Low-point inlets and outlets shall remain open until grouting is started.

All ducts shall be supplied with inlets and outlets at the following locations:

- (a) At the anchorage area of the tendon;
- (b) At the high points of the duct, when the vertical distance between the highest and lowest point is more than 20 in.;
- (c) Where outlets are placed at the high points, at a distance not to exceed 39 in. in both directions from the high-point outlets;
- (d) An inlet shall be placed at or near the lowest point of a tendon;
- (e) Outlets shall be placed at all low points, and shall be free draining;
- (f) At major changes in the cross section of the duct, such as couplers and anchorages; and
- (g) At other locations shown on the Design Documents.

After the ducts have been placed, the openings at the ends of the ducts shall be sealed to prevent the entry of moisture.

Pre-Concreting Duct Pressure Test

Prior to testing, inlets, outlets, and drains shall either be capped or have their shut-off valves closed. The Design-Build Contractor shall pressurize the completed duct assembly to an air pressure of 5 psi and lock off the outside air source and inspect for leaks. The Design-Build Contractor shall monitor and measure the pressure maintained within the closed assembly. Locations of leakage shall be identified, repaired, or reconstructed, and the repaired

reassembled duct system retested. The cycle of testing, repair, and retesting of each completed duct assembly shall continue until the completed duct assembly completes a one minute test with a maximum pressure loss of 2 psi.

Proving of Post-Tensioning Ducts

Upon completion of concrete placement, the Design-Build Contractor shall prove that the post-tensioning ducts are free and clear of any obstructions or damage and are able to accept the post-tensioning tendons by passing a torpedo through the ducts. The torpedo shall have the same cross-sectional shape as the duct, and be 1/4 in. smaller all around than the clear nominal dimensions of the duct. For straight ducts, a torpedo at least 2 ft long shall be used. For curved ducts, the length shall be determined so that when both ends touch the outermost wall of the duct, the torpedo is 1/4 in. clear of the innermost wall. If the torpedo will not travel completely through the duct, the member shall be rejected unless a workable repair is approved by IFA.

Post-Concreting Duct Pressure Test

Before placing the strands, install all grout caps, inlets and outlets and test the tendon with compressed air to determine if duct connections require repair. In the presence of IFA, pressure the tendon to 50 psi and lock-off the outside air source. Record the pressure loss for 1 minute. A pressure loss of up to and including 25 psi is acceptable for tendons having a length of equal to or less than 150 ft and a pressure loss of up to and including 15 psi is acceptable for tendons longer than 150 ft. If the pressure loss exceeds the allowable, repair the leaking connections using methods approved by IFA and retest.

Placement of PT Strands

Post-tensioning steel shall not be removed from its protective packaging until immediately prior to installation in the forms and placement of concrete. Openings in the packaging shall be resealed as necessary to protect the unused steel.

The Design-Build Contractor shall demonstrate to the satisfaction of IFA that the ducts are free of water and debris immediately prior to installation of the steel.

Anchorage devices or block-out templates for anchorages shall be set so that their axis coincides with the axis of the tendon and anchor plates are normal in all directions to the tendon.

After tendons are placed in ducts, the openings at the ends of the ducts shall be sealed to prevent the entry of moisture.

Tendons shall be grouted within 15 days of placement.

In Place Friction Test

A minimum of one tendon in each tendon group type shall be tested for in place friction. Tendon group types include cantilever tendons, continuity tendons, draped external tendons, or continuous profiled tendons passing through one or more spans. The selected tendon shall represent the size and length of the group of tendons being tested. The in-place friction test is not required for straight tendons used in flat slabs.

The test procedure shall consist of stressing the tendon at an anchor assembly with a load cell or a second certified jack at the dead end. The test specimen shall be stressed to 80% of ultimate tendon strength in eight equal

increments. For each increment, the gauge pressure, elongations and load cell force shall be recorded. The test shall account for any wedge seating in both the live end (i.e., back of jack) and the dead end (i.e., back of load cell) and any friction within the anchorages, wedge plates and jack as a result of slight deviations of the strands through these assemblies. For long tendons requiring multiple jack pulls with intermediate temporary anchoring, an accurate account of the elongation at the jacking end allowing for intermediate wedge seating and slip of the jack's wedges shall be kept.

If the elongation's fall outside a $\pm 5\%$ range compared to the anticipated elongations based on expected friction coefficients, the reason shall be investigated and detailed calculations confirming the final tendon forces are in agreement with the requirements of the released-for-construction drawings shall be submitted to IFA.

Significant shortfall in elongations may indicate poor duct alignment and/or obstructions. Such elongations shall be corrected or compensated for in a manner acceptable to IFA.

One successful friction test for each tendon group in each structure will be required.

If there are irreconcilable differences between forces and elongations, or other difficulties during the course of routine stressing operations, IFA may require additional in place friction tests.

The apparatus and methods used to perform the test shall be submitted to IFA.

Tensioning

Tendons shall be tensioned by hydraulic jacks to produce the forces shown on the Design Documents or on the approved Working Drawings with appropriate allowances for all losses. Losses to be provided for shall be as specified in Articles 5.9.3 of the AASHTO LRFD Bridge Design Specifications, 8th Edition. The losses shall also include the anchor set loss appropriate for the anchorage system employed.

The strand stress prior to seating and immediately following shall not exceed the values allowed in Article 5.9.2 of the AASHTO LRFD Bridge Design Specifications, 8th Edition.

Prior to tensioning any member, the Design-Build Contractor shall demonstrate to the satisfaction of IFA that the tendons are free and unbonded in the duct.

All strands in each tendon, except for those in flat ducts with not more than four strands, shall be stressed simultaneously with a multi-strand jack.

Except as provided herein or when specified on the Design Documents or on the approved Working Drawings, tendons in continuous post-tensioned members shall be tensioned by jacking at each end of the tendon.

Individual wire failures may be accepted by IFA, provided not more than one wire in a strand is broken and the area of the broken wires does not exceed 2% of the total area of the post-tensioning steel in the member.

Prestressing Equipment

Hydraulic jacks used to stress tendons shall be capable of providing and

sustaining the necessary forces and shall be equipped with either a pressure gage or a load cell for determining the jacking stress. The jacking shall provide an independent means by which the tendon elongation can be measured. The pressure gauge shall have an accurately reading dial at least 6 in. in diameter or a digital display, and each jack and its gage shall be calibrated as a unit with the cylinder extension in the approximate position that it will be at final jacking force, and shall be accompanied by a certified calibration chart or curve. The load cell shall be calibrated and shall be provided with an indicator by means of which the prestressing force in the tendon may be determined. The range of the load cell shall be such that the lower 10% of the manufacturer's rated capacity will not be used in determining the jacking stress. When approved by IFA, calibrated proving rings may be used in lieu of load cells.

Recalibration of gages shall be done at least annually and whenever gage pressure and elongations indicate materially different stresses. Certified calibration charts and curves shall be submitted to IFA prior to stressing.

Measurement of Stress

A record of gauge pressures and tendon elongations for each tendon shall be provided by the Design-Build Contractor to IFA. Elongations shall be measured to an accuracy of 0.0625 inch. Stressing tails of post-tensioned tendons shall not be cut off until the stressing records have been approved.

The stress in tendons during tensioning shall be determined by the gage or load-cell readings and shall be verified with the measured elongations. Calculations of anticipated elongations shall utilize the modulus of elasticity, based on nominal area, as furnished by the manufacturer for the lot of steel being tensioned.

All tendons shall be tensioned to a preliminary force as necessary to eliminate any take-up in the tensioning system before elongation readings are started. This preliminary force shall be between 5% and 25% of the final jacking force. The initial force shall be measured by a dynamometer or by other approved method, so that its amount can be used as a check against elongation as computed and as measured. Each strand shall be marked prior to final stressing to allow measurement of elongation and to ensure that all anchor wedges are set properly.

It is anticipated that there may be discrepancy in indicated stress between jack gauge pressure and elongation. When a discrepancy between gauge pressure and elongation is greater than 5% in tendons greater than 50 ft long or 7% in tendons 50 ft or less, the source of the error shall be determined and corrected before proceeding.

Record of Stressing Operation

A record of the following post-tensioning operations shall be kept for each tendon installed:

1. Project contract number, structure number, and beam line identification,
2. Design-Build Contractor and foreman names,
3. Tendon location, size, and type,
4. Date and time of initial installation,
5. Complete strand identification and data,
6. Assumed and actual cross-sectional area;
7. Assumed and actual modulus of elasticity,
8. Date and time stressing completed,
9. Jack and gage numbers per end of tendon,
10. Required jacking force,
11. Gage pressures at 20%, 40%, 60%, and 100% of the jacking force,

12. Charting of anticipated and actual elongations at 20%, 40%, 60%, and 100% of the jacking force,
13. Anticipated and actual anchor sets,
14. Stressing sequence,
15. Stressing mode indicating which end or ends of the tendon were stressed,
16. Witnesses, crew and inspector names,
17. Date grouted, days from stressing to grouting, grouting pressure applied, and injection locations, and
18. Record of any relevant information including problems encountered and resolution, pourback and bitumastic dates.

IFA shall be provided with a complete copy of all stressing operations and the jack calibration forms.

Within 4 h after stressing and prior to grouting, tendons shall be protected against corrosion or harmful effects of debris by temporarily plugging or sealing all openings and vents.

Grouting Equipment

The pump shall be a positive displacement type and be able to produce an outlet pressure of at least 0.150 ksi. The pump shall have seals adequate to prevent introduction of oil, air, or other foreign substances into the grout, and to prevent loss of grout or water.

A pressure gauge having a full-scale reading of no greater than 0.300 ksi shall be placed at some point in the grout line between the pump outlet and duct inlet.

The grouting equipment shall contain a screen having clear opening of 1/8 in. maximum size to screen the grout prior to its introduction into the grout pump.

The grouting equipment shall utilize gravity feed to the pump inlet from a hopper attached to and directly over it. The hopper shall be kept at least partially full of grout at all times during the pumping operation to prevent air from being drawn into the post-tensioning duct.

The grouting equipment shall be capable of continuously grouting the largest tendon in the Project in no more than 20 minutes.

The group machinery shall have a mixing tank with a high-speed shear colloidal mixer, a holding tank with an agitator, and a circulation system allowing the grout from the holding tank to be moved back to the mixing tank. The placing pump shall have exact pressure control capabilities and shall be fed by gravity from the holding tank.

Mixing of Grout

A chloride ion test shall be performed prior to adding water.

Water shall be added to the mixer first followed by cement grout. Grout shall be mixed in accordance with the manufacturer's instructions using a colloidal mixer to obtain a homogeneous mixture. The accuracy of the batching shall be $\pm 1\%$ for the mixing water. A fluidity test shall be performed on the mixed grout prior to beginning the injection process. Target flow rates as a function of mixer type used and ambient temperature shall be obtained from the grout manufacturer. The grouting process shall not be started until proper grout properties have been obtained.

The grout shall be used within 30 minutes of the first addition of water. Water shall not be added to increase flowability which has been decreased by delayed use of the grout.

Grout Testing

1. Chloride Ion Test. One test per 40,000 lb of material before the addition of water shall be completed. A minimum of one test on mixed grout per project shall be completed. The test shall be in accordance with AASHTO LRFD Bridge Construction Specifications, 4th Edition, table 10.9.3-2.
2. Pressure Bleeding Test. One test per day shall be completed. The sample shall be taken at the mixer. The test shall be in accordance with AASHTO LRFD Bridge Construction Specifications, 4th Edition, table 10.9.3-2.
3. Mud balance tests. A minimum of two tests per day shall be completed. Additional tests shall be completed when there is a visual or apparent change in the characteristics of the grout at the mixer and the grout at the duct outlet. The test shall be in accordance with ANSI/API Mud Balance Test, Section 4.4.8. The acceptable range of wet density shall be established for the optimized grout using the minimum and maximum water dosage per this specification and the grout manufacturer's recommendations.
4. Strength test. A minimum of one test per day shall be completed. The test shall be in accordance with AASHTO LRFD Bridge Construction Specifications, 4th Edition, table 10.9.3-2.
5. Fluidity Tests. One test at the mixer and one test at the duct outlet shall be performed every 2 h of grouting operations for each duct. The test shall be in accordance with AASHTO LRFD Bridge Construction Specifications, 4th Edition, table 10.9.3-2. In addition to the requirements given in the aforementioned table, the efflux time shall be within 5 seconds of the values established during laboratory testing.

Grout tests performed by the Design-Build Contractor will be monitored by IFA.

Injection of Grout

All grout vents shall be opened before grouting starts. Injection and ejection vents with positive shut-offs shall be provided. Grout shall be injected from near the lowest end of the tendons in an uphill direction while maintaining a continuous one-way flow. Grout shall be allowed to flow from the first injection vent until any entrapped air has been removed prior to closing that vent. Remaining vents shall be closed in sequence in the same manner. A continuous flow of grout at a rate between 17 and 50 ft of duct per minute shall be maintained. The flow rate of grout shall be slow enough to avoid air entrapment and segregation of the grout and ensure complete filling of the duct.

The method of injecting grout shall ensure complete filling of the ducts and complete surrounding of the tendon or bar with grout. Grout shall be pumped through the duct and flow continuously at the first outlet after the inlet, until no visible slugs water or air are ejected and consistency of the grout is equivalent to that of the grout injected, at which time the outlet shall be closed.

All outlets shall be closed in a similar manner one after another in the direction of the flow except that at intermediate crests; outlets placed a short distance downstream of the crest shall be closed before their associated crest outlet.

The pumping pressure at the injection vent shall not exceed 150 psi.

Normal operations shall be performed at approximately 75 psi. If the actual grouting pressure exceeds the maximum allowed, the injection vent shall be closed and the grout shall be injected at the next vent that has been, or is ready to be closed, as long as a one-way flow is maintained. Grout shall not be injected into a succeeding vent from which grout has not yet flowed.

Grout shall be pumped through the duct and continuously wasted at the ejection vent until no visible signs of bleed water or air are ejected. A fluidity test shall be performed on each tendon.

The inlets shall be sealed off under pressure once the post tensioning duct is completely filled and all outlets have been closed. All vent, inlet and outlet tubes shall be elevated above the level of the tendon to where they are connected until the grout has hardened to help capture any entrapped air or bleed water.

The duct shall not be flushed with water under any circumstance such as, but not limited to, the removal of corrosion inhibitor and the clearing of a blockage.

Temperature

The temperature of the grout shall be 40°F or higher for three consecutive days from the time of grouting or until job-cured 2 in. cubes of grout reach a minimum compressive strength of 800 psi. Grouting shall only be performed when the ambient temperature is 40°F or higher and is not to fall below 40°F for the following three days. Grout shall not be above 90° during mixing or pumping.

Post-Grouting Inspection

All inspections shall be performed in the presence of IFA. Valves, caps and pipes at inlets and outlets shall not be removed or opened until the grout has set and cured for a minimum of 24 h. Also, the filled ducts shall not be subject to shock or vibration, nor shall any falsework be removed, within 24 h of grouting. Within 72 h of grouting, all inlets and outlets shall be opened to facilitate inspection. Inspection of the grout shall be performed within 1 h of opening the inlets and outlets.

All inlets, outlets, and anchorages shall be inspected to ensure complete filling with grout. Drilling equipment shall be capable of automatic shut-off when steel is encountered. All inlets and outlets shall be capped and sealed within 1 h of the completion of inspection.

Vacuum-grouting, when necessary, shall be completed within 120 h of inspection.

Frequency of Inspection

For longitudinal superstructure post tensioning ducts:

1. All inlets and outlets at anchors and post tensioning duct high points shall be inspected by drilling and probing with an endoscope to detect defects.
2. For bridges with more than 20 post tensioning ducts but where no duct is longer than 150 ft, all inlets and outlets at anchors and post tensioning duct high points shall be inspected by drilling and probing with an endoscope or probe until no defects are found in 20 consecutive post tensioning ducts. Thereafter, inspection may be reduced by 50%. If a defect is found, then the last five post tensioning ducts grouted shall be inspected and the next 20 consecutive post tensioning ducts shall be inspected before once again reducing frequency of inspection

to 50% if no voids are found. This cycle shall continue throughout all post tensioning duct grouting operations.

Drilled inspection holes that do not encounter voids shall be filled with grout or epoxy using an injection tube extending to the bottom of the drilled hole.

Incomplete Grouting

When any post tensioning duct grouting operation has been prematurely terminated before the ducts could be completely filled with grout, the post tensioning ducts shall be drilled into and explored for voided areas using an endoscope to determine the extent and volume of voids. Grout inlets and outlets shall be installed and the voids filled using volumetric measuring vacuum grouting equipment.

Vacuum grouting equipment shall include a device for measuring the volume of the voids so that the amount of grout injected can be checked against the anticipated amounts in order to give some assurance that the voids have been filled.

Unless otherwise approved by IFA, grout for vacuum grouting shall be the same as that used to grout the post tensioning ducts.

Grouting Report

A report on post tensioning duct grouting, inspection, vacuum grouting and sealing shall be provided from the Design-Build Contractor to IFA within 72 h of completing sealing. The post tensioning duct grouting report shall include the following:

1. Project contract number and structure number;
2. Identification of the post tensioning duct;
3. Date tendon was stressed;
4. Date grouted, including start and completion times;
5. Grout manufacturer name, lot number and bag number;
6. Number of days from stressing to grouting;
7. Type of grout;
8. Post tensioning ducts grouted in same grouting operation;
9. Injection end;
10. Applied grouting pressure;
11. Ratio of actual to theoretical quantity of grout;
12. Summary of any problems with grouting and corrective action taken;
13. Date of filling voids by vacuum grouting;
14. Estimated volume of voids measured during vacuum grouting process;
15. Quantity of grout injected by vacuum grouting;
16. Summary of any problems with vacuum grouting and corrective action taken;
17. Confirmation and date of sealing of inlets and outlets; and
18. Type of epoxy used to fill recesses containing sealed inlets and outlets.

Protection of Anchorages

The anchorages of post-tensioning bars and tendons shall be protected within seven days of the completion of grouting, and in accordance with section 14.0 of PTI/ASBI M50.3-12 Guide Specification for Grouted Post-Tensioning. All blockouts shall be filled with epoxy grout with material properties in accordance with this specification. The application of the elastomeric coating may be delayed by up to 45 days if approved by IFA. Substrate pulloff testing in accordance with ASTM C1583/C1583M shall be performed prior to installation of the epoxy grout. The test will be considered passing if the bond is capable of resisting at least 175 psi.

Basis of Item

The completed and accepted post-tensioned tendons shall be quantified by the lump sum.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|-------------------------|--------------------|
| 707-01065 | Post-Tensioning | LS |

The following shall be considered incidental to this item:

Furnishing and stressing all temporary and permanent tendons, anchorage assemblies not embedded in the concrete, ducts and ducts supports not embedded in the concrete, steel deviation pipes, grouting, reinforcing bars required to resist local stresses imposed in the concrete by anchorage devices, anchorage protection, furnishing samples of materials and devices, testing of post-tensioning tendons, and for all labor, materials, tools, equipment and incidentals necessary for completing the Work in accordance with these Specifications.

ANTI-GRAFFITI COAT

Description

This Work shall consist of preparing surfaces and furnishing and applying anti-graffiti coating in accordance with 105.03 and as shown on the Design Documents.

Materials

The anti-graffiti coating shall be a sacrificial, wax-based emulsion type coating.

Construction Requirements

Prior to application, the Design-Build Contractor shall inspect all surfaces to be treated and correct all flaws in the substrate that would ultimately affect the performance or appearance of the anti-graffiti coating.

Surface preparation, method of application, application techniques, coating thickness, time of application, rate of application, temperature requirements for application and curing time for the anti-graffiti coating shall be in accordance with the written requirements of the manufacturer.

The Design-Build Contractor shall allow substrate to fully cure and newly coated surface to fully cure before application. Application shall be performed by an experienced applicator in accordance with the manufacturer's recommendations. The number of coats and coverage rates shall at no time be less than the manufacturers written requirements.

The Design-Build Contractor shall protect plants and vegetation from overspray and adjoining surfaces that are not to have the anti-graffiti coating applied. The Design-Build Contractor shall protect the public in an area used by the public. The Design-Build Contractor shall comply with all federal, state, and local environmental restrictions.

The Design-Build Contractor shall apply surface seal in accordance with 709 prior to applying the anti-graffiti coating.

Basis of Item

Only those measurement necessary to verify application rates will be made; however, the Design Documents shall include the approximate square feet for information only.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|----------|--------------------------|-------------|
| 709-0773 | Anti-Graffiti Coat | LS |

MODIFIED SURFACE SEAL

Description

This Work shall consist of preparing surfaces and applying a combination concrete stain and sealer in accordance with 105.03 and as described herein.

Materials

Modified surface seal shall consist of a material that stains and seals the concrete. The material shall provide an opaque appearance and the specular gloss in accordance with ASTM D 523 shall range from 8 to 20 at 60°. The material used shall be a water-based all-acrylic stain with VOC less than 150 grams per liter and shall contain no toxic heavy metals.

Acceptable products shall allow moisture and vapor transmission, be formulated for exterior application with resistance to freeze/thaw, moisture, alkali, acid and mildew, mold or fungus, discoloration or degradation, and meet the following requirements:

Water Vapor Transmission, ASTM D1653, Method B, Wet Cup:

5 Perms, Minimum

Scaling Resistance, ASTM C672, 50 cycles:

No scaling

Chloride Ion Penetration Resistance, AASHTO T259/T260:

1/16 in. to 1/2 in. deep, 75% minimum reduction in chloride ion migration as compared to an untreated sample

1/2 in. to 1 in. deep, 85% minimum reduction in chloride ion migration as compared to an untreated sample

ASTM G 153, Cycle 1, 2500 hrs:

No cracking, crazing or adhesive loss

Only one material shall be used at an individual location. It shall be delivered to the Project Site in undamaged sealed containers bearing the manufacturer's original labels. The manufacturer's brand name, date of manufacture, batch number, and color shall be clearly marked on each container. All material shall be from the same lot or batch unless otherwise authorized. A copy of the manufacturer's printed instructions shall be made available to INDOT upon request.

The material shall be stored in airtight, upright containers. The containers shall be stored in a dry enclosure where the temperature is kept in a temperature range as recommended by the manufacturer. Material which has been subjected to freezing will be rejected.

The stain material shall have a shelf life of not less than 12 months. The color of the applied stain material shall be in accordance with Red-Green-Blue variations. Such color shall match the color identification number shown on the Design Documents or in other special provisions.

All materials shall be furnished, prepared, applied, cured, and stored according to the product manufacturer's directions and as specified herein. Special attention shall be given to the recommended temperature range for application.

(a) Material Testing

The testing shall be performed by a recognized laboratory in accordance with ITM 806.

The applied material shall be subjected to and shall satisfy the

requirements of the tests listed above, prior to use.

(b) Certification

Before the stain is applied, a type B certification in accordance with 916 shall be furnished attesting that the commercial product furnished is in accordance with the same formula as that previously subject to the tests specified above and approved. Copies of the test reports shall be attached to the certification. Reports for tests made more than four years prior to shipment to the contract will not be accepted.

A service record shall be supplied which shows that the material has a satisfactory service record on concrete surfaces for a period of not less than five years prior to the date of submission of the service record. The coating shall also have shown satisfactory service characteristics without peeling, chipping, flaking, or non-uniform change in texture or color. A specific structure for the specific product shall be named for the service record.

Construction Requirements

Surface Preparation

The surfaces which are to receive the material shall be given a finish in accordance with 702.21. Air pockets of up to 1/4 in. in width and depth will not require grouting prior to application of the stain. Air pockets larger than 1/4 in. in width and depth shall be filled with a grout mix composed of one-part portland cement, two parts screened and washed sand graded to pass the No. 16 sieve with not more than 5% retained on the No. 30 sieve, and sufficient water to produce a thick liquid mix. The grout shall be applied to fill the air pockets and voids by using burlap pads, float sponges or other acceptable methods. As soon as the grout has taken its initial set, the surface shall be brushed to remove all loose grout, leaving the surface smooth and free of air pockets and voids.

Minor defects shall be finished to blend with the balance of the textured surfaces. Visible vertical or horizontal seams or conspicuous form marks shall be repaired to the satisfaction of IFA and at no additional cost to IFA. Prior to applying the material, regardless of whether the concrete surface has been previously sealed, the surface to be coated shall be water-blasted to remove flaking coatings, dirt, oil and other substances which could be deleterious to the application of the material. Sandblasting will not be allowed for cleaning concrete surfaces. Pressure washing with water at a pressure of 3000 psi at a rate of 3 to 4 gallons per minute using a fan nozzle held perpendicular to the surface at a distance of 12 in. to 24 in. shall be used. Overblasting, exposing additional air pockets, or disfiguring the surface shall be prevented. Final cleaning shall be done with compressed air. The air compressor shall be equipped with suitable separators, traps, or filters which shall remove water, oil, grease, or other substances from the air line.

Prior to applying the material, the surfaces shall have been prepared in accordance with the manufacturer's recommendations and shall be in a condition consistent with the manufacturer's requirements.

Surface Color

The material shall stain the concrete and provide an opaque appearance as shown on the Design Documents or other special provisions.

Application

The application, including equipment used, shall be in accordance with

the manufacturer's recommendations. The material shall be applied by qualified personnel experienced in the Work.

Enough coats of the material shall be used to attain an opaque appearance. The application of the material shall follow the surface preparation operations and be by air or airless sprayer. Each coat shall be allowed to thoroughly dry before applying additional coats. The final coat shall be applied in a uniform manner, moving in one direction. The application rates used shall be in accordance with the manufacturer's recommendations.

The Design-Build Contractor shall use sufficient material to provide color uniformity but avoid buildups and runs. The material shall be applied only when the ambient air and surface temperatures, humidity and dew point during application are in the ranges recommended by the manufacture. The material shall not be applied onto frozen surfaces or if rain is imminent. If rain occurs on a freshly applied surface, recoating may be required, at IFA's sole discretion, based on the extent of rain damage.

The material shall not be applied if dusty conditions exist in the vicinity of the surfaces to be coated. When dust conditions are beyond the control of the Design-Build Contractor, or are generated off-site, application shall not take place until more favorable conditions exist. The application of the modified surface seal shall be scheduled as one of the final finishing operations to minimize construction generated dust. A wet edge shall be maintained at all times to prevent lap marks. Stopping and starting in the middle of a section of concrete will not be allowed.

Finishing

The material shall be tightly bonded to the structure and walls to present a uniform color appearance accentuating the concrete texture. If necessary, additional coats shall be applied to produce the desired surface color uniformity. However, the additional coating thickness shall not diminish the appearance of the concrete texture.

The material shall be entirely removed from the structure and walls upon their failure to positively adhere without chipping, flaking or peeling, or attaining the desired surface color uniformity and concrete texture appearance. The material shall be reapplied after proper surface preparation until the desired finished product is achieved.

Appearance

The Design-Build Contractor shall apply the sealer and finish coat to a minimum 10 ft by 5 ft test area at the coverage rate recommended by the manufacturer. The test area shall include both horizontal and vertical surfaces and different concrete textures. The test areas shall demonstrate the coatings visual effects, including but not limited to, finish sheen, color and coverage rate.

Uniform appearance and the final color shall visually match the test section. Re-coating, removal, and re-application or other methods recommended by the manufacturer shall be performed to correct the final appearance.

Basis of Item

Only those measurements necessary to verify application rates will be made; however, the Design Documents shall include the approximate square feet for information only. This accepted quantities for this Work shall be in accordance with 709.08.

The following shall be considered incidental to this item:

Material, surface preparation, labor, and all other incidentals required for this Work shall be included in the lump sum of surface seal.

DISK BEARINGS

Description

This Work shall consist of designing, fabricating, and furnishing multi-rotational, high load disk bearings and installing disk bearing assemblies at the locations shown on the Design Documents in accordance with 105.03, the Indiana Design Manual, and the AASHTO LRFD Bridge Design and Construction Specifications, and as described herein.

Materials

Disk bearings shall consist of a polyether urethane structural element, disk, confined by upper and lower steel bearing plates. The bearing shall be equipped with a shear resisting mechanism, positive location device, or both, to prevent lateral movement of the disk. Bearings shall adequately provide for thermal expansion and contraction, rotation, camber changes, and creep and shrinkage of structural members, where applicable. Bearing assemblies shall include the bearing device, distribution plates, distribution pads, and connection hardware.

Disk bearings shall be supplied as fixed bearings; guided expansion bearings; non-guided expansion bearings; and uplift bearings as designated by the Design Documents. Disk bearings may be used as an alternate to a pot bearing.

All materials shall be new and unused, with no reclaimed material incorporated in the finished bearing.

The physical properties of the polyether urethane elements shall be in accordance with AASHTO LRFD Bridge Construction Specifications, Table 18.3.2.8-1.

All steel except stainless steel components of the bearing shall conform to the requirements of the type of steel designated on the contract Design Documents.

Stainless steel shall conform to the requirements of ASTM A240 - Type 304. Higher grades of stainless steel are permissible. Stainless steel in contact with the polytetrafluoroethylene, PTFE, Sheet shall be polished to a bright mirror finish, less than 20 micro-inches root mean square. The minimum thickness of the stainless steel shall be 0.063 in.

The PTFE sheet shall be manufactured from pure virgin, not reprocessed, PTFE resin. The PTFE sheet shall meet the applicable material requirements of AASHTO LRFD Bridge Construction Specifications, Section 18.8.2. The finished PTFE sheet shall be resistant to all acids, alkalis, and petroleum products, stable at temperatures from -360°F to +500°F, non-flammable, and non-absorbing of water. The minimum thickness of the PTFE sheet shall be 0.188 in.

The elastomeric rotational element shall be molded as a single piece. Separate layers are not allowed.

General Design Requirements

The Design-Build Contractor shall provide disk bearings for the loads and movements shown on the Design Documents. However, the Design-Build Contractor shall use the anchor rod size, length, spacing and masonry plate thickness as shown on the Design Documents and provide an overall height of the bearing assembly that is at least the height shown on the contract Design Documents,

but no more than 1/8 in. greater than this height. Otherwise, bearing seat elevations as shown on the Design Documents will need to be revised.

Qualification Requirements

Disk bearings and the bearing supplier shall be subject to the qualification requirements for acceptance listed below.

Disk bearings shall be designed and constructed in accordance with AASHTO LRFD Bridge Design Specifications 4th Edition, Section 14, and AASHTO LRFD Bridge Construction Specifications 2nd Edition, Section 18.

The supplier shall show previous history in the design and fabrication of disk bearings. Documentation showing a minimum of five years' experience and 10 bridge installations shall be provided to IFA.

Sliding bearings shall be stiff in shear. Negligible shear displacements shall occur within the vertical load support element.

The vertical load support element, elastomeric disk shall be designed for rotational fatigue at the design vertical load. Rotational loading shall be static dead load rotation plus cyclic live load rotation. Unless otherwise specified, the minimum number of cyclic design rotations shall be 5 million. Bearings that rely upon lateral confinement of the elastomer to sustain the vertical load shall simultaneously include 1/2 the design horizontal load. In lieu of long term testing, accelerated rotational fatigue life testing may be performed with 15,000 complete cycles at +/- 0.02 radians on a minimum of 3 full size bearings. Rotational fatigue test results shall be provided to IFA.

Submittals

The Design-Build Contractor shall submit eight copies of drawings and calculations to IFA for review and shall have received acceptance prior to constructing the girder seats and fabrication of disk bearings. These drawings shall include, but not be limited to, the following information:

- (1) Plan and elevation of each disk bearing size.
- (2) Complete details and sections showing all materials, with ASTM or other designations, incorporated in the disk bearings.
- (3) Vertical and horizontal load capacities.
- (4) Bearing seat and all bearing connection details.

The Working Drawings and calculations shall be stamped by a Registered Professional Engineer from the State of Indiana and shall be employed by the bearing supplier with at least five years of documented history of disk bearing design experience.

Fabrication

The Design-Build Contractor shall provide IFA with written notification 30 days prior to the start of bearing fabrication. The bearing fabricator shall be certified by the American Institute of Steel Construction, AISC, for Simple Steel Bridges Category.

All steel surfaces exposed to the atmosphere, except stainless steel surfaces and metal surfaces to be welded, shall be shop coated in accordance with the Design Documents. Prior to coating, the exposed steel surfaces shall be cleaned in accordance with the recommendations of the coating's manufacturer. Metal surfaces to be welded shall be given a coat of clear lacquer, or other protective coating approved by IFA. The coating shall be removed at the time of

welding. No painting shall be done to these surfaces prior to completing welding.

Stainless steel sheet shall be attached to its steel substrate with a continuous seal weld.

All welding shall conform to, and all welders shall be qualified in accordance with, the requirements of the American Welding Society, AWS.

Except as noted, all bearing surfaces of steel plates shall be finished or machined flat within 0.010 in./ft. Out-of-flatness greater than 0.010 in./ft on any plate shall be cause for rejection. The bottom surfaces of lower bearing plates, masonry plates, designed to rest on bearing pads shall not exceed an out-of-flatness value of 0.0625 in./ft. Oxygen cut surfaces shall not exceed a surface roughness value of 1000 micro-inches as defined by ANSI B46.1.

Gross bearing dimensions shall have a tolerance of -0, + 1/8 in.

Every bearing shall have the project identification number, lot number, and individual bearing number indelibly marked with ink on a side that will be visible after erection.

After assembly, including sole plates and masonry plates, bearing components shall be held together with steel strapping or other means, to prevent disassembly until the time of installation. Packaging shall be adequate to prevent damage from impact as well as from dust and moisture contamination during shipping and storage.

Sampling and Testing

Production bearing sampling and testing shall be performed in accordance with AASHTO LRFD Bridge Construction Specifications, Section 18.3.4.

Each bearing shall be visually examined both during and after testing. Any resultant defects, such as bond failure, physical destruction or cold flow of PTFE to the point of debonding, shall be cause for rejection. Defects such as extruded or deformed elastomer or cracked steel shall also be cause for rejection.

Construction Requirements

Installation

Bearings delivered to the bridge site shall be stored under cover on a platform above the ground surface. Bearings shall be protected at all times from damage. When placed, bearings shall be dry, clean, and free from dirt, oil, grease, or other foreign substances.

Bearing devices shall not be disassembled unless otherwise allowed by IFA or the manufacturer.

Bearings shall be installed in accordance with the alignment plan and installation scheme as shown on the Design Documents. Upon final installation of the bearings, IFA, in the presence of the manufacturer's representative if required, shall inspect the bearing components to assure that they are level and parallel to within ± 0.005 radians. Any deviations in excess of the allowed tolerances shall be corrected.

Bearings assemblies shall be handled by their bottom surfaces only and shall not be lifted by their tops, sides or shipping bands.

Caution shall be taken to ensure that the steel temperature directly adjacent to the polyether urethane rotational element does not exceed 225°F. The polyether urethane disk shall not be exposed to direct flame or sparks.

Certificate of Compliance

In addition to records of test results, the Design-Build Contractor's disk bearing supplier shall submit Certificates of Compliance for the disk bearings indicating the materials, fabrication, testing, and installation are as specified herein.

Basis of Item

Disk Bearings fabricated and installed shall be quantified per each and shall be defined as one complete bearing assembly including anchor bolts, masonry plate, steel sole plate, bearing device, distribution plates, distribution pads, connection hardware and any incidental material needed to complete the Work.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|--|--------------------|
| 707-10188 | High Load Multi-Rotational Bearings, Guided | Each |
| 707-10188 | High Load Multi-Rotational Bearings, Fixed | Each |
| 707-10188 | High Load Multi-Rotational Bearings, Guided, Uplift .. | Each |

The following shall be considered incidental to this item:

Furnishing all labor, materials, tools, equipment and incidentals required to complete the Work in accordance with the Standard Specifications, this Special Provision, the manufacturer's requirements and as directed by IFA.

WATERWAY MAINTENANCE OF TRAFFIC

SECTION 801.03, BEGIN LINE 160, INSERT AS FOLLOWS:

The Design-Build Contractor shall provide a line of buoys 200 feet upstream and downstream of the I-465 over White River bridges to warn boats or other water craft of the work zone. The buoys on these lines shall have a maximum spacing of 30 ft. Each buoy line shall be equipped with two Type D Construction Signs stating "Caution in-Channel Restrictions and Overhead Work Ahead" to be located near the opening in the temporary causeway. The Design Build Contractor shall provide a safe channel for watercraft to pass through the work zone and opening in the temporary causeway. The channel shall be a minimum of 12 ft wide and shall be delineated with buoys spaced at 10 ft maximum spacing. The Design Build Contractor shall provide signing at the entrance to the channel and on each side of the channel noting the location of the channel. The signing shall state "Channel Thru Work Zone" and provide directional arrows. With approval from IFA, the Design-Build Contractor may close the channel to watercraft during operations to ensure the safety of the public. All buoys shall conform to 312 IAC 5-4. The buoys shall be equipped with Type "A" construction warning lights. Any equipment operated within the limits of the waterway shall be equipped with Type "A" construction warning lights.

The buoy lines shall be in place prior to any in-channel work and shall be maintained and left in place until the work is completed.

SECTION 801.17, BEGIN LINE 914, INSERT AS FOLLOWS:

Buoy lines, Type D construction signs used to delineate the buoy line, channel delineation and channel signing shall not be quantified.

SECTION 801.18, BEGIN LINE 914, INSERT AS FOLLOWS:

The furnishing, placing, moving, removal and maintenance of buoy lines, and signing and warning lights used to delineate a buoy line shall be considered incidental to Maintaining Traffic.

ARTICULATED CONCRETE BLOCK

Description

This Work shall consist of furnishing and installing a precast articulated concrete block revetment system in accordance with 105.03.

Materials

Materials shall be in accordance with the following:

- Geotextiles..... 918.02
- Concrete Block..... ASTM D6684-04
- Cable and Fittings..... ASTM D6684-04

The Design-Build Contractor shall utilize a precast articulated concrete block system. This shall be a system of concrete blocks laterally and longitudinally cabled into a prefabricated mat placed over geotextile. The blocks may also be longitudinally cabled together with a side pattern for interlocking with an adjacent row of blocks. The system shall consist of all open cells. Open cell systems shall have a minimum of 15% open area.

Concrete block shall be manufactured by a certified precast concrete producer.

A type "A" certification in accordance with 916 shall be provided for the precast articulated concrete block system. The certification shall include the following tests and results:

The precast concrete blocks shall have a minimum compressive strength of 4000 psi for an average of three units. Water absorption shall be limited to a maximum 9.1 lbs/cu ft. for an average of 3 units. Units shall be sampled and tested in accordance with ASTM D6684-04, Standard Specification for Materials and Manufacture of Articulating Concrete Block Revetment Systems.

Cables and fittings shall be as recommended by the manufacturer and shall meet the following criteria:

In cable-tied ACBR systems, the cables shall be stainless steel, galvanized steel, or polyester. Selection of cable and fittings shall be in accordance with ASTM D6684-04.

A type "A" Certification in accordance with 916 shall be provided for the cable used to connect concrete blocks prior to installation.

Soil anchor stakes for the Articulated Concrete Block system shall be in accordance with the manufacturer's recommendations. A type "C" certification in accordance with 916 shall be provided for soil anchors prior to installation. The certification shall state that the soil anchor stakes meet the testing requirements set out in the Articulated Concrete Block system manufacturer's recommendations.

Submittals

The Design-Build Contractor shall submit the following information to IFA at least 21 days prior to commencing Articulated Concrete Block system construction:

- (a) Type and source of the selected Articulated Concrete Block system
- (b) Type and source of cables and fittings
- (c) Type and source of anchor system

- (d) Construction method and sequence
- (e) A copy of the articulated concrete manufacturer's specifications and literature including material and installation recommendations and instructions.
- (f) Working and installation drawings, stamped by a professional engineer, specific for the project for the fabrication of the Articulated Concrete Block system, and installation recommendations, as applicable, specifically related to the project.

Construction Requirements

Excavation for the Articulated Concrete Block system shall be as shown on the Plans and in accordance with 203. Excavation for blocks toed in for anchors shall be made to the neat lines as shown on the plans.

Geotextile fabric shall be placed in accordance with 616.11 on the subgrade prior to placing the Articulated Concrete Block system.

Articulated Concrete Block systems shall be placed side by side, fastened together and anchored to provide one homogeneous erosion protection system. The mats shall arrive at the jobsite assembled according to lengths and widths as specified on the working drawings.

Basis of Item

Articulated Concrete Block will be fabricated and installed shall be quantified per square yard and shall be defined by the finished surface area, including the area occupied by courses used as toed-in anchors, complete in place.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|----------------------------------|--------------------|
| 621-09815 | Articulated Concrete Block | SYS |

The following shall be considered incidental to this item:

The design, testing, grading, furnishing of all labor, materials, equipment and incidentals required to complete the Work in accordance with the Standard Specification, this Special Provision, the manufacturer's requirements and as directed by IFA.

LIMITING MOVEMENT CRITERIA FOR PERMANENT EARTH RETENTION SYSTEM FOR CUT-WALL
APPLICATION

The Design-Build Contractor shall limit maximum lateral wall movements during and following construction of the cut-wall to 1.0 percent of the excavation depth that is shown on the Plans.

The Design-Build Contractor shall limit maximum settlement of the ground behind the cut-wall during and following construction of the wall to less than 0.5-inch.

If these limits are exceeded, the Design-Build Contractor shall submit in writing to the IFA for approval a plan of corrective measures to prevent or limit all additional movement or settlement. The plan of corrective measures shall be implemented upon written approval by IFA.

TEMPORARY CAUSEWAY

Description

This Work shall consist of furnishing, installing, and maintaining a temporary causeway in accordance with 105.03.

The temporary causeway shall be part of the temporary erosion control plan and shall be constructed with the other temporary erosion control measures in accordance with 205.

Materials

Materials shall be in accordance with 205.02 and 908.02.

Construction Requirements

The Design-Build Contractor may use an alternate method for the river Work as shown on the Plans, pending the approval of IFA.

The Design-Build Contractor shall make the appropriate permit amendments for selected method.

The Design-Build Contractor shall install one "Authorized Vehicles Only" sign (R5-11) and one "No Pedestrians" sign (R5-10c) at each end of the temporary causeway.

A minimum 12 ft opening in the temporary causeway shall be maintained at all times.

The Design-Build Contractor shall coordinate with IDNR to determine when the temporary causeway may be constructed in the White River.

The erosion and sediment control measures adjacent to the river area shall be installed prior to construction of the temporary causeway. All work shall stay within the construction limits. Disturbance within the construction limits shall be minimized.

Work shall not be conducted during rain events.

Temporary pipe thickness shall be per 713.05.

Maintenance and Inspection

The temporary causeway shall be inspected within 24 hours of each rainfall event and at least once every seven calendar days. All damage shall be repaired immediately.

Removal

Temporary causeway shall be removed after construction in the river is complete and permanent erosion control features have been established. Any areas disturbed by the temporary causeway shall be returned to their original condition and re-vegetated as needed.

Basis of Item

Temporary Causeway shall be quantified as a lump sum.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|-------------------------|--------------------|
| 713-04331 | Temporary Causeway..... | LS |

The following shall be considered incidental to this item:

All design, coordination, permit addendums, materials, installation and removal, maintenance, and all necessary incidentals for the causeway.

The "Authorized Vehicles Only" sign (R5-11) and "No Pedestrians" sign (R5-10c) shall be quantified as part of Construction Sign, B.

PUMP-AROUND

Description

This work shall consist of furnishing, installing, and maintaining a pump-around in accordance with 105.03.

The pump-around shall be part of the temporary erosion control plan and shall be constructed with the other temporary erosion control measures in accordance with 205.

Materials

Materials shall be in accordance with 205.02.

Construction Requirements

The Design-Build Contractor may use an alternate method for the channel work as shown on the plans, pending the approval of IFA. If an alternate method is proposed, the Design-Build Contractor shall make the appropriate permit application or amendment.

Traversing the channel with equipment within the work area where no work is proposed shall be avoided. If equipment is required to traverse such a reach for access to another area, timber mats or similar measures shall be used to minimize disturbance to the channel. A temporary channel crossing shall be used only when necessary and as approved.

The erosion and sediment control measures adjacent to the channel area shall be installed before construction of the pump-around can begin. All work shall stay within the construction limits. Disturbance within that area shall be minimized.

Work shall not be conducted during rain events.

Pump-Around

The pump-around shall be in accordance with the following:

Dewatering of the channel shall be performed by using a mechanical pump. The intake suction hose shall be floated as long as possible to prevent the pump from pulling sediment from the bottom of the pooled area.

Dikes shall be installed at the upstream and downstream ends of the work area as shown in the details, and the channel flow shall be pumped around the work area. The pump shall discharge onto a stable velocity dissipater consisting of riprap or sandbags or other approved equal medium.

Water trapped within the work area shall be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved device. The sediment filtering measure shall be located such that the water drains back into a stabilized area and into the channel below the downstream dike.

Dewatering Filter Bag

A dewatering filter bag shall be securely connected to the end of the discharge hose.

The dewatering bag shall be a single-use or reusable type of bag and shall be constructed of non-woven, polypropylene geotextile material. The bag shall have the following minimum specifications:

Permittivity - 1.4 sec-1

Grab Tensile - 205 lbs
Weight - 8 oz/sys
Apparent Opening Size - 80 US Sieve

The dewatering bag shall be placed on a flat surface and on riprap or sandbags to help increase the flow through the dewatering bag and help dissipate the velocity.

Water shall be pumped from the channeled area at a rate not to exceed the maximum manufacturer's recommended flow rate of the dewatering bag.

Dewatering bags shall be placed in a location in which runoff from the bag will pass through additional sediment control measures prior to leaving the site.

Following the completion of the dewatering, the sediment accumulated within the dewatering bag shall be removed from the bag and placed in an upland area.

Maintenance and Inspection

The diversion measures shall be inspected within 24 hours of each rainfall event and at least once every seven calendar days. The sediment and debris from the channel or upstream clean water dike shall be removed. The dikes shall be repaired as needed. All outlets shall be checked and repaired as needed to prevent washouts. The dewatering filter bag shall be checked and cleaned.

Removal

Pump-around shall be removed after construction in the main channel is complete and permanent erosion control features have been established. Any areas disturbed by the pump-around measures shall be returned to their original condition and re-vegetated as needed.

Basis of Item

Pump-around will be quantified for at the contract unit price per each.

The items list shall include the following:

| Item No. | Item Description | Unit Symbol |
|-----------------|-------------------------|--------------------|
| 205-11626 | Pump-Around..... | EACH |

The following is considered incidental to this item:

Furnishing all materials, equipment, labor, installation, maintenance, and removal required for dewatering and operation of the temporary pump-around.

Temporary channel crossings if required.

SECTION 620, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 620 – ~~BLANK~~ SOUND BARRIER SYSTEMS

620.01 Description

This Work shall consist of furnishing materials and placing of a sound barrier system and a coping in accordance with 105.03.

620.02 General Design Requirements

The sound barrier system shall be either wall mounted, bridge mounted or ground mounted, and shall consist of wall attachments or post foundations, vertical support posts, and sound barrier panels. For the purposes of this section, “panel” is defined as the reflective or absorptive component mounted between the posts, piers or columns.

All appurtenances behind, in front of, under, over, mounted upon, or passing through the wall, including drainage structures, fire hydrant access openings, highway signage, emergency access openings, utilities or other appurtenances shown on the Plans, shall be accounted for in the design of the sound barrier system.

See the Plans for locations and details regarding access doors in the sound barrier. Access doors for wall mounted sound barrier shall only swing outward, away from the roadway.

If the sound barrier manufacturer needs additional information to complete the design, the Design-Build Contractor shall be responsible for obtaining such information. The Design-Build Contractor shall be responsible for field verifying wall locations in areas of all existing traffic poles, utility poles, roadway lighting poles, drainage pipes, underdrain outlets, and bridge expansion joints and all other locations where the sound barrier system may conflict with existing conditions.

The wall shall be realigned and designed to box out openings where conflicts occur with existing light poles and traffic control devices. The Design-Build Contractor shall establish and account for the existing locations of all underdrain outlets, drainage pipes, and bridge expansion joints in the final wall plans. If the Design-Build Contractor discovers that overhead utilities will be within 6 ft of the sound barrier, the Design-Build Contractor shall notify IFA in accordance with 104.02 and 105.16.

The sound barrier wall design shall follow the general dimensions of the wall envelope as shown on the plans. The top of the sound barrier shall be at or above the acoustical profile line shown, unless otherwise noted on the plans. Changes in elevation shall be accomplished by stepping the sound barrier sections at the vertical support posts. Steps shall not exceed 3 ft vertically unless otherwise specified on the plans. Barrier heights shall be selected in groups of no fewer than three successive panels, except where barriers are to be stepped down for barrier termination. ~~The ends of the sound barrier shall be tapered or stepped down to a height of 8 ft within the sound barrier end transitions or as shown on the plans.~~ The bottom of ground mounted sound barrier shall be embedded a minimum of 6 in. into the ground. The bottom of wall mounted or bridge mounted sound barrier shall follow within 3 in. a profile 6 in. below the top of the

existing concrete barrier railing or wall.

Caisson footings, vertical support posts, and connections for ground mounted sound barrier shall be designed as specified by the manufacturer, with minimum post spacing of 15 ft. Exceptions will be allowed due to site-specific conditions such as access doors, drainage requirements or utility accommodations. These shall be reviewed and approved through the working drawing process. The foundation design shall use the COM 624P or LPILE Program. The foundation design shall be based on the soil model shown on the plans based on cyclic loading and shall consider the effects of a sloping ground surface. The post deflection shall be limited to L/100, measured from the top of the caisson to the top of the wall. The foundation depth shall not be less than 7.5 ft and shall not exceed the depth of the soil model except where the Design-Build Contractor elects to drill deeper borings to extend the model. The foundation diameter shall not be less than 18 in. and shall not be less than 6 in. larger than the diagonal dimension of the post being used. The foundation shall be designed by the sound barrier manufacturer. Vertical support posts shall be attached to caisson footings by means of anchor bolts, or embedded wide flange steel posts.

A sound barrier system shall be selected for the type specified from those which are on the INDOT's list of approved Sound Barrier Systems. The materials used in the sound barrier system shall be the same as those used for approval of the sound barrier system.

The structural design of the sound barrier system shall be in accordance ~~with the AASHTO LRFD Bridge Design Specifications for Structural Design of Sound Barriers,~~ with AASHTO LRFD Bridge Design Specifications 8th Edition (2017), Chapter 15, except as otherwise directed by the IFA. The sound barrier system shall be designed to withstand wind pressure ~~as shown on the plans, as applied perpendicular to the barrier, in each direction.~~ per AASHTO LRFD Bridge Design Specifications 8th Edition (2017), Section 15.8.2.

The post spacing for sound barriers mounted on any structure or safety barrier shall be limited to a distance that does not overstress the existing structure or safety barrier. The spacing shall also be limited to a distance that allows the sound barrier to conform to the existing horizontal and vertical alignments. ~~The allowable loads on a structure or barrier will be shown on the plans. If no allowable loads are shown, the Contractor shall contact the project designer for this information.~~ The allowable loads on a structure shall be as shown on the plans. The allowable loads on a ~~or~~ sound barrier shall be in accordance with AASHTO LRFD Bridge Design Specifications 8th Edition (2017), Chapter 15. Sound Barrier that is protected by guardrail or concrete traffic barrier, as shown on the Plans, need not be designed for vehicular collision forces. Any deviation of wall locations from what is shown on the plans shall require the approval from IFA for this design deviation to remain valid.

When sound barriers are to be installed on a bridge structure, design calculations shall be completed to demonstrate the structure loading limits will not be exceeded.

All materials shall have a minimum predicted maintenance free structural and acoustical lifespan of 20 years. All colorings and coatings shall have a minimum predicted maintenance free lifespan of 10 years.

The types of acoustic sound barrier systems that are accepted are as follows:

Type 1, single sided absorptive, sound barrier systems and their components shall be designed to achieve a sound transmission loss equal to or greater than 20 decibels at all frequencies when tested in accordance with ASTM E 90. Type 1 sound barrier systems shall be designed to have a minimum noise reduction coefficient of 0.70 on the roadway side. Type 1 sound barrier systems shall be tested in accordance with ASTM C 423. Material samples for this test shall be provided with the coating applied, so as to determine that the color coating does not inhibit the acoustic performance. The sample shall be mounted in accordance with ASTM E 795, type A.

Type 2, double-sided absorptive, sound barrier systems and their components shall be designed to achieve a sound transmission loss equal to or greater than 20 decibels at all frequencies when tested in accordance with ASTM E 90. Type 2 sound barrier systems shall be designed to have a minimum noise reduction coefficient of 0.70 on the roadway and non- roadway sides. Type 2 sound barrier systems shall be tested in accordance with ASTM C 423. To determine that the color coating does not inhibit the acoustic performance, material samples for this test shall be provided with the coating applied. The sample shall be mounted in accordance with ASTM E 795, type A.

A type 2 barrier system may be substituted for a type 1 barrier system at the Design-Build Contractor's discretion.

All molded finishes shall have 1 in. minimum relief. All rolled finishes shall have a minimum 3/4 in. relief. Relief is defined by material that is provided in excess of the minimum wall thickness required to meet the noise reduction coefficient required for the absorptive surfaces. Fluted finishes shall be coped at each end to avoid cracking.

Corrugations, ribs, or battens on sound barrier panels shall be oriented vertically when erected. The sound barrier shall be designed to prevent entrapment and ponding of water. The sound barrier shall not be designed with openings promoting the perching or nesting of birds, or the collection of dirt, debris, or water. The sound barrier shall not be designed with hand holds or grips promoting scaling or climbing of the system.

Fire hydrant access points shall be designed with additional reinforcement or bracing and protective coating around the opening as necessary to maintain structural integrity.

Closure plates shall be provided where new sound barrier is constructed adjacent to existing sound barrier. Where bridge mounted walls cross over expansion joints, expansion closure plates shall be used. The wall manufacturer shall provide expansion closure plates for each expansion joint unless directed otherwise by IFA. The minimum thickness of closure plates shall be 3/16 in.

The calculations for sound barriers which also retain earth must show that the walls are adequate for earth retention. The earth retention areas shall be shown on the Plans. The exposed face of the sound barrier earth retaining panel will match the adjacent panel's color and texture.

(a) Precast Panel Design Criteria

Base-plated or embedded reinforced precast concrete posts may be substituted for wide flanged steel posts with the approval of IFA. Proposed substitutions for wide flanged steel posts shall be shown on working drawings submitted for approval.

Support posts shall have color as shown on the plans. Embedded reinforced precast concrete posts must also match the adjoining wall in texture. Sound barrier systems utilizing stacked panels shall have ship-lapped or tongue and groove horizontal joints or other approved design which blocks the passage of light.

(b) Aesthetic Criteria

Sound barriers shall meet the following aesthetic requirements:

Sound barrier panel texture requirements:

Roadway and non-roadway side top panel – 12-inch-high smooth band.

Roadway side – split-face random ashlar texture. Face shall be cast and not stamped or impressed.

Non-roadway side – textures shall be determined in accordance with 620.03

Sound barrier color requirements:

1) Roadway side panels (including top of top panel) – light tan (SAE-AMS-STD-595, color No. 37769).

Roadway side galvanized steel posts – light tan (SAE-AMS-STD-595, color No. 37769).

Non-roadway side panels – colors shall be determined in accordance with RSP 620.03

Non-roadway side galvanized steel posts – color shall match selected panel color as determined in accordance with RSP 620.03.

(c) Masonry Design Criteria

Reinforced masonry vertical support posts shall be faced to have color as shown on the Plans.

Steel support posts shall have color as shown on the Plans.

620.03 Submittals

The Design-Build Contractor shall submit a minimum of three alternative textured finishes for the residential side of the wall to IFA. These shall include the following colors:

(a) Light gray (SAE-AMS STD 595, color No. 36492),

(b) Light brown (SAE-AMS STD 595, color No. 30450),

(c) Light tan (SAE-AMS STD 595, color No. 37769).

The colors will be presented to the public for their input in accordance with 620.05. The final wall pattern and color will be approved before production of the wall panels may begin.

The Design-Build Contractor shall submit design calculations in accordance with 105.02. Calculations for sound barriers on bridge structures shall include an analysis of the bridge structure that demonstrates the additional loads imposed by the sound barrier, including dead

load and wind load, will not exceed the structural capacity of the bridge. The Design-Build Contractor shall submit Working Drawings in accordance with 105.02 after design calculations are approved and before beginning wall construction operations. Design calculations and Working Drawings shall meet the following minimum requirements:

- (a) Design calculations shall include all structural design calculations and vertical support post design calculations.*
- (b) Design calculations for bridge mounted installations shall include the design unit weight and mass of the sound barrier and support systems.*
- (c) Design calculations for bridge mounted installations shall demonstrate that the structural loading limits of the structure, as shown on the Plans, will not be exceeded.*
- (d) Working Drawings shall include all details, dimensions, quantities, and cross sections necessary to construct the sound barrier systems and shall include, but not be limited to, the following:*
 - 1. A plan and elevation sheet or sheets for each sound barrier systems location.*
 - 2. An elevation view of the sound barrier systems which shall include the elevation at the top of the wall at all horizontal and vertical break points at least every 50 ft along the face of the wall.*
 - 3. A plan view of the wall that indicates the offsets from the construction centerline to the face of the wall at all changes in horizontal alignment. A plan view and elevation view which detail the placing position.*
 - 4. A typical cross section or cross sections showing elevation relationship between ground conditions and the sound barrier systems locations.*
 - 5. All general notes required for constructing the wall.*
 - 6. Each sheet shall show the complete project identification number.*
 - 7. All horizontal and vertical curve data affecting the wall.*
 - 8. A listing of the summary of quantities on the elevation sheet for each wall.*
 - 9. A list of manufacturer's recommendations with respect to maintenance, including repair of graffiti and other damages.*
 - 10. Typical sections and elevation views for bridge mounted installations.*
- (e) Working Drawings shall include a detailed plan of aesthetic treatment for the entire sound barrier system, manufacturer-recommended installation requirements and sequence of*

construction, manufacturer-recommended repair requirements for damage caused by vandalism or graffiti prior to final acceptance, and a detailed bill of materials.

620.04 Materials

Materials shall be in accordance with the following:

| | |
|---|-----------------------|
| <i>Cast-in-Place Portland Cement Concrete, Class A</i> | <i>702</i> |
| <i>Coarse Aggregate, Class A or Higher, Size No. 91</i> | <i>904</i> |
| <i>Coarse Aggregate, Class D or Higher, Size No. 5.....</i> | <i>904</i> |
| <i>Coarse Aggregate, Class D or Higher, Size No. 8.....</i> | <i>904</i> |
| <i>Concrete Masonry Units</i> | <i>905.06</i> |
| <i>Fine Aggregate, Size No. 23.....</i> | <i>904</i> |
| <i>Joint Mortar</i> | <i>901.08, 907.12</i> |
| <i>Paint</i> | <i>909.02</i> |
| <i>Portland Cement</i> | <i>901.01(b)</i> |
| <i>Precast Concrete.....</i> | <i>707</i> |
| <i>Reinforcing Bars</i> | <i>910.01</i> |
| <i>Structural Aluminum Posts</i> | <i>910.14(d)</i> |
| <i>Structural Steel.....</i> | <i>910</i> |
| <i>Water.....</i> | <i>913.01</i> |

Steel structural components shall be in accordance with ASTM A 36. Structural steel components shall be hot dipped galvanized in accordance with ASTM A 123, coating grade 100 or painted in accordance with 619.11 and 619.12. Exposed surfaces of galvanized components shall be coated in accordance with 619.09(b). The galvanized surfaces shall be prepared using a light brush-off blast cleaning in accordance with SSPC-SP 16. The surface profile shall be 15 to 30 microns in accordance with ASTM D 4417, prior to painting.

All structural steel hardware shall be in accordance with ASTM F 3125, grade A 325 and shall be hot dipped galvanized in accordance with ASTM A 153 or shall be made of nonferrous material or stainless steel. All other non-structural fastening devices shall be made of nonferrous metal or stainless steel. Plastic members shall be connected with either screws or bolts. Aluminum members shall be connected with stainless steel fasteners. Anchor bolts shall be of the size shown with a minimum of 10 in. of 7NC threads on the upper end. Anchor bolts shall be in accordance with ASTM F 1554. The threads, nuts, and washers shall be galvanized in accordance with ASTM A 153 or be mechanically galvanized and conform to the coating thickness, adherence, and quality requirements of ASTM A 153, where required.

Solid portland cement concrete or composite concrete shall be coated or contain an integral pigment, as specified by the manufacturer, and shall meet the specified color requirements. Integral pigment shall be certified to be in accordance with ASTM C 979. The coating shall be tested for accelerated weathering in accordance with ASTM D 6695. The test panel substrate shall be of the same portland cement concrete or composite concrete material used in the sound barrier system component. Cured coating or integral pigment shall not contain heavy metals that exceed the requirements of 40 CFR 261.24.

Concrete class A for the coping shall be in accordance with the applicable requirements of 702, except the coarse aggregate for pre-cast units may be size No. 91 in accordance with 904. Reinforcing steel in the coping shall be in accordance with the applicable requirements of 703. The coping may be precast or cast-in-place.

Masonry block shall be tested in accordance with ASTM C 90 and as follows:

- a. The average compressive strength of 3 units shall be a minimum of 3,000 psi with no single unit being less than 2,700 psi.
- b. The units shall be tested for water absorption in accordance with ASTM C 140. The maximum absorption shall be 7%.
- c. Joint reinforcement for masonry block systems shall be in accordance with ASTM A 951.
- d. Mortar for masonry block systems shall be in accordance with ASTM C 270; type S, Table 1 proportion requirements.
- e. Portland cement-lime or mortar cement may be used. Masonry cement shall not be used. Grout for masonry shall be in accordance with ASTM C 476.
- f. Aggregate for masonry grout shall be in accordance with ASTM C 404.

Masonry blocks shall be coated or contain an integral pigment, as specified by the manufacturer, and shall meet the specified color requirements. The integral pigment shall be certified to be in accordance with ASTM C 979. The coating shall be tested for Accelerated Weathering in accordance with ASTM D 6695. The test panel substrate shall be of the same masonry blocks used in the sound barrier system component. Cured coating or integral pigment shall not contain heavy metals that exceed the requirements of 40 CFR 261.24.

Certifications shall be provided for each of the materials to be supplied for the sound barrier system. Certifications shall be in accordance with a type C in accordance with 916, unless noted otherwise. A type A certification in accordance with 916 shall be provided for compressive strength and absorption test values for masonry block, sampled and tested in accordance with ASTM C 140. All test reports required to substantiate compliance shall be in accordance with the test method/material requirements cited herein. An INDOT approved laboratory shall conduct the testing.

620.05 Information for Public Input

Colored flyers with appropriate graphics shall be developed by the Design-Build Contractor and furnished to IFA.

Wall color photos shall be provided for each color in accordance with 620.03 along with photos of each available texture alternative. A minimum of three wall samples of the non-roadway side textures shall be provided. All samples of the wall textures shall be a minimum of 3 sq ft in area, with a distinguishable pattern.

Based on comments received, IFA will select the final finishes and colors for each wall. Each wall shall have the selected color used throughout the entire wall on the ~~roadway~~ and the non-roadway sides. The Design-Build Contractor shall propose approach process for patterns and color options to IFA for approval.

620.06 Construction Requirements

Sound barrier components shall not be stored on the right-of-way unless written permission is given by IFA. Requests for permission to store materials on the right-of-way will not be accepted until after the contract has been awarded.

The sound barrier supplier shall provide technical instruction, guidance in preconstruction activities including the preconstruction conference, and on-site technical assistance during construction. The Design-Build Contractor is responsible for following installing instructions from the supplier unless otherwise directed in writing by IFA.

Clearing and grading shall be in accordance with 201 and 202, as required.

The foundations for ground mounted sound barrier systems shall be constructed as shown on the working drawings. Holes for footings shall be drained of free water prior to installing any components. Placing concrete shall be in accordance with 702.

The integrity of the sound barrier system continuity shall be such that no light will be visible through any vertical joint between sound barrier panels and vertical support posts, through any horizontal joints between sound barrier panels, between the bottom of any ground mounted sound barrier and the adjacent ground, or between the bottom of any wall mounted sound barrier and the top of the adjacent wall. Exceptions may be allowed as necessary for drainage as indicated on the plans.

Sound barrier wall posts shall be placed vertical with a tolerance of 1/2 in. per 10 ft on each axis. Sound barrier wall posts shall be placed at the distance indicated on the plans with a tolerance of 1 in. from centerline to centerline. Sound barrier wall posts shall be aligned to within 1 in. when measured from a straight line from the 2 adjacent posts. Sound barrier wall posts shall be at the height as shown on the Plans. The posts shall project above the top sound barrier wall panel by 1 1/2 in. ± 1/2 in. The top of the sound barrier wall shall be at or above the acoustical profile. Steel posts embedded in concrete shall have bottom cover of 8 in. ± 4 in. Field-cut steel posts shall be primed with an organic zinc primer and painted in accordance with 619.

After post erection, the area shall be backfilled to within 6 in. of the required final grade or as specified on the plans. The aggregate pad shall be placed as required. Positive drainage of the work area shall be maintained.

An aggregate pad of No. 2 Stone shall be included that extends a minimum of 4 in. outside of each side of the panel and 4 in. below the bottom of the panel.

The sound barrier system and sound barrier system components shall be maintained until final acceptance. Elements of the sound barrier system that are damaged or destroyed, including

due to graffiti or other vandalism, shall be repaired or replaced as directed by IFA. Repairs and repainting shall be conducted in accordance with the manufacturer's guidance and 620.02.

After construction of the sound barrier system the site shall be restored to the original condition with grading, seeding and sodding in accordance with the plans.

(a) Construction Requirements for Precast Panels

Sound barrier wall panels shall be placed in accordance with the plans and centered between adjacent posts. The sound barrier wall panels shall be of sufficient length to span the entire length between posts less 1/2 the width of the smallest retaining flange.

Panels may be field-cut to facilitate erection in accordance with the manufacturer's recommendation. Field-cut panels shall be cut to have the least impact on any patterns present in the textured or colored finish. Field-cut panels or other field cut components shall be painted in accordance with the manufacturer's guidance.

(b) Construction Requirements for Masonry

All grouting and reinforcing work for masonry block systems shall be performed by masonry craftworkers holding current International Masonry Institute, IMI, Grouting and Reinforcing Certification. Proof of certification shall be submitted prior to the beginning of work.

620.07 Acceptance

The Design-Build Contractor shall submit 2 ft by 2 ft sound barrier panel samples or five masonry block units in the colors and textures proposed and a 2 ft sample of painted support post, prior to the approval of the working plans. Once approved, these samples will be used as a control sample to verify delivered products meet the aesthetic requirements. The sound barrier system will be accepted for color based on a visual comparison between the control sample and the color of the wall as constructed in place.

The sound barrier system will be accepted for quality based on a visual inspection of the components of the system by IFA. The sound barrier system shall be subject to rejection due to failure to be in accordance with the requirements specified herein. In addition, the following defects may also be sufficient cause for rejection:

- (a) Defects that indicate imperfect fabrication*
- (b) Defects in physical appearance such as cracks, checks, dents, scrapes, chips, stains, or color variations.*

IFA will determine whether a defective sound barrier shall be repaired or shall be rejected. Repair, if allowed, shall be completed by the Design-Build Contractor, as approved by IFA.

620.08 Basis of Item

Wall mounted sound barrier panels, bridge mounted sound barrier panels, ground mounted sound barrier panels, wall mounted sound barrier erection, bridge mounted sound barrier erection, and ground mounted sound barrier erection shall be quantified by the square

Sound barrier panel materials, including vertical support posts, coping, aggregate pad mortar, grout and joint reinforcement for masonry block, fasteners, closures, expansion plates, openings and incidentals shall be included in the cost of the sound barrier panels for the type of sound barrier panels. Any formliner and color required by Project aesthetics.

The design, furnishing and installation of brackets for project signage that attach to the sound barrier. The Design-Build Contractor shall follow notes provided in the plans and follow guidelines in the Manual on Uniform Traffic Control Devices, MUTCD, regarding required positioning of the brackets and signage.

All labor and materials to prepare and erect the sound barrier.

Foundation preparation and construction with associated work.

WATERPROOFING MEMBRANE FOR REINFORCED-CONCRETE BOX STRUCTURES
AND THREE-SIDED STRUCTURES

The Standard Specifications are revised as follows:

SECTION 714, AFTER LINE 20, INSERT AS FOLLOWS:

Fabric or Membrane for Waterproofing.....918.06

SECTION 714, BEGIN LINE 339, DELETE AND INSERT AS FOLLOWS:

714.10 Precast Reinforced Concrete Box Structure Section Joints

Precast reinforced concrete box structure section joints shall be sealed as shown on the Plans. Pipe joint sealant shall be applied once the concrete surface temperature is above 40°F or above the minimum application temperature recommended by the pipe joint sealant manufacturer. The concrete surfaces shall be clean and dry prior to application of the pipe joint sealant. Heat may be applied to the concrete surfaces until they are in accordance with the temperature and dryness requirements. ~~The pipe joint sealant shall be centered on both sides of the joint as it is being applied.~~ *The pipe joint sealant shall be applied to the bell or spigot section of the structure and applied prior to joining segments. The volume of pipe joint sealant applied shall be in accordance with the manufacturer's recommendations.*

*Joints shall be covered by a geotextile joint sealer system or joint membrane in accordance with 907.07 unless a waterproofing membrane is shown on the plans. The sealer system or joint membrane shall be centered across the joint and applied in accordance with the manufacturer's recommendations and the following. After application, the geotextile or membrane material shall be rolled to avoid wrinkling. If the roll of geotextile or membrane material does not cover the full length of the joint, ~~an overlap of at least 2 1/2 in. will be required to start the next roll of material~~ *the next roll of material shall overlap a minimum of 3 in.* The manufacturer's application instructions shall apply in addition to the above requirements.*

714.11 Waterproofing Membrane

Where a waterproofing membrane is shown on the Plans, joints, exterior vertical surfaces, and the exterior top horizontal surface shall be covered in their entirety with the membrane. A Type 2 waterproofing membrane shall be installed on all exterior vertical surfaces and on the top exterior horizontal surface that will not have asphalt placed directly the membrane. A Type 3 waterproofing membrane shall be installed on the top horizontal surface when asphalt will be placed directly on the membrane.

(a) Preparation

Concrete surfaces shall be prepared in accordance with the membrane manufacturer's recommendations and the following. Concrete surfaces shall be smooth and free from projections and holes. All sharp edges and metal protrusions shall be ground smooth. Immediately prior to application, the surface shall be dry and free of dust and loose materials. All joints and exterior corners shall be prepared in accordance with the membrane manufacturer's recommendations.

Prior to installing a Type 2 membrane a prime coat recommended by the waterproofing membrane manufacturer shall be applied to all exterior surfaces. Membranes shall be installed when ambient temperature is 40°F or above, unless lower temperatures are allowed in accordance with the membrane manufacturer's recommendations.

Prior to installing a Type 3 membrane, the ambient air temperature shall be 40°F or above. The surface shall be dry enough to prevent the formation of steam when the hot-applied primer coat is applied.

(b) Installation

The waterproofing membrane shall be installed prior to be backfilling.

Coating and fabric shall stop a uniform distance below the top surfaces of walls. The material shall not be splattered over surfaces or faces of concrete which subsequently are exposed in the finished structure. The membrane shall be placed in V-strips at the joints to allow the movement of adjacent sections of concrete without tearing the fabric. The membrane shall be flashed at all exposed edges and laps sealed down. The membrane shall not be damaged when backfill is placed. On structures with curbs, the waterproofing membrane shall be placed 3 in. up the curb face and the edge of the membrane shall be sealed in accordance with the membrane manufacturer's recommendations.

For a Type 2 waterproofing membrane, the release liner shall be removed, and the adhesive side shall be placed on the prepared concrete surface. After application, the membrane material shall be rolled to avoid wrinkling and ensure adhesion of the membrane to the concrete.

For a Type 3 membrane waterproofing, the primer coat shall be applied no farther than 5 ft in front of the membrane, using a squeegee to fill all voids and imperfections. The membrane shall be applied from the low to the high side of the surface. An extra bead of primer shall be applied at the edge of the membrane. After installing the membrane over the entire surface, all joints in the membrane shall be sealed by applying primer and smoothing with a V- squeegee. Tack coat, in accordance with 406, shall be applied to a Type 3 waterproofing membrane, without damaging the membrane, before placing any asphalt pavement.

For membrane material that does not cover the surface, an overlap of at least 3 in. shall be required on all edges. The Type 2 or Type 3 waterproofing membrane from the top horizontal surface shall overlap the membrane on the vertical surfaces on the outside by at least 12 in. The manufacturer's application instructions shall apply in addition to the above requirements.

SECTION 714, BEGIN LINE 441, INSERT AS FOLLOWS:

714.13 Basis of Item

The waterproofing membrane will not be quantified and shall be incidental to the structure or structure extension.

SECTION 723, AFTER LINE 26, INSERT AS FOLLOWS:

Fabric or Membrane for Waterproofing.....918.06

SECTION 723, BEGIN LINE 91, DELETE AND INSERT AS FOLLOWS:

723.03 General Requirements

Excavation and disposal shall be in accordance with the applicable requirements of 206. ~~The areas designated for waterproofing shall be waterproofed in accordance with 702.23-~~
Waterproofing membranes shall be in accordance with 714.11.

SECTION 723, BEGIN LINE 397, INSERT AS FOLLOWS:

723.14 Joints

Joints between structure sections for three-sided arch-topped structures and true arch shape structures, and for flat-topped structures with cover of 3 ft or more, may be either butt joints or keyway joints.

The sections of flat-topped structures with less than 3 ft of cover shall be produced with a minimum 4 in. depth by 1 1/2 in. width keyway joint. Non-shrink grout in accordance with 707.09 shall be placed in the keyway joint.

All butt joints between structure sections shall be covered with a joint wrap in accordance with ASTM C 877 *unless a waterproofing membrane is shown on the plans*. The surface shall be free of dirt before the joint material is applied. The entire joint shall be continuously covered. *When shown on the plans, all joints, exterior vertical surfaces, and exterior top surfaces shall be covered in their entirety with an external waterproofing membrane in accordance with 714.11.*

Joints between structure sections and wingwalls, between wingwalls and spandrel walls, and between structure sections and headwalls or spandrel walls shall be covered with either the same wrap used between structure sections or with geotextile in accordance with 918.02.

SECTION 723, BEGIN LINE 420, INSERT AS FOLLOWS:

723.15 Backfilling

Waterproofing membrane shall be applied prior to backfilling.

SECTION 723, BEGIN LINE 505, INSERT AS FOLLOWS:

All design, coring, testing, pedestals or extended legs, excavation, repairs, plugging core and handling holes, mortar, grout, sealer, *waterproofing membrane*, cylinder molds, and necessary incidentals are considered incidental to the structure or structure extension. Spandrel walls, concrete base slab, footings, and aggregate base under footings are considered incidental in the structure or structure extension.

SECTION 918, BEGIN LINE 128, DELETE AND INSERT AS FOLLOWS:

918.06 Fabric or Membrane for Waterproofing

~~Fabric for~~ *Type 1 waterproofing shall consist of a Utility Asphalt, UA-1 in accordance with 902.01(d) and a fabric consisting of treated cotton in accordance with ASTM D 173, woven glass in accordance with ASTM D 1668, or glass fiber mat in accordance with ASTM D 2178. Type 1 material furnished under this specification shall be covered by a type C certification in accordance with 916.*

Type 2 waterproofing shall consist of a rubberized asphalt and peel-and-stick waterproofing membrane. Membrane materials shall be stored indoors and at temperatures not to exceed 120 °F.

| <i>PROPERTY</i> | <i>TEST METHOD</i> | <i>REQUIREMENTS</i> |
|------------------|--------------------|----------------------|
| <i>Thickness</i> | <i>ASTM D 1777</i> | <i>60 mils, min.</i> |

| | | |
|---------------------------------------|----------------------------|---|
| <i>Width</i> | | <i>36 in., min.</i> |
| <i>Pliability</i> | <i>ASTM D 146</i> | <i>180° bend over 1/4 in. mandrel @ -25 °F with no effect</i> |
| <i>Elongation</i> | <i>ASTM D 412 (Die C)</i> | <i>300%, min.</i> |
| <i>Puncture Resistance – Membrane</i> | <i>ASTM E 154</i> | <i>35 lb min.</i> |
| <i>Permeance ()</i> | <i>ASTM E 96, Method B</i> | <i>0.1 grains/sq ft/hr/in Hg, max.</i> |
| <i>Water Absorption, % by Weight</i> | <i>ASTM D 570</i> | <i>0.2, max.</i> |
| <i>Adhesion to concrete</i> | <i>ASTM D 903</i> | <i>5.0, min.</i> |

Type 3 waterproofing shall consist of a hot-applied joint primer coat in accordance with ASTM D 6690 and a waterproofing membrane consisting of a high-density asphalt mastic between two layers of polymeric fabric. The membrane and primer materials shall be kept dry prior to installation.

| <i>PROPERTY</i> | <i>TEST METHOD</i> | <i>REQUIREMENTS</i> |
|---|---|--|
| <i>Thickness, min.</i> | | <i>0.135 in.</i> |
| <i>Width, min.</i> | | <i>36 in.</i> |
| <i>Weight, min.</i> | | <i>0.8 lb/sq ft</i> |
| <i>Tensile strength, machine direction</i> | <i>ASTM D 882, Modified^[1]</i> | <i>275 lb/in. 2,000 psi</i> |
| <i>Tensile strength, 90° to machine direction</i> | <i>ASTM D 882, Modified^[1]</i> | <i>150 lb/in. 1,000 psi</i> |
| <i>Elongation at break</i> | <i>ASTM D 882, Modified^[1]</i> | <i>100% min.</i> |
| <i>Brittleness</i> | <i>ASTM D 517</i> | <i>Pass</i> |
| <i>Softening point (mastic)</i> | <i>ASTM D 36</i> | <i>200 °F min.</i> |
| <i>Peel adhesion</i> | <i>ASTM D 413^[1]</i> | <i>2.0 lb/in.</i> |
| <i>Cold flex ()</i> | <i>ASTM D 146 2 x 5 inch specimen</i> | <i>180° bend over 2-in. mandrel with no cracking</i> |
| <i>Heat stability</i> | <i>2 x 5 inch specimen</i> | <i>vertically suspended in a mechanical convection oven 2 hr @ 190 °F with no dripping or delamination</i> |
| <i>[1] 12 in. per minute test speed and 1 in. initial distance between the grips.</i> | | |

Type 2 and Type 3 material furnished under this specification shall be covered by a type B Certification in accordance with 916.

ATTACHMENT 15-1: EXISTING UTILITY MATRIX

Project: I-69 Sec 6

INDOT DES: 1801695 (Contract 5) All Segments

Update Version: July 10th, 2020

REVISED 07-15-2020: REVISIONS IN RED TEXT

| UtilityOwner | Conflict ID Number | Segment | Location | Conflict Resolution Method | Expected Utility Adjustment Completion | |
|-------------------------------|-------------------------------|-----------------------------------|--|-----------------------------|--|----------------|
| AT&T - Distribution | ATT-EXT-A-47,48,50 | A | 465 - east of Mooresville Rd. Bypass (Tincher Rd.) | Adjustment | 2/23/2021 | |
| | ATT-6.5-01 | B | Mann Rd. And Thompson Rd. (west of White River) | Adjustment | 5/1/2021 | |
| | ATT-6.5-02 | B | Thompson Rd. - between Tibbs and Harding | Adjustment | 10/31/2021 | |
| | ATT-6.5-03 | B | Harding Ct. | Adjustment | 11/24/2021 | |
| | ATT-6.5-04 | B | Bluff Rd. | Protect in Place | N/A | |
| | ATT-6.5-05 | B | Meridian St. | Protect in Place | N/A | |
| | ATT-EXT-C-27 | C | Madison | N/A | N/A | N/A |
| | ATT-6.5-06 | D | Epler | Adjustment | 10/31/2021 | |
| | ATT-6.5-07 | B, D | Belmont | Adjustment | 10/31/2021 | |
| | ATT-6.5-08 | D | Southport Rd. | Adjustment | 6/27/2021 | |
| | ATT-6.4-C5-01 | E | Fairview Rd. | Adjustment | 4/13/2021 | |
| | ATT-6.4-C5-02 | E | Stevens | Adjustment | 8/11/2021 | |
| | ATT-6.4-C5-03 | E | Glenns Valley | Adjustment | 8/11/2021 | |
| | ATT-6.4-C5-04 | E | County Line Rd | Adjustment | 8/11/2021 | |
| | ATT-6.4-C5-05 | E | Glenns Valley | Adjustment | 8/11/2021 | |
| | ATT-6.4-C5-06 | E | Wicker | Adjustment | 8/11/2021 | |
| | ATT-6.4-C5-07 | E | Glenns Valley to County Line | Retire in Place | 8/11/2021 | |
| Century Link - National | CTLN-EXT-01 | C | Crossing Lick Creek Interceptor | No Conflict | N/A | |
| | CTLN-6.5-01 | B | Edgewood | Adjustment | 8/2/2021 | |
| | CTLN-6.5-02 | B | Indiana RR Bridge - in RR ROW | Protect in Place | N/A | |
| Citizens Energy Group - Gas | CEGG-EXT-A-09 | A | Hanna Ave. | No Conflict | N/A | |
| | CEGG-EXT-A-20 | A | Kentucky Ave. | No Conflict | N/A | |
| | CEGG-EXT-A-37 | A | SE of Kentucky Ave. | No Conflict | N/A | |
| | CEGG-EXT-A-46 | A | 465 - east of Mooresville Rd. Bypass (Tincher Rd.) | Retire in Place | 5/16/2021 | |
| | CEGG-6.5-01 | B,D | SR-37 / Southport Rd. / Belmont / I-465 (Transmission) | Adjustment | 10/29/2021 | |
| | CEGG-6.5-02 | B | Mann Rd. | Adjustment | 6/25/2021 | |
| | CEGG-6.5-03 | B | Thompson (west) | Adjustment | 6/25/2021 | |
| | CEGG-6.5-04 | B | Thompson (east) | Adjustment | 6/25/2021 | |
| | CEGG-6.5-05 | B | Harding | Adjustment | 6/25/2021 | |
| | CEGG-6.5-06 | B | Bluff | Adjustment | 6/25/2021 | |
| | CEGG-6.5-07 | B | Meridian | Adjustment | 6/25/2021 | |
| | CEGG-6.5-08 | D | Epler | Adjustment | 9/25/2021 | |
| | CEGG-6.5-09 | D | Edgewood | Adjustment | 3/20/2021 | |
| | CEGG-EXT-C-49 | C | Carson Ave. | Protect in Place | NA | |
| | CEGG-6.5-10 | D | Belmont | Adjustment | 6/25/2021 | |
| | CEGG-6.5-11 | D | Banta | Adjustment | 6/25/2021 | |
| | CEGG-6.5-12 | D | Southport Rd. / Wellingshire / Perry Commons | Adjustment | 6/25/2021 | |
| CEGG-6.4-5-01 | E | Fairview to Steven (Transmission) | Adjustment | 6/30/2021 | | |
| CEGG-6.4-5-02 | E | Glenns Valley / N. Bluff | Adjustment | 10/2/2021 | | |
| CEGG-6.4-5-03 | E | Wicker | Adjustment | 10/2/2021 | | |
| CEGG-6.4-5-04 | E | North of Wicker | Adjustment | 10/2/2021 | | |
| Citizens Energy Group - Sewer | CEGS-6.5-13 | B | Mann Rd. / Thompson (west) | Protect in Place | N/A | |
| | CEGS-6.5-14 | B | 465 just east of ditch | Protect in Place | N/A | |
| | CEGS-6.5-15 | B | 465 at Mann Rd. Ramp taper | Adjustment | N/A | |
| | CEGS-6.5-16 | B | Extension of Foltz St. | Adjustment | N/A | |
| | CEGS-6.5-17 | B | SWD & TSL Crossing I-465 west of Harding and crossing new Interchange to Warman Ave. | Adjustment | N/A | |
| | CEGS-6.5-18 | B | INRR Bridge | Protect in Place | N/A | |
| | CEGS-6.5-19 | B | 465 west of US31 Ramps | Protect in Place | N/A | |
| | CEGS-6.5-20 | B | US31SB to 465 WB Ramp | Protect in Place | N/A | |
| | CEGS-6.5-21 | B | Concord and Thompson | Adjustment | N/A | |
| | CEGS-6.5-04 | B | Harding and 465 - Deep Rock Tunnel | Protect in Place | N/A | |
| | CEGS-6.5-10 | B | Thompson Rd. - (east) | Adjustment | 5/31/2021 | |
| | CEGS-6.5-11 | B | Thompson Rd. - (east) | Adjustment | 5/31/2021 | |
| | CEGS-EXT-C-3 | C | US 31 (East St.) | No Conflict | N/A | |
| | CEGS-EXT-C-4 | C | US 31 (East St.) | No Conflict | N/A | |
| CEGS-EXT-C-5 | C | US 31 (East St.) | No Conflict | N/A | | |

ATTACHMENT 15-1: EXISTING UTILITY MATRIX

Project: I-69 Sec 6

INDOT DES: 1801695 (Contract 5) All Segments

Update Version: July 10th, 2020

REVISED 07-15-2020: REVISIONS IN RED TEXT

| UtilityOwner | Conflict ID Number | Segment | Location | Conflict Resolution Method | Expected Utility Adjustment Completion |
|------------------------------------|--------------------|---|--|----------------------------|--|
| Citizens Energy Group - Sewer | CEGS-EXT-C-19 | C | US 31 (East St.) | No Conflict | N/A |
| | CEGS-EXT-C-20 | C | US 31 (East St.) | No Conflict | N/A |
| | CEGS-EXT-C-21 | C | US 31 (East St.) | No Conflict | N/A |
| | CEGS-EXT-C-22 | C | Madison St. | No Conflict | N/A |
| | CEGS-EXT-C-25 | C | Madison St. | No Conflict | N/A |
| | CEGS-EXT-C-26 | C | Madison St. | No Conflict | N/A |
| | CEGS-EXT-C-33 | C | L & I Railroad | Protect in Place | N/A |
| | CEGS-EXT-C-34 | C | L & I Railroad | Protect in Place | N/A |
| | CEGS-EXT-C-38 | C | Keystone Ave. | Protect in Place | N/A |
| | CEGS-EXT-C-43 | C | Carson Ave. | Protect in Place | N/A |
| | CEGS-6.5-08 | D | 5731 Kopetsky Dr. | Protect in Place | N/A |
| | CEGS-6.5-09 | D | Kopetsky Dr. from Edgewood to Epler | Protect in Place | N/A |
| | CEGS-6.5-07 | D | 1000' North of Edgewood | Adjustment | N/A |
| | CEGS-6.5-06 | D | 250' South of Edgewood | Adjustment | N/A |
| | CEGS-6.5-05 | D | 1000' South of Edgewood | Adjustment | N/A |
| | CEGS-6.5-12 | D | Belmont and Banta - Deep Rock Tunnel | Protect in Place | N/A |
| | CEGS-6.5-24 | D | Belmont (south) | Protect in Place | N/A |
| | CEGS-6.5-03 | D | Crossing Southport from Apartments east of SR37 | Adjustment | N/A |
| | CEGS-6.5-23 | D | NW Corner Southport on Belmont (Changes in Latitude) | Adjustment | N/A |
| | CEGS-6.5-22 | D | Wellingshire Dr. (south of Southport) | Adjustment | N/A |
| CEGS-6.5-02 | D | 2800' south of Southport Rd. | Adjustment | N/A | |
| CEGS-6.4-5-01 | E | I-69/SR37 - South of Wicker Rd. - SMCRI | Adjustment | 4/25/2021 | |
| CEGS-6.4-5-02 | E | West Connector Road 28+70 - (SCMRI) | Adjustment | N/A | |
| Citizens Energy Group - Water | CEGW-EXT-A-45 | A | Mooreville Rd. Bypass (north side) | No Conflict | N/A |
| | CEGW-EXT-A-45 | A | Mooreville Rd. Bypass (south side) | No Conflict | N/A |
| | CEGW-6.5-01 | B | Mann Rd. | Adjustment | 12/15/2020 |
| | CEGW-6.5-02 | B | Thompson (west) | Retire in Place | N/A |
| | CEGW-6.5-03 | B | Thompson (east) | Retire in Place | N/A |
| | CEGW-6.5-04 | B | Harding | Adjustment | 5/1/2021 |
| | CEGW-6.5-05 | B | Meridian | Protect in Place | N/A |
| | CEGW-6.5-06 | D | Edgewood | Adjustment | 5/1/2021 |
| | CEGW-6.5-07 | D | Epler | Adjustment | 5/1/2021 |
| | CEGW-EXT-C-17 | C | US 31 (East St.) | No Conflict | N/A |
| | CEGW-EXT-C-29 | C | Madison Ave. | Adjustment | 12/11/2020 |
| | CEGW-EXT-C-39 | C | Keystone Ave. | No Conflict | N/A |
| CEGW-6.5-08 | D | Southport Rd. / Belmont | Adjustment | 6/3/2021 | |
| CEGW-6.5-09 | D | Extension of Stop 11 Road | Adjustment | 3/1/2021 | |
| Comcast Communications | COM-EXT-A-39 | A | SE of Kentucky Ave. | No Conflict | NA |
| | COM-EXT-A-49 | A | 465 - east of Mooreville Rd. Bypass (Tincher Rd.) | No Conflict | NA |
| | COM-6.5-01 | B | Thompson Rd./Epler Rd. | Adjustment | 2/11/2022 |
| | COM-6.5-02 | B | Meridian | Protect in Place | N/A |
| | COM-6.5-03 | D | Edgewood | Protect in Place | N/A |
| | COM-6.5-04 | D | Southport / Belmont / Banta Rd. | Adjustment | 9/1/2021 |
| | COM-6.4-5-01 | E | Fairview Rd. | Adjustment | 4/25/2021 |
| | COM-6.4-5-02 | E | County Line / Glenns Valley | Adjustment | 10/29/2021 |
| COM-6.4-5-03 | E | Wicker | Adjustment | 10/29/2021 | |
| Crown Castle - Towers | CCT-6.5-01 | B | Kopetsky | Not in Conflict | N/A |
| Duke Energy - Transmission | DET-6.5-01 | B | Mainline 465 between Mann and the White River | Adjustment | 6/1/2022 |
| | DET-6.5-02 | B | Mainline 465 between Mann and the White River | Adjustment | 6/1/2022 |
| | DET-6.5-03 | B | Mainline 465 at East edge of Harding | Adjustment | 2/1/2022 |
| | DET-6.5-04 | B | Mainline 465 East of Bluff Rd. to Meridian | Adjustment | 6/1/2022 |
| | DET-6.5-05 | B | Mainline 465 East of Bluff Rd. to Meridian | Adjustment | 6/1/2022 |
| | DET-EXT-C-40 | C | Keystone Ave. | Protect in Place | N/A |
| Enterprise Products | ENT-6.5-01 | D | Mainline 69 south of Southport Rd. | Adjustment | 7/2/2021 |
| Indiana American Water | IAW-6.4-5-01 | E | Fairview Rd. (North) | Adjustment | 10/2/2021 |
| | IAW-6.4-5-02 | E | Fairview Rd. (South) | Adjustment | 10/2/2021 |
| I-Light / Indiana University Fiber | IUF-6.5-01 | B,D | Mainline 69 and Remaining portion of SR37 | Retire in Place | N/A |

ATTACHMENT 15-1: EXISTING UTILITY MATRIX

Project: I-69 Sec 6

INDOT DES: 1801695 (Contract 5) All Segments

Update Version: July 10th, 2020

REVISED 07-15-2020: REVISIONS IN RED TEXT

| UtilityOwner | Conflict ID Number | Segment | Location | Conflict Resolution Method | Expected Utility Adjustment Completion |
|---|--------------------|------------------------------------|---|----------------------------|--|
| Indianapolis Power & Light - Transmission | IPLT-6.5-01 | B | Conflict 18: Mainline 465 between Mann and the White River | Protect in Place | N/A |
| | IPLT-6.5-02 | B | Conflict 14: Mainline 465 west abutment of White River bridge | Protect in Place | N/A |
| | IPLT-6.5-03 | B | Conflict 13: 465 west of Harding | Adjustment | 12/26/2021 |
| | IPLT-6.5-04 | B | Conflict 16: Mainline 465 east of Harding | Adjustment | 12/26/2021 |
| | IPLT-6.5-05 | B | Conflict 17: Indiana RR Tracks | Adjustment | 9/13/2021 |
| | IPLT-6.5-06 | D | Conflict 12: Epler and Harding | Protect in Place | N/A |
| | IPLT-6.5-07 | D | Conflict 9-11: SR-37 / Southport Rd. | Adjustment | 11/12/2021 |
| | IPLT-6.4-5-01 | E | Steven Dr. | Adjustment | 9/3/2021 |
| Indianapolis Power & Light - Distribution | IPLD-EXT-A-39 | A | SE of Kentucky Ave. | No Conflict | N/A |
| | IPLD-EXT-A-49 | A | 465 - east of Mooresville Rd. Bypass (Tincher Rd.) | No Conflict | N/A |
| | IPLD-6.5-09 | B | Area 9 - GV 4: Mann to White River Crossing | Adjustment | 6/15/2021 |
| | IPLD-6.5-03 | B | Area 3 - GV 4: Epler at Belmont west thru Sunshine Gardens to Thompson Rd. east | Adjustment | 6/3/2021 |
| | IPLD-6.5-06 | B | Area 6 - South 9: Harding at 465 | Adjustment | 7/2/2021 |
| | IPLD-6.5-10 | B | Area 10 - Bluff under I-465 | Adjustment | 7/2/2021 |
| | IPLD-6.5-10 | B | Area 10 - Meridian under I-465 | Adjustment | 7/2/2021 |
| | IPLD-6.5-05 | B | Area 5 - GV7: Harding Ct | Adjustment | 4/28/2021 |
| | IPLD-EXT-C-41 | C | Keystone Ave. | No Conflict | N/A |
| | IPLD-6.5-04 | D | Area 4 - GV4: Epler East and Belmont North | Adjustment | 6/3/2021 |
| | IPLD-6.5-02 | D | Area 2 - GV1: Banta / Belmont South / Southport | Adjustment | 8/28/2021 |
| | IPLD-6.5-08 | D | Area 8 - Supervisory Cable | Adjustment | 8/28/2021 |
| | IPLD-6.5-01 | D | Area 1 - GV8: Banta / Field East of SR-37 / Southport | Adjustment | 9/30/2020 |
| IPLD-6.4-5-01 | E | Steven Dr. | Adjustment | 2/12/2021 | |
| IPLD-6.4-5-02 | E | Area 7 - GV8: County Line / Wicker | Adjustment | 5/26/2021 | |
| Johnson County REMC | JCREMC-6.4-5-01 | E | Fairview Rd. | Adjustment | 8/28/2021 |
| MCI / Verizon | MCIV-6.5-01 | B | Indiana RR Bridge - in RR ROW | Protect in Place | N/A |
| | MCIV-6.5-02 | B | Various I-465 Crossings (with Duke) | Adjustment | 6/1/2022 |
| | MCIV-EXT-C-41 | C | Keystone Ave. | Protect in Place | N/A |
| Metro Fibernet | MFN-6.5-01 | D | Southport Rd. | Adjustment | 3/12/2021 |
| Mobilitie | MOB-6.5-01 | D | Kopetsky Dr. | Protect in Place | N/A |
| Unknown Fiber Optic | UKN-EXT-A-10 | A | East of Hanna Ave. | No Conflict | N/A |
| | UKN-EXT-A-11 | A | East of Hanna Ave. (10' upstation from UKN-EXT-01) | No Conflict | N/A |
| Unknown Overhead Wires | UKN-EXT-A-12 | A | East of Hanna Ave. | No Conflict | N/A |
| | UKN-EXT-C-28 | C | Madison St. | No Conflict | N/A |
| | UKN-EXT-C-31 | C | Madison St. | No Conflict | N/A |
| | UKN-EXT-C-32 | C | Madison St. | No Conflict | N/A |
| | UKN-EXT-C-50 | C | Carson Ave. | No Conflict | N/A |
| Unknown Telephone | UKN-EXT-A-13 | A | Hanna Ave. | No Conflict | N/A |
| | UKN-EXT-A-18 | A | Kentucky Ave. Bridge | No Conflict | N/A |
| | UKN-EXT-A-19 | A | Kentucky Ave. Bridge | No Conflict | N/A |
| | UKN-EXT-A-38 | A | SE of Kentucky Ave. | No Conflict | N/A |
| USGS | USGS-6.5-01 | D | Little Buck Creek west of SR 37 | N/A | N/A |
| Vectren | USGS-6.5-01 | E | Steven Dr. | Adjustment | 4/25/2021 |
| | USGS-6.5-02 | E | Bluff Rd. | Adjustment | 4/25/2021 |
| | USGS-6.5-03 | E | County Line | Adjustment | 4/25/2021 |
| Windstream | WND-6.5-01 | D | Epler | Adjustment | 10/31/2021 |
| Zayo Bandwidth | ZAYO-EXT-01 | A | Hanna Ave. | No Conflict | |
| | ZAYO-6.5-01 | B | Mann / Thompson Rd. | Protect in Place | N/A |
| | ZAYO-6.5-02 | B | Meridian | Protect in Place | N/A |
| | ZAYO-6.5-03 | D | Banta Rd. | Adjustment | 4/12/2021 |
| | ZAYO-6.5-04 | D | Southport | Adjustment | 10/2/2021 |
| ZAYO-6.4-C5-01 | E | Fairview | Adjustment | 4/25/2021 | |

ATTACHMENT 15-10: TYPE 2 UTILITY EASEMENT STATUS

INDOT DES: 1801695 (Contract 5) All Segments

Project: I-69 Sec 6

Update Version: July 4, 2020

| INDOT Parcel # | Owner | L.A. Code | State Parcel ID | Mailing Address | Associated Type 2 Work Site | Date Easement Available to Design-Build Contractor for Construction Work |
|----------------|------------------------------------|-----------|--|--|-----------------------------|--|
| 734 | Southern Dunes Self-Storage, LLC | 6345 | 49-14-16-137-002.000-500 | 151 N. Delaware Street, Ste 1440, Indianapolis, In. 46204 | Conflict #2 | 5/1/2021 |
| 732 | Brown, Mark A. | 6345 | 49-14-16-124-012.000-500 | 7505 S. Belmont Street, Indianapolis, In. 46217 | Conflict #2 | 5/1/2021 |
| 733 | Revocable Trust of Ronald E. Brown | 6345 | 49-14-16-124-023.000-500 | 7440 S. Belmont Street, Indianapolis, In. 46217 | Conflict #2 | 5/1/2021 |
| 736 | Bush Development Company, LP | 6345 | 49-14-16-124-025.000-500 | 221 E. 4th Street, Ste 2510, Cincinnati, OH 45202 | Conflict #2 | 5/1/2021 |
| 737 | Aspen Lakes LLC & Winslet Lakes | 6345 | 49-14-15-144-006.000-500; 49-14-15-144-007.000-500; 49-14-15-144-008.000-500; 49-14-15-144-002.000-500; 49-14-15-144-001.000-500; 49-14-15-144-009.000-500 | 26 Corporate Plaza Drive, Ste 270, Newport Beach, CA 92660 | Conflict #2 | 5/1/2021 |
| 756 | Lake Haven, LLC | 6345 | 49-14-10-105-003.000-500 | 1951 W. Edgewood Avenue, Indianapolis, In. 46217 | Conflicts #5 & #6 | 5/1/2021 |
| 843 | Ansin, Edmund N. | 6345 | 49-11-31-107-001.000-200 | 1401 79th Street Cswy, North Bay Village, FL. 33141 | Conflict #15 | 5/1/2021 |
| 860 | Skaggs, Hobert Dale Et Al. | 6345 | 49-14-05-106-001.000-200; 49-14-05-104-002.000-200 | 4107 W. Thompson Road, Indianapolis, In. 46221 | Conflict #16 | 5/1/2021 |
| 861 | Denzio, Anthony | 6345 | 49-14-05-107-001.000-200 | 5427 E. Edgewood Avenue, Indianapolis, In. 46237 | Conflict #16 | 5/1/2021 |
| 833 | Heritage Aggregates, LLC | 6345 | 49-11-34-103-001.000-500 | 5400 W. 86th Street, Indianapolis, In. 46268 | Conflict #17 (SWD & TSL) | 5/1/2021 |

ATTACHMENT 15-11: SEPTIC REPLACEMENT PARCELS

INDOT DES: 1801695 (Contract 5) All Segments

Project: I-69 Sec 6

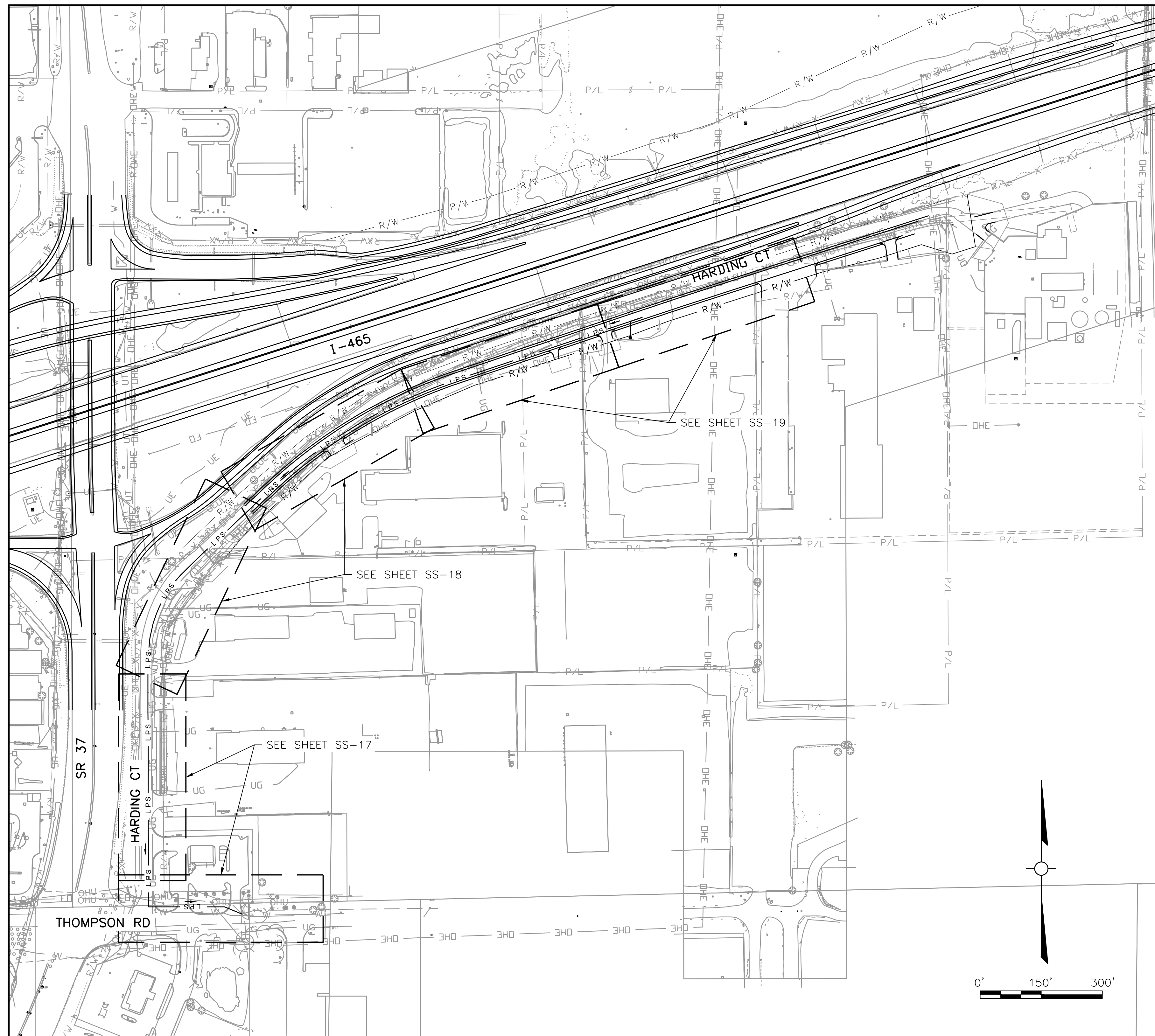
Update Version: July 7, 2020

| INDOT Parcel # | Owner | Connection Address | CEG Conflict# / Planset |
|----------------|----------------------------|----------------------|---------------------------------|
| 804 | PCA Enterprises, LLC | 1245 Harding Ct. | Conflict #26 / Attachment 15-11 |
| 762 | 2041 W. Epler Avenue, LLC | 2041 West Epler | Conflict #26 / Attachment 15-11 |
| 762 | 2041 W. Epler Avenue, LLC | 5551 South Belmont | Conflict #26 / Attachment 15-11 |
| 762 | 2041 W. Epler Avenue, LLC | 5557 South Belmont | Conflict #26 / Attachment 15-11 |
| 762 | 2041 W. Epler Avenue, LLC | 5563 South Belmont | Conflict #26 / Attachment 15-11 |
| 762 | 2041 W. Epler Avenue, LLC | 5755 South Belmont | Conflict #26 / Attachment 15-11 |
| 727 | Charles R. Foster, ET UX | 2620 Wicker Rd. | Conflict #25 / Attachment 15-5 |
| 725 | Sponsel Property Group | 8336 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 724 | Joseph L. Bauerle, ET UX | 8340 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 723 | Justin L. Collins | 8344 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 722 | Joseph F. Matchione, ET UX | 8350 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 721 | Albert R. Peoples, ET UX | 8410 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 720 | Belinda L. Pierle | 8436 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 719 | Katherine R. Carlino | 8438 S. Belmont Ave. | Conflict #25 / Attachment 15-5 |
| 700 | Federal National Mortgage | 2720 Wicker Rd. | Conflict #26 / Attachment 15-11 |

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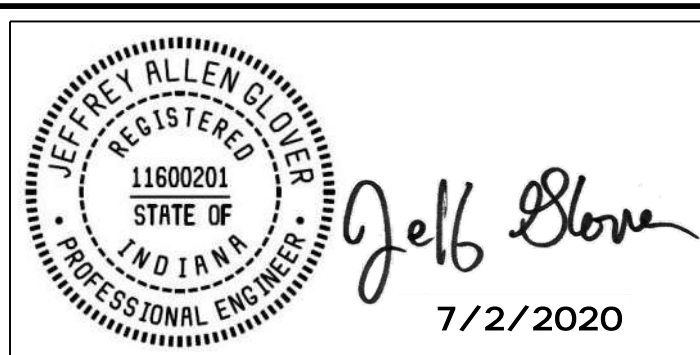
NOTES

1. REFER TO THE MOST CURRENT VERSION OF THE CITIZENS ENERGY GROUP SANITARY STANDARDS MANUAL (WWW.CITIZENSENERGYGROUP.COM/DOCUMENTS/STANDARDS/SANITARYSTANDARDSMANUAL).
2. CONSTRUCTION SHALL COMPLY WITH "327 IAC 3, RULE 6, TECHNICAL STANDARDS FOR SANITARY COLLECTION SYSTEMS", AND THE ALTERNATIVES TO THE TECHNICAL STANDARDS OUTLINED IN THE PERMIT FROM INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM).
3. WATER WELLS LOCATIONS ARE FROM INDIANA DEPARTMENT OF NATURAL RESOURCE'S (IDNR) WATER WELL RECORDS ON-LINE DATABASE. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING PROPERTY OWNERS WATER WELLS PRIOR TO CONSTRUCTION. MINIMUM SEPARATION DISTANCES BETWEEN POTABLE WATER FACILITIES (WATER WELLS) AND SANITARY FACILITIES MUST BE MAINTAINED AS DETAILED IN "327 INC 3, RULE 6, TECHNICAL STANDARDS FOR SANITARY COLLECTION SYSTEMS".
4. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WATER, GAS, AND SANITARY SEWER SERVICE TO HOMES AND BUSINESSES AFFECTED BY THIS WORK.
5. CONTRACTOR SHALL ABANDON EXISTING SEPTIC AND RELOCATE LATERAL TO GRINDER PUMP. ABANDONMENT OF EXISTING SEPTIC SHALL COMPLY WITH "410 IAC 6-8.3". PROPOSED LOCATIONS OF LATERALS ARE SUBJECT TO CHANGE DUE TO THE REQUIREMENT OF CONTRACTOR TO VERIFY PROPERTY OWNERS SEPTIC AND LATERAL LOCATION PRIOR TO CONSTRUCTION. CHANGES TO PROPOSED LATERAL LOCATIONS SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE AFFECTED PROPERTY OWNERS AND NEARBY PROPERTY OWNERS WHICH CONSTRUCTION IS TAKING PLACE. CONTRACTOR SHALL DILIGENTLY ATTEMPT TO ACCOMMODATE THE NORMAL ACTIVITIES OF PROPERTY OWNERS ALONG THE PROJECT ROUTE.
7. CONTRACTOR SHALL PROVIDE SAFE, CONTINUOUS VEHICULAR ACCESS TO ALL PROPERTIES FOR NORMAL DAILY USE AND FOR EMERGENCY SERVICES. SUCH ACCESS SHALL INCLUDE, BUT NOT LIMITED TO, PROVIDING, INSTALLING, AND MAINTAINING TEMPORARY GRAVEL/ASPHALT ROADWAY ON OR ADJACENT TO EXISTING DRIVES/ROADS ANYWHERE NORMAL ACCESS IS HAMPERED BY CONSTRUCTION ACTIVITIES. ALL TEMPORARY ACCESS SHALL BE REMOVED AND ALL DISTURBED SURFACES SHALL BE RESTORED BY THE CONTRACTOR.
8. ANY DRIVEWAY/ROADWAY CULVERT THAT IS REMOVED SHALL BE REPLACED WITH THE SAME SIZE RCP PIPE. CULVERTS SHALL BE CLASS II RCP, MINIMUM 12" DIAMETER, AND END SECTIONS SHALL BE INSTALLED. GRADE FROM DRIVEWAY/ROADWAY TO TOP OF PIPE SHALL BE A MINIMUM OF 3:1 SLOPE.
9. REMOVAL OF EXISTING CONCRETE AND ASPHALT PAVEMENT SHALL INCLUDE ALL AGGREGATE BASE AND SUB-GRADE MATERIALS. SAW CUT ALL EXISTING PAVED AREAS. ALL CUTS SHALL BE CLEAN, NEAT, AND TRUE TO LINE. ALL CONCRETE AND ASPHALT PAVEMENT MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER. DRIVEWAY/ROADWAY REMOVED OR DAMAGED, SHALL BE REPLACED OR REPAIRED.
10. ALL DISTURBED AREAS INCLUDING, BUT NOT LIMITED TO, STREETS, DRIVES, WALKS, LAWNS, ETC. SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
11. VEGETATED AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED AND MULCHED AT THE COMPLETION OF CONSTRUCTION OR AS THE TRENCH IS CLOSED. EROSION CONTROL BLANKETS MAY BE USED.
12. CONTRACTOR SHALL REMOVE ALL MUD, DIRT, GRAVEL, AND ANY OTHER MATERIALS TRACKED ONTO ANY PUBLIC OR PRIVATE DRIVES/STREETS, PARKING LOTS, OR WALKS. THIS MATERIAL REMOVAL OR SWEEPING OF THE STREETS SHALL BE DONE AS FREQUENTLY AS NECESSARY TO MAINTAIN CLEAN DRIVES/STREETS. ALSO KEEP AIRBORNE DIRT AND DUST TO A MINIMUM BY USING WATER OR OTHER METHODS AS NECESSARY.

DISCLAIMERS:

1. THE I-69 SECTION 6.5 EXISTING SURVEY, RIGHT-OF-WAY INFORMATION, AND PROPOSED DESIGN WAS PROVIDED BY OTHERS AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CRITICAL EXISTING AND PROPOSED INFRASTRUCTURE PRIOR TO CONSTRUCTION. ENGINEER ASSUMES NO LIABILITY FOR ANY PROBLEMS RESULTING FROM USE OF UN-RESEARCHED PROPERTY RECORDS OR UNVERIFIED SURVEY ON THIS PROJECT. CONTRACTOR SHALL OBTAIN "RIGHT OF ENTRY" RELEASES FROM ANY AFFECTED PROPERTY OWNERS ALONG THE ROAD RECONSTRUCTION CORRIDOR.
2. CONTOURS PROVIDED ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CRITICAL TOPOGRAPHIC ELEVATIONS PRIOR TO CONSTRUCTION.

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| RECOMMENDED FOR APPROVAL | <i>M. L. Z...</i> 7/2/2020 |
| DESIGNED: CSD | DRAWN: MWF |
| CHECKED: JAG | CHECKED: CSD |

CITIZENS ENERGY GROUP

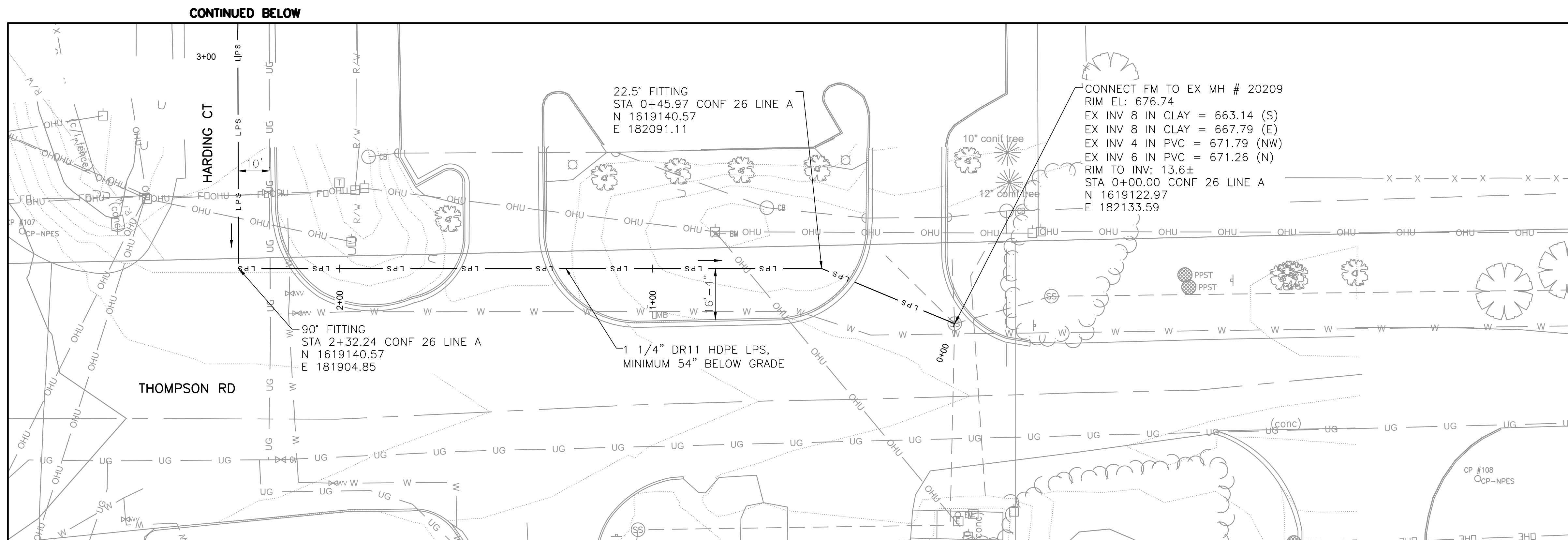
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 CONFLICT #26-HARDING CT PROJECT AREA
 OVERVIEW SHEET

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| DRAWING NUMBER |
| SS-16 |
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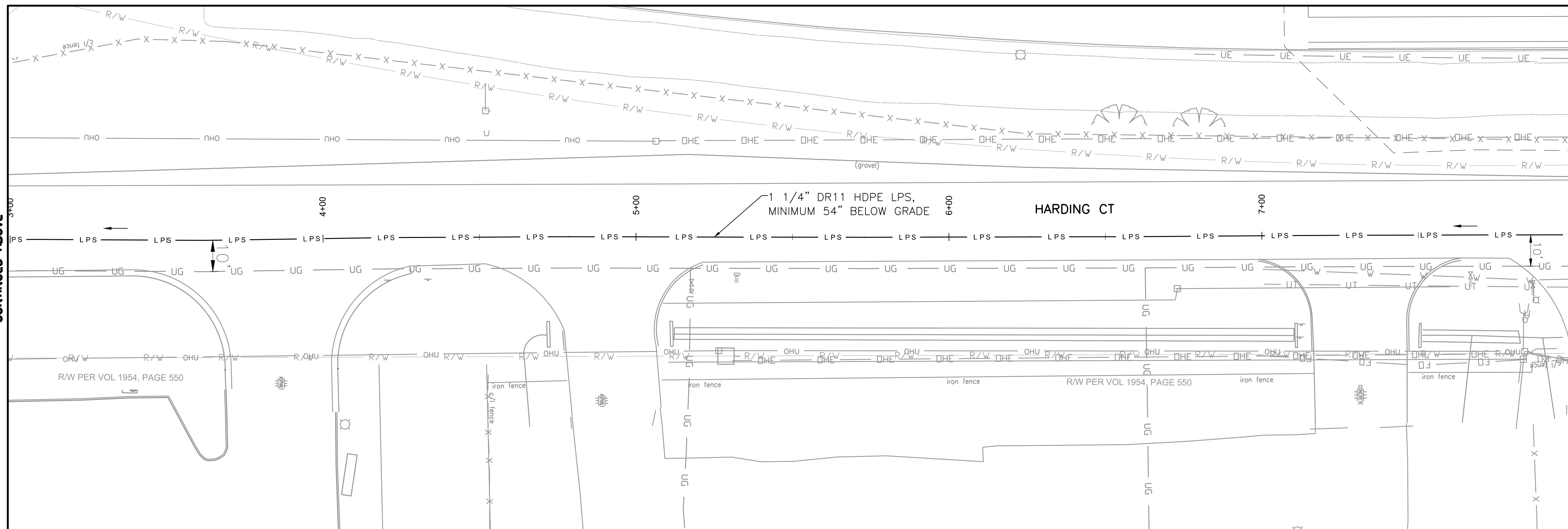
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LINE A HARDING CT
 300' LF OF 1 1/4" LPS



LINE A HARDING CT
 500' LF OF 1 1/4" LPS

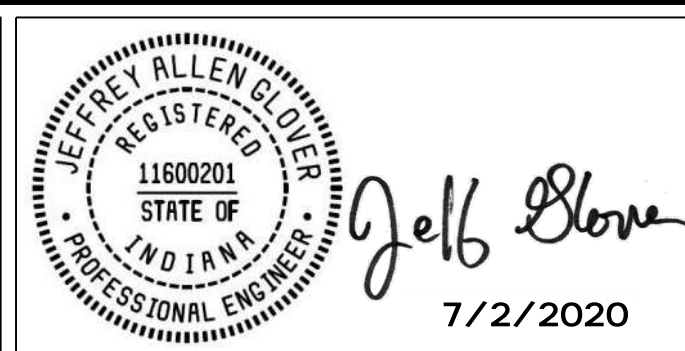
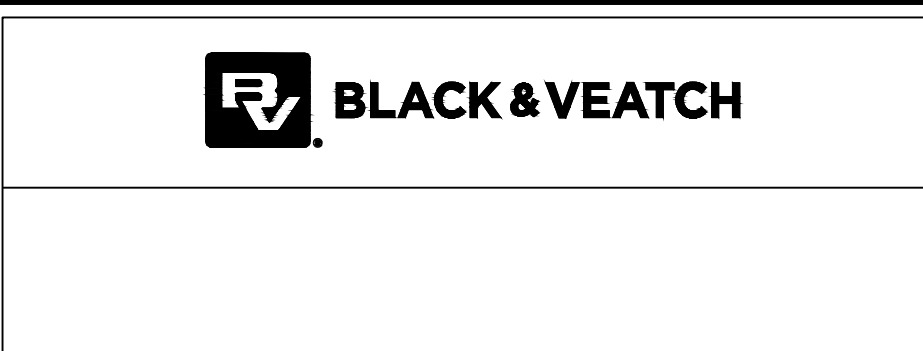
NOTES

- SEE DWG SS-16 FOR NOTES.

DISCLAIMERS:

- THE I-69 SECTION 6.5 EXISTING SURVEY, RIGHT-OF-WAY INFORMATION, AND PROPOSED DESIGN WAS PROVIDED BY OTHERS AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CRITICAL EXISTING AND PROPOSED INFRASTRUCTURE PRIOR TO CONSTRUCTION. ENGINEER ASSUMES NO LIABILITY FOR ANY PROBLEMS RESULTING FROM USE OF UN-RESEARCHED PROPERTY RECORDS OR UNVERIFIED SURVEY ON THIS PROJECT. CONTRACTOR SHALL OBTAIN "RIGHT OF ENTRY" RELEASES FROM ANY AFFECTED PROPERTY OWNERS ALONG THE ROAD RECONSTRUCTION CORRIDOR.
- CONTOURS PROVIDED ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CRITICAL TOPOGRAPHIC ELEVATIONS PRIOR TO CONSTRUCTION.

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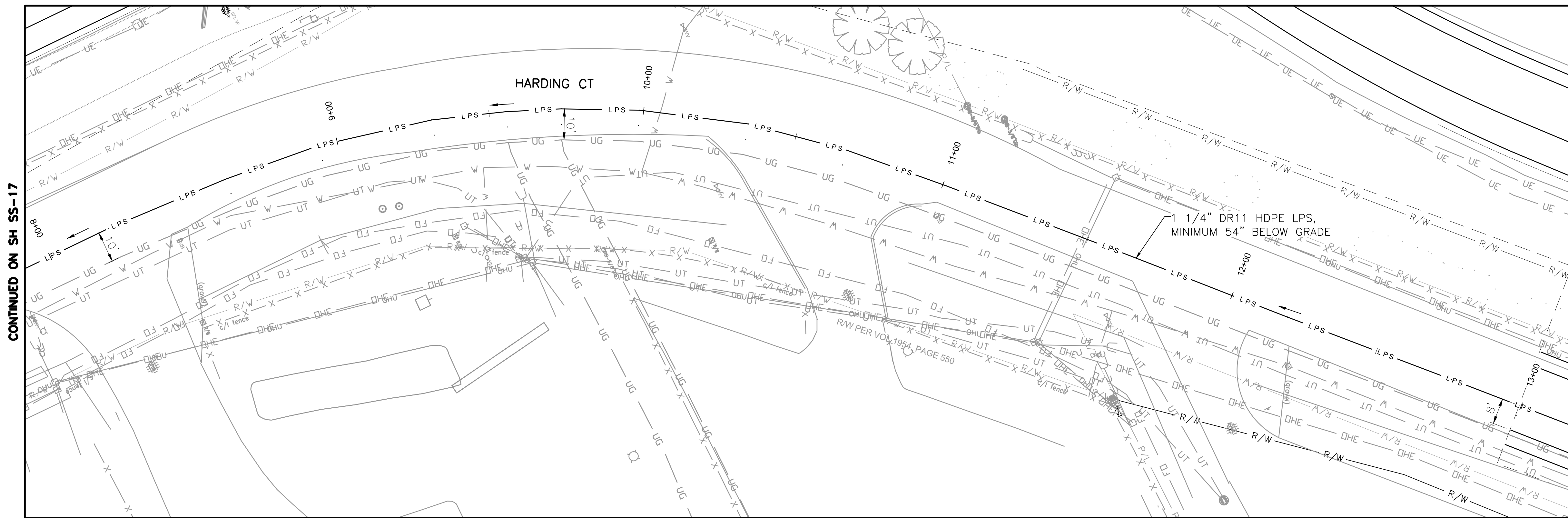
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 PROPOSED LOW PRESSURE SEWER PLAN
 CONFLICT #26 HARDING CT PROJECT AREA
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| I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS |
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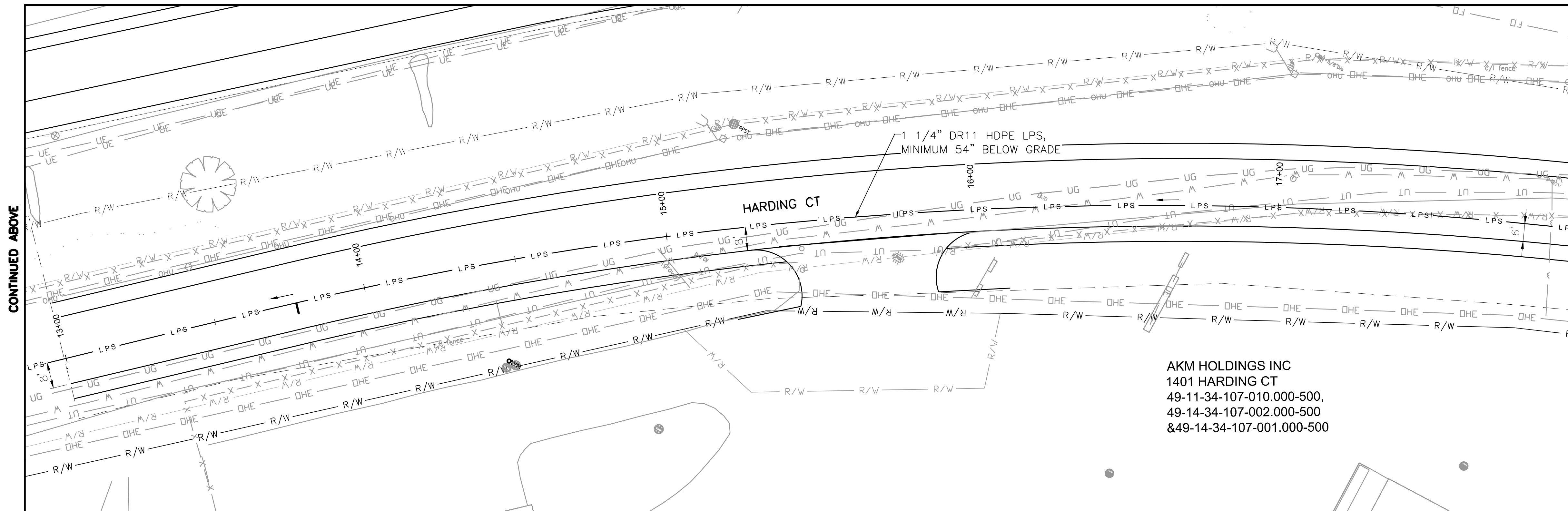
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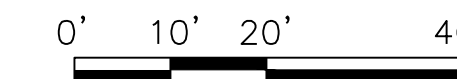
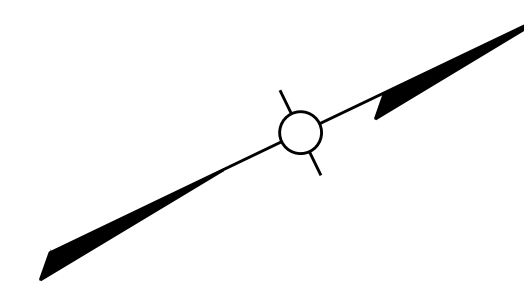
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LINE A HARDING CT
 500' LF OF 1-1/4" LPS



LINE A HARDING CT
 500' LF OF 1 1/4" LPS

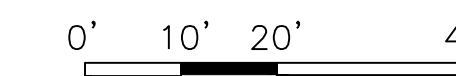
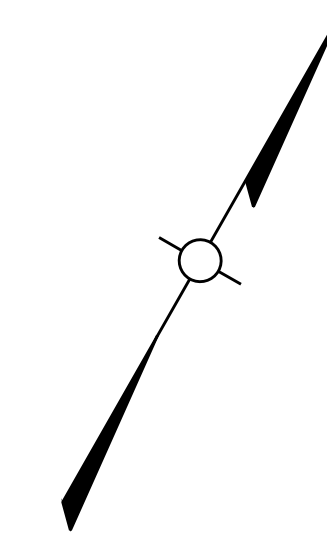


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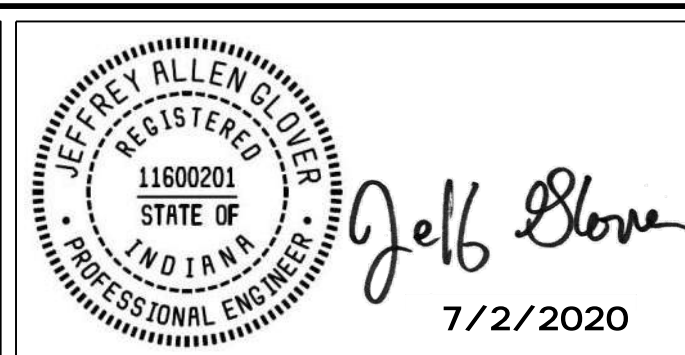
- SEE DWG SS-16 FOR NOTES.

DISCLAIMERS:

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RECOMMENDED FOR APPROVAL *M. L. Z...* 7/2/2020
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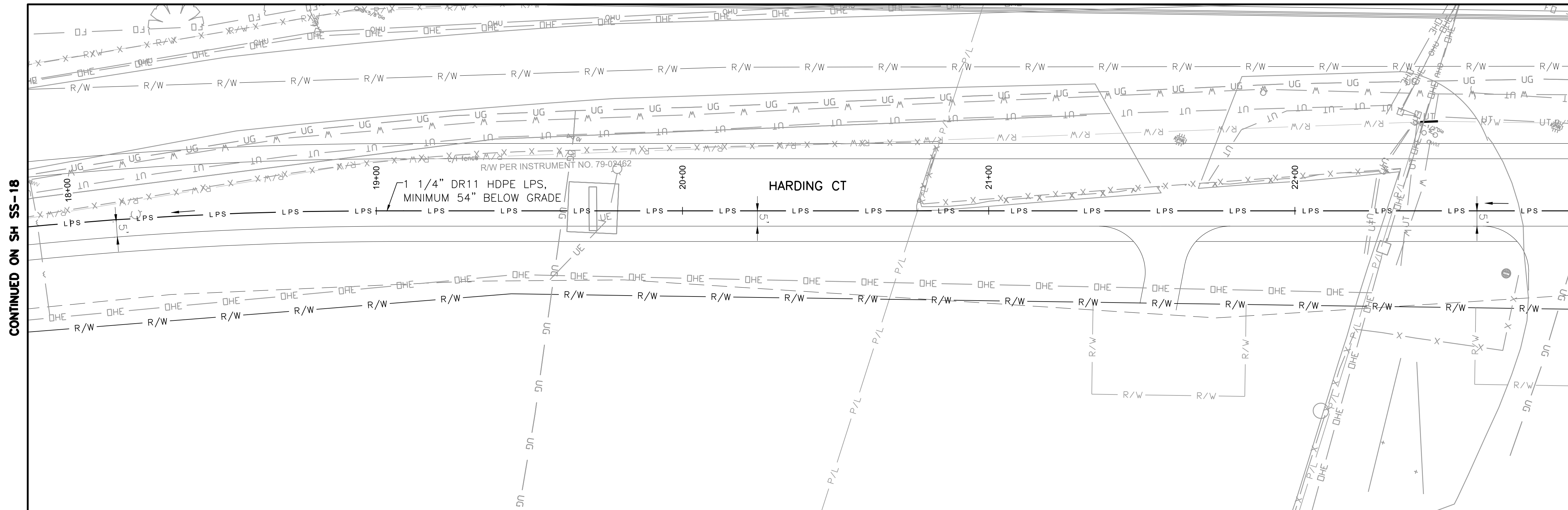
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 PROPOSED LOW PRESSURE SEWER PLAN
 CONFLICT #26 HARDING CT PROJECT AREA
 STA 8+00 TO 18+00

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| I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS |
| CEG PROJECT NO.: 92RE04119 |
| DRAWING NUMBER |
| SS-18 |
| 3 OF 9 |

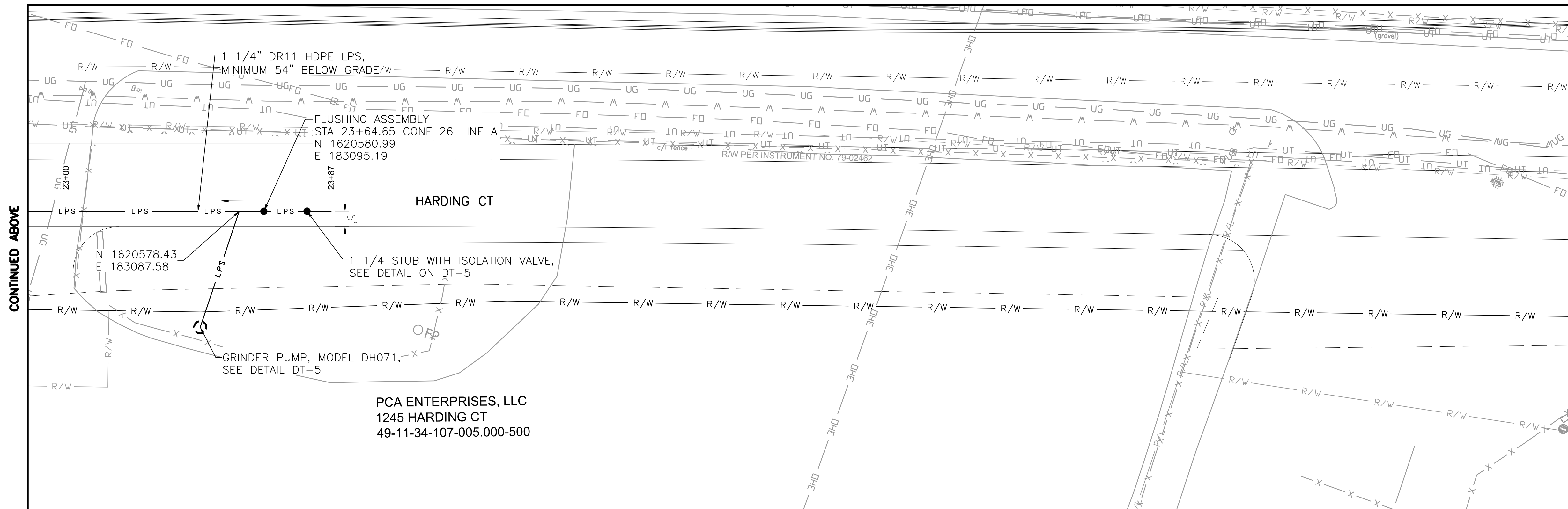
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 B&V PROJECT NUMBER: 402907



LINE A HARDING CT
 500' LF OF 1 1/4" LPS



LINE A HARDING CT
 96' LF OF 1-1/4" LPS

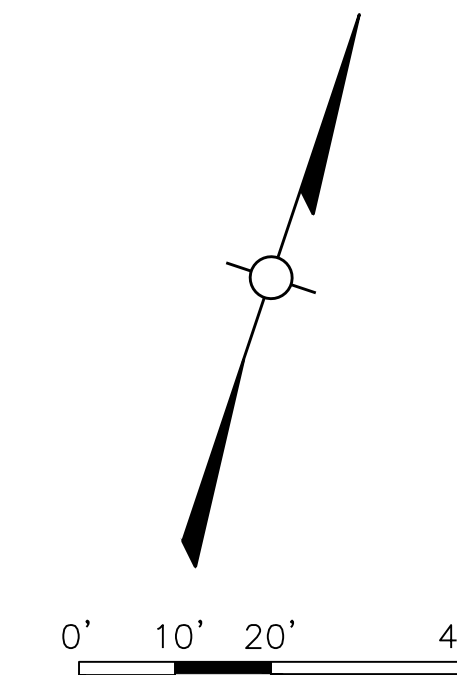
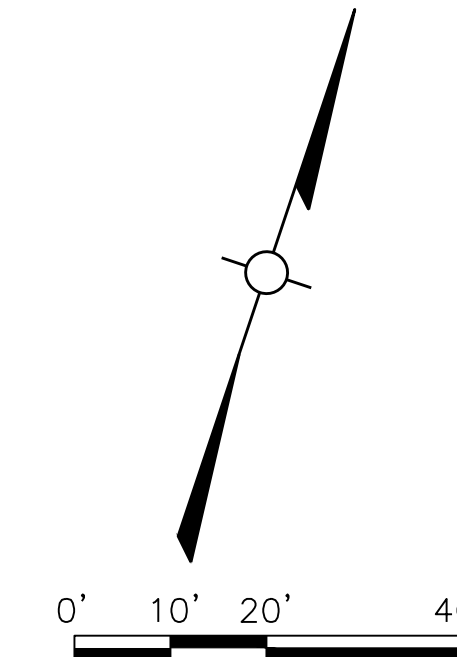
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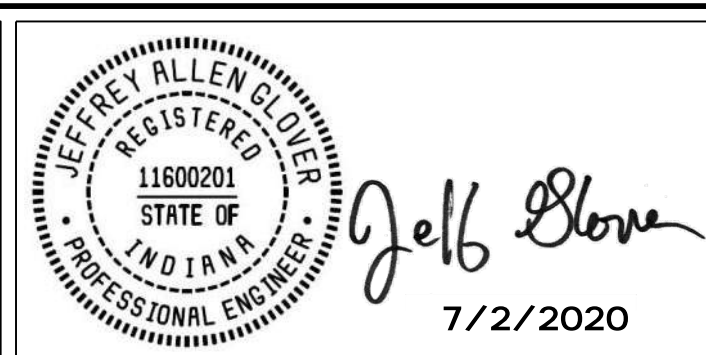
1. SEE DWG SS-16 FOR NOTES.

DISCLAIMERS:

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- CONTOURS PROVIDED ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CRITICAL TOPOGRAPHIC ELEVATIONS PRIOR TO CONSTRUCTION.



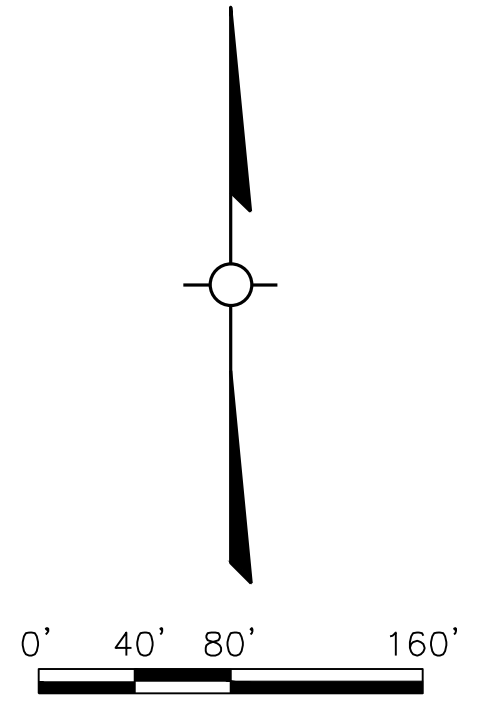
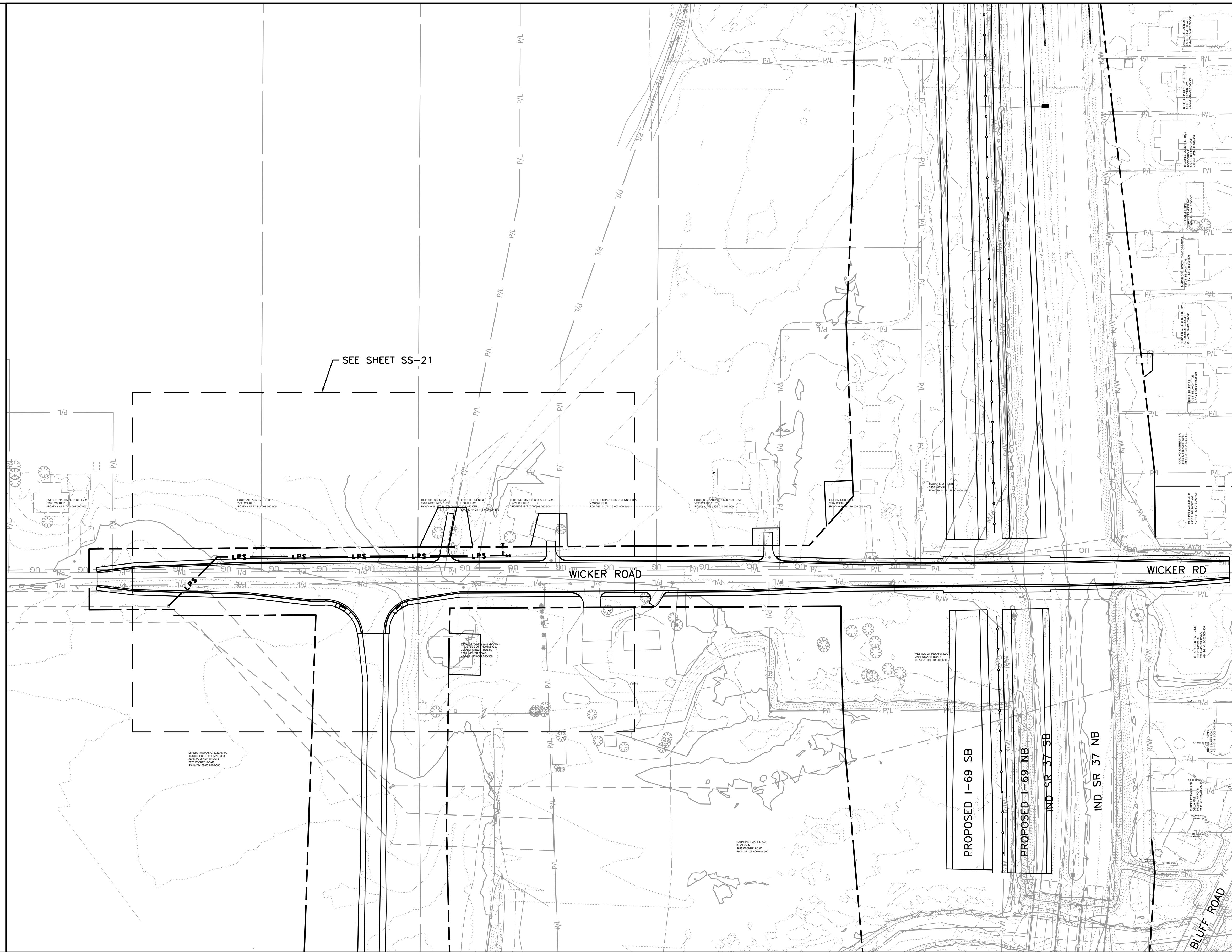
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RECOMMENDED FOR APPROVAL *M. L. Z...* 7/2/2020
 DESIGNED: CSD DRAWN: MWF
 CHECKED: JAG CHECKED: CSD

CITIZENS ENERGY GROUP
 PROPOSED LOW PRESSURE SEWER PLAN
 CONFLICT #26 HARDING CT PROJECT AREA
 STA 18+00 TO 23+82

I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS
 CEG PROJECT NO.: 92RE04119
 DRAWING NUMBER
 SS-19
 4 OF 9



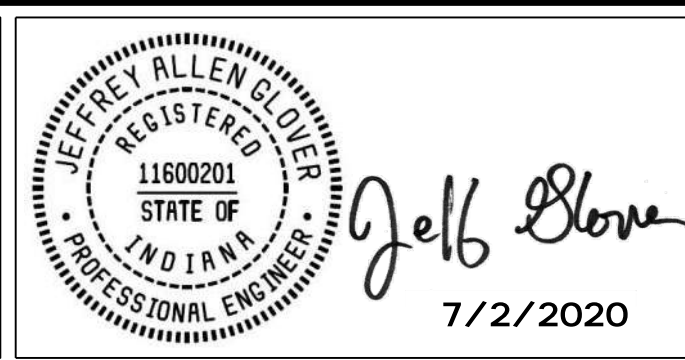
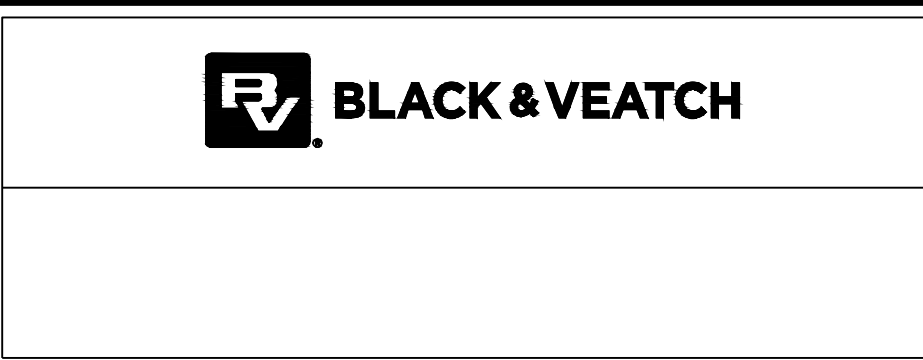
NOTES

1. SEE DWG SS-16 FOR NOTES.

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| DESIGNED: CSD | DRAWN: MWF |
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CITIZENS ENERGY GROUP

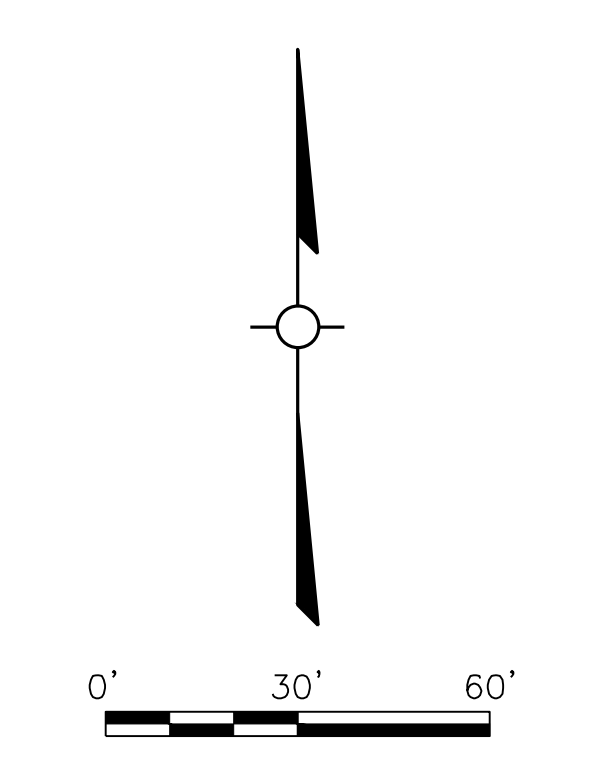
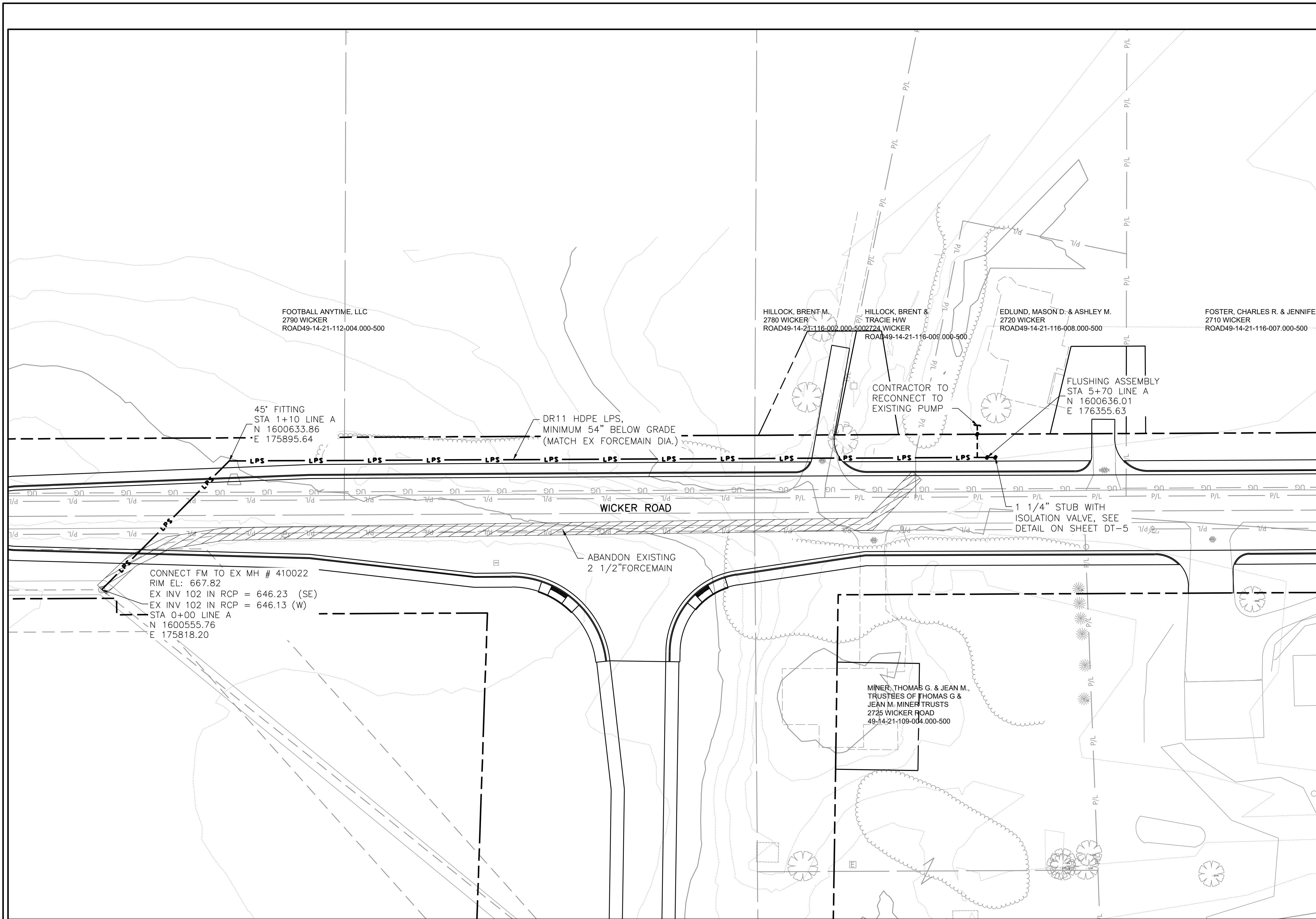
PROPOSED LOW PRESSURE SEWER PLAN
CONFLICT #26 - WICKER RD PROJECT AREA
OVERVIEW SHEET

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| I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS |
| CEG PROJECT NO.: 92RE04119 |
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| 5 OF 9 |

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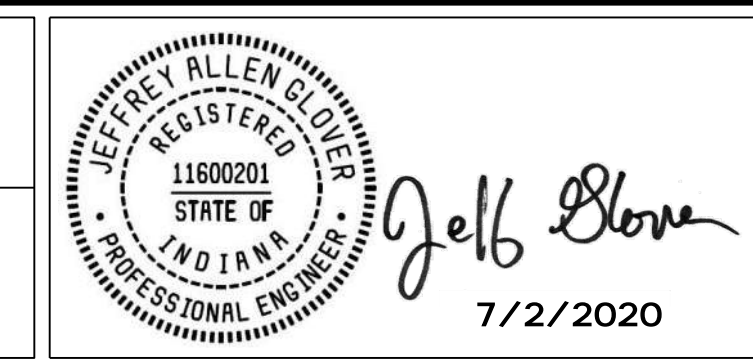
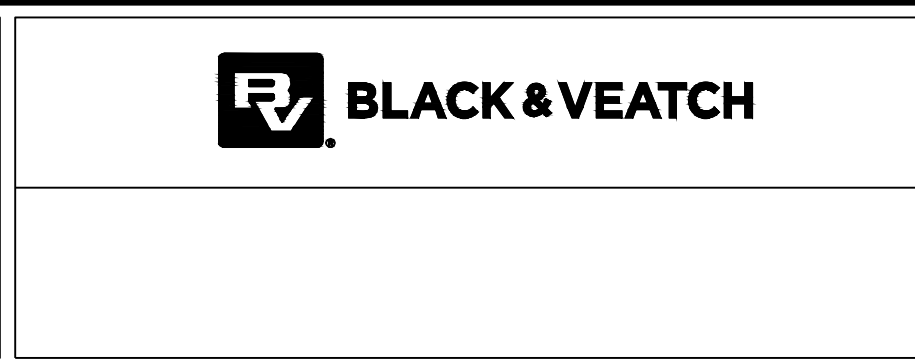
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 B&V PROJECT NUMBER: 402907



NOTES
 1. SEE DWG SS-16 FOR NOTES.

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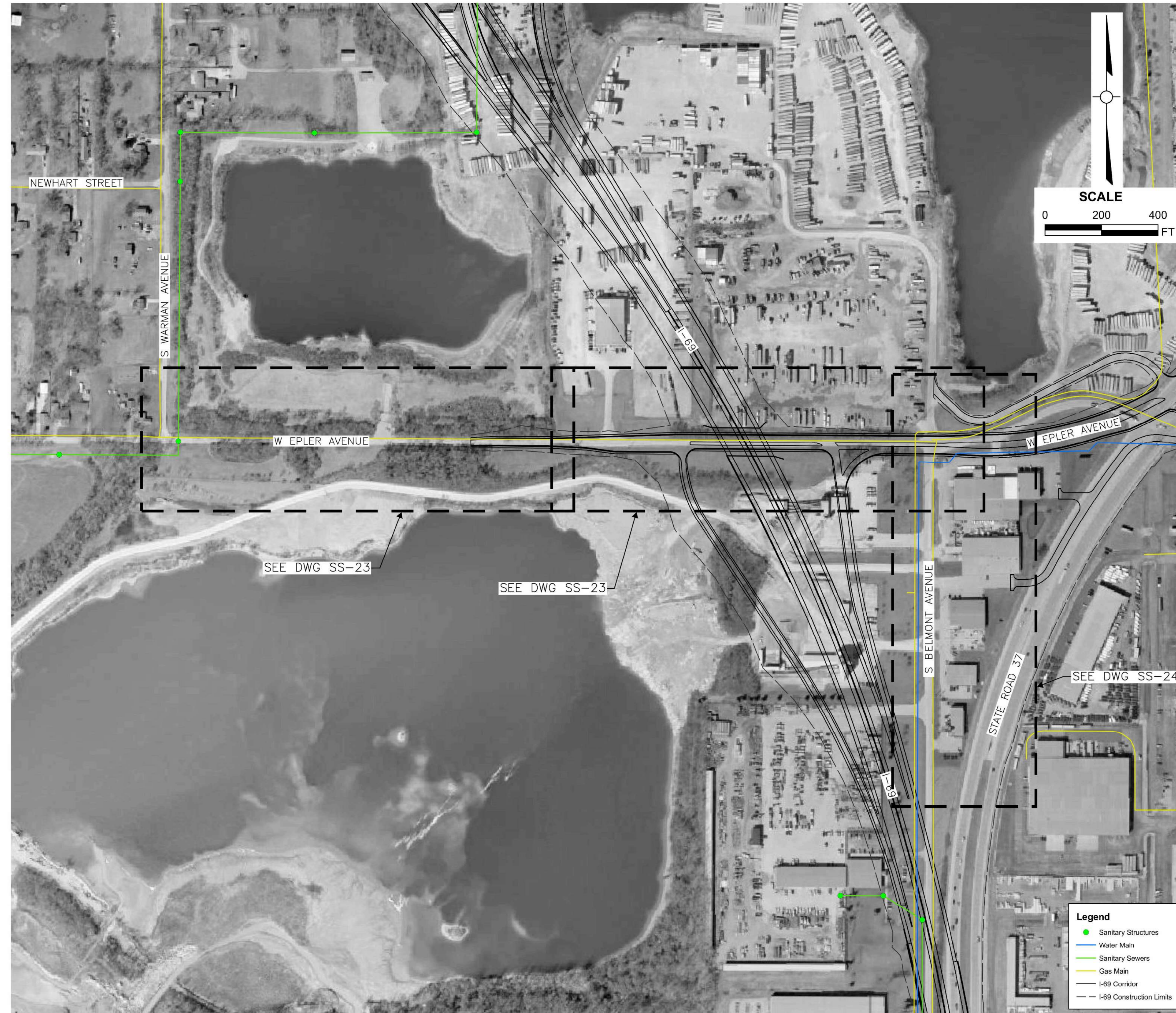
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RECOMMENDED FOR APPROVAL *M. L. Z...* 7/2/2020
 DESIGNED: CSD DRAWN: MWF
 CHECKED: JAG CHECKED: CSD

CITIZENS ENERGY GROUP
 PROPOSED LOW PRESSURE SEWER PLAN
 CONFLICT #26 - WICKER RD PROJECT AREA
 STA 0+00 TO STA 5+70

I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS
 CEG PROJECT NO.: 92RE04119
 DRAWING NUMBER
 SS-21
 6 OF 9



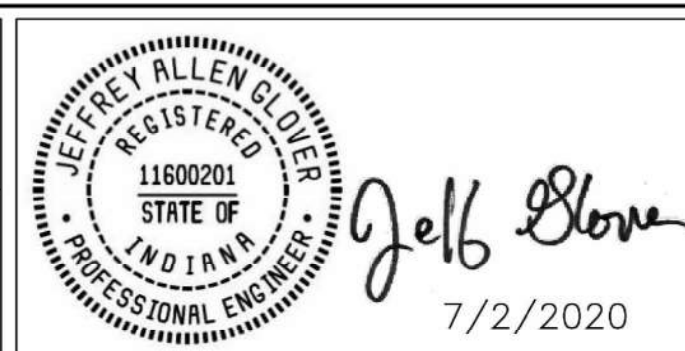
NOTES

1. REFER TO THE MOST CURRENT VERSION OF THE CITIZENS ENERGY GROUP SANITARY STANDARDS MANUAL (WWW.CITIZENSENERGYGROUP.COM/DOCUMENTS/STANDARDS/SANITARYSTANDARDSMANUAL).
2. CONSTRUCTION SHALL COMPLY WITH "327 IAC 3, RULE 6, TECHNICAL STANDARDS FOR SANITARY COLLECTION SYSTEMS", AND THE ALTERNATIVES TO THE TECHNICAL STANDARDS OUTLINED IN THE PERMIT FROM INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM).
3. WATER WELLS LOCATIONS ARE FROM INDIANA DEPARTMENT OF NATURAL RESOURCE'S (IDNR) WATER WELL RECORDS ON-LINE DATABASE. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING PROPERTY OWNERS WATER WELLS PRIOR TO CONSTRUCTION. MINIMUM SEPARATION DISTANCES BETWEEN POTABLE WATER FACILITIES (WATER WELLS) AND SANITARY FACILITIES MUST BE MAINTAINED AS DETAILED IN "327 INC 3, RULE 6, TECHNICAL STANDARDS FOR SANITARY COLLECTION SYSTEMS".
4. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WATER, GAS, AND SANITARY SEWER SERVICE TO HOMES AND BUSINESSES AFFECTED BY THIS WORK.
5. CONTRACTOR SHALL ABANDON EXISTING SEPTIC AND RELOCATE LATERAL TO GRINDER PUMP. ABANDONMENT OF EXISTING SEPTIC SHALL COMPLY WITH "410 IAC 6-8.3". PROPOSED LOCATIONS OF LATERALS ARE SUBJECT TO CHANGE DUE TO THE REQUIREMENT OF CONTRACTOR TO VERIFY PROPERTY OWNERS SEPTIC AND LATERAL LOCATION PRIOR TO CONSTRUCTION. CHANGES TO PROPOSED LATERAL LOCATIONS SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE AFFECTED PROPERTY OWNERS AND NEARBY PROPERTY OWNERS WHICH CONSTRUCTION IS TAKING PLACE. CONTRACTOR SHALL DILIGENTLY ATTEMPT TO ACCOMMODATE THE NORMAL ACTIVITIES OF PROPERTY OWNERS ALONG THE PROJECT ROUTE.
7. CONTRACTOR SHALL PROVIDE SAFE, CONTINUOUS VEHICULAR ACCESS TO ALL PROPERTIES FOR NORMAL DAILY USE AND FOR EMERGENCY SERVICES. SUCH ACCESS SHALL INCLUDE, BUT NOT LIMITED TO, PROVIDING, INSTALLING, AND MAINTAINING TEMPORARY GRAVEL/ASPHALT ROADWAY ON OR ADJACENT TO EXISTING DRIVES/ROADS ANYWHERE NORMAL ACCESS IS HAMPERED BY CONSTRUCTION ACTIVITIES. ALL TEMPORARY ACCESS SHALL BE REMOVED AND ALL DISTURBED SURFACES SHALL BE RESTORED BY THE CONTRACTOR.
8. ANY DRIVEWAY/ROADWAY CULVERT THAT IS REMOVED SHALL BE REPLACED WITH THE SAME SIZE RCP PIPE. CULVERTS SHALL BE CLASS II RCP, MINIMUM 12" DIAMETER, AND END SECTIONS SHALL BE INSTALLED. GRADE FROM DRIVEWAY/ROADWAY TO TOP OF PIPE SHALL BE A MINIMUM OF 3:1 SLOPE.
9. REMOVAL OF EXISTING CONCRETE AND ASPHALT PAVEMENT SHALL INCLUDE ALL AGGREGATE BASE AND SUB-GRADE MATERIALS. SAW CUT ALL EXISTING PAVED AREAS. ALL CUTS SHALL BE CLEAN, NEAT, AND TRUE TO LINE. ALL CONCRETE AND ASPHALT PAVEMENT MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER. DRIVEWAY/ROADWAY REMOVED OR DAMAGED, SHALL BE REPLACED OR REPAIRED.
10. ALL DISTURBED AREAS INCLUDING, BUT NOT LIMITED TO, STREETS, DRIVES, WALKS, LAWNS, ETC. SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
11. VEGETATED AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED AND MULCHED AT THE COMPLETION OF CONSTRUCTION OR AS THE TRENCH IS CLOSED. EROSION CONTROL BLANKETS MAY BE USED.
12. CONTRACTOR SHALL REMOVE ALL MUD, DIRT, GRAVEL, AND ANY OTHER MATERIALS TRACKED ONTO ANY PUBLIC OR PRIVATE DRIVES/STREETS, PARKING LOTS, OR WALKS. THIS MATERIAL REMOVAL OR SWEEPING OF THE STREETS SHALL BE DONE AS FREQUENTLY AS NECESSARY TO MAINTAIN CLEAN DRIVES/STREETS. ALSO KEEP AIRBORNE DIRT AND DUST TO A MINIMUM BY USING WATER OR OTHER METHODS AS NECESSARY.

DISCLAIMERS:

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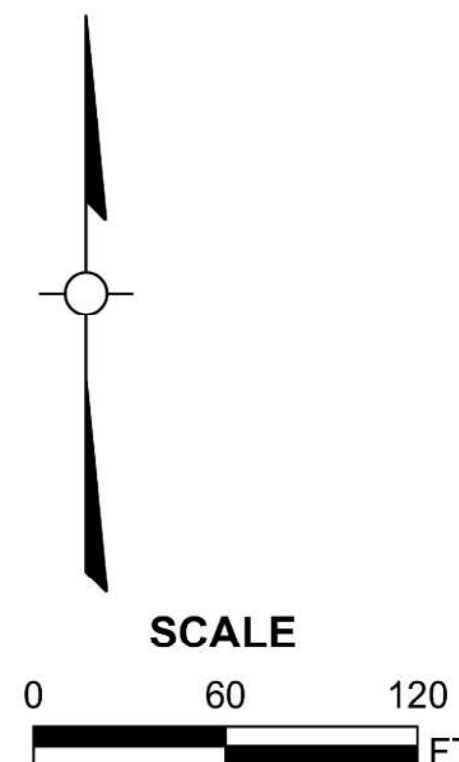


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| RECOMMENDED FOR APPROVAL | <i>M. L. ...</i> 7/2/2020 |
| DESIGNED: SAP | DRAWN: SAP |
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CITIZENS ENERGY GROUP

PROPOSED SEWER PLAN
CONFLICT #26 - EPLER AVE PROJECT AREA
OVERVIEW SHEET

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| I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS |
| CEG PROJECT NO.: 92RE04119 |
| DRAWING NUMBER |
| SS-22 |
| 7 OF 9 |



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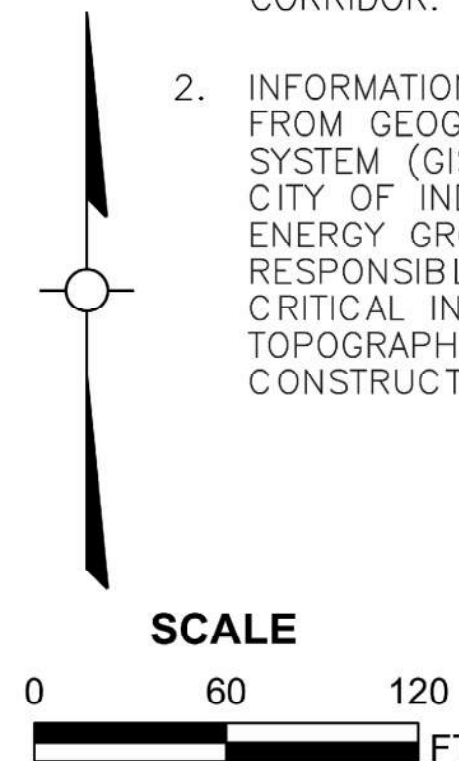
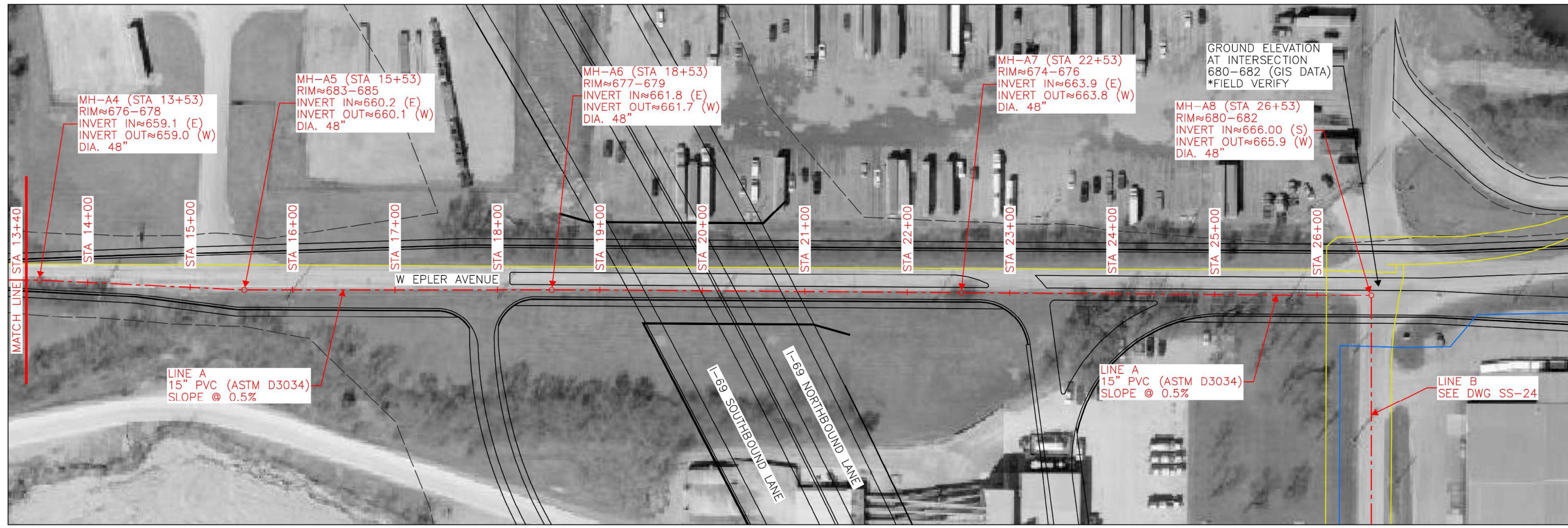
- Sanitary Structures
- Water Main
- Sanitary Sewers
- Gas Main
- I-69 Corridor
- I-69 Construction Limits

NOTES

- SEE DWG SS-22 FOR NOTES.

DISCLAIMERS:

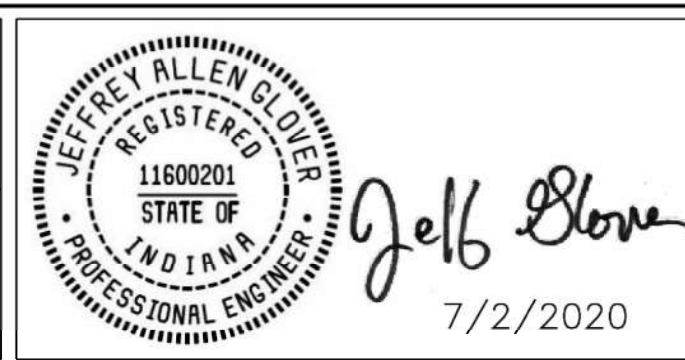
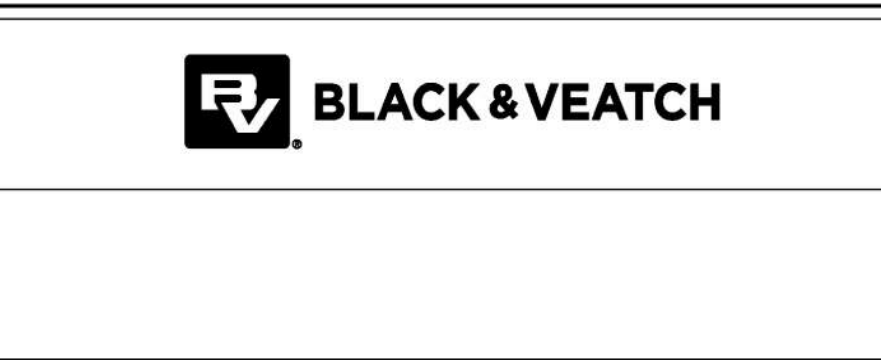
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Legend

- Sanitary Structures
- Water Main
- Sanitary Sewers
- Gas Main
- I-69 Corridor
- I-69 Construction Limits

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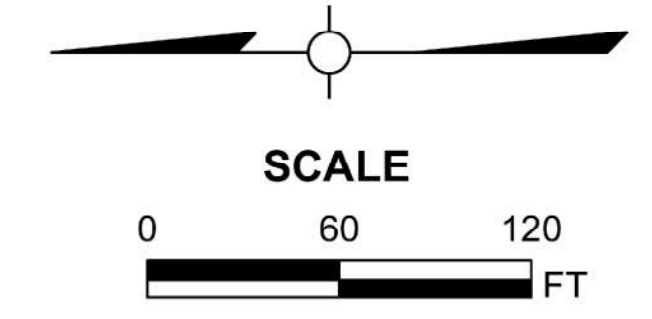
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CITIZENS ENERGY GROUP

PROPOSED SEWER PLAN
CONFLICT #26 - EPLER AVE PROJECT AREA
LINE A STA 0+00 TO STA 26+53

I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS
CEG PROJECT NO.: 92RE04119
DRAWING NUMBER
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8 OF 9



Legend

- Sanitary Structures
- Water Main
- Sanitary Sewers
- Gas Main
- I-69 Corridor
- - - I-69 Construction Limits

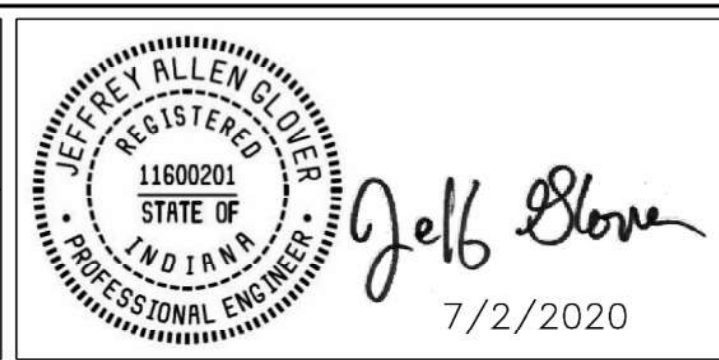
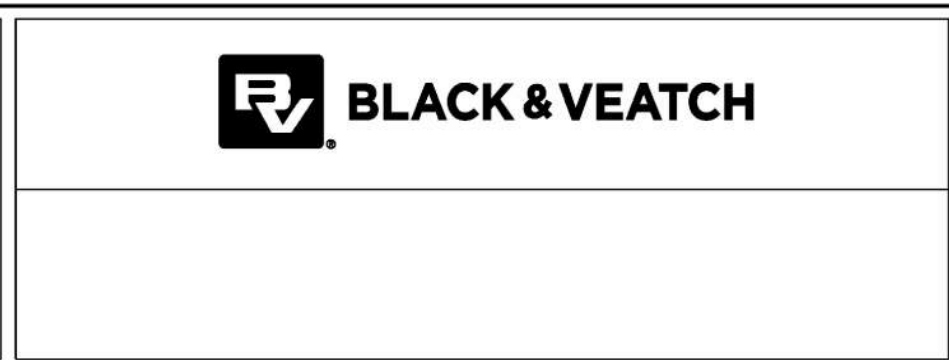
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| DESIGNED: SAP | DRAWN: SAP |
| CHECKED: JAG | CHECKED: JAG |

CITIZENS ENERGY GROUP

PROPOSED SEWER PLAN
 CONFLICT #26 - EPLER AVE PROJECT AREA
 LINE B STA 0+00 TO STA 10+00

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| I-69 SECTION 6.5 SANITARY SEWER CONFLICT RELOCATIONS |
| CEG PROJECT NO.: 92RE04119 |
| DRAWING NUMBER |
| SS-24 |
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AGREEMENT COVERING ROADWAY RECONSTRUCTION WITH FULL OVERHEAD BRIDGE REPLACEMENT

Bridge Information:

Westbound Bridge - NBI: **051090**

Eastbound Bridge - NBI: **051080**

INDOT Des#: **1801695**

INDOT Contract: **R-41536**

RR File: **TBD**

Daily Train Count: **5**

Location: **I-465 at INRD East of Harding Street and West of Bluff Road in the city of Indianapolis, Marion County, Indiana**

New Structure Number: **I465-161-2829-WBL**

New Structure Number: **I465-161-2828-EBL**

Draft of: **June 15, 2020**

DOT #: **292 272S**

RR MP: **0005.00**

Max Train Speed: **40 mph**

THIS AGREEMENT, made and entered into by and between the STATE OF INDIANA, acting by and through the Indiana Department of Transportation, hereinafter called "INDOT" and The Indiana Rail Road Company, hereinafter called the "Railroad" and INDOT's design-build contract awardee and any of their contractors, hereinafter called the "Design-Build Contractor".

W I T N E S S E T H

WHEREAS, Interstate 465 passes over tracks and operating Right-of-way of the Railroad west of Bluff Road in the city of Indianapolis, Marion County, Indiana (the "Premises");

WHEREAS, in the interest of public safety and convenience INDOT desires to reconstruct, via a "Design-Build Best Value Contract," an overhead highway bridge and approaches to carry highway traffic over and across the Railroad's track and right-of-way:

WHEREAS, under Indiana Code 8-23-2-6 and 8-23-3 INDOT is authorized "to cooperate with the United States Government under any Federal law in any manner necessary to secure for the State of Indiana the proportion of any Federal appropriation which may be made in the Future"; and;

WHEREAS, INDOT desires to reconstruct said overhead highway bridge and the highway approaches thereto with the aid of Federal funds apportioned to the State as authorized by Title 23, United States Code, (Public Law 85-767, 85th Congress) or any other Acts supplemental thereto of amendatory thereof.

NOW THEREFORE, in consideration of the premises and the mutual dependent covenants herein contained, the parties hereto agree as follows:

Section 1. The Railroad, insofar as its title enables it to do so and subject to the rights of the Railroad to operate and maintain its railroad and railroad appurtenances along, in and over its right-of-way, grants INDOT and Design-Build Contractor without any compensation other than the performance of this agreement, the right to enter upon the Railroad's property to reconstruct and maintain the overhead highway bridge, including the approaches thereto as well as the piers which are partially located on Railroad right-of-way, over and across its tracks and operating right-of-way in accordance with the general plans and specifications for **Project Des Number 1801695** which are incorporated and made a part hereof by reference, at the location shown in **Exhibit 1**

attached hereto. It is understood that the actual conveyance of any lands or rights, if such are required by Indiana State Law, shall be by means of other instruments to be negotiated between INDOT and the Railroad.

Section 2. Detailed plans and specifications for the structure and approaches thereto, shall be prepared by INDOT and/or the Design-Build Contractor and approved by the Federal Highway Administration. All plans and specifications affecting the interests of the Railroad shall also be subject to approval by the Chief Engineer of the Railroad before work is started. No changes in the plans affecting the interests of either party hereto shall be made without the written consent of said party.

Section 3. The parties hereto shall construct or cause to be constructed in substantial accordance with the plans and specifications, the following items of work:

(a) Work by INDOT and/or the Design-Build Contractor:
INDOT and/or the Design-Build Contractor shall be responsible for obtaining all necessary consents from the Railroad and shall reconstruct the overhead bridge structure, approach fills, highway surfacing, highway drainage, including other drainage made necessary by the construction of the highway facilities.

For the avoidance of doubt, the Design-Build Contractor shall comply with all terms of the Special Provisions in connection with its performance of any work on the property of Railroad.

(b) Work by the Railroad:
The Railroad shall perform, or cause to be performed such temporary and permanent alterations of communication lines, signal lines, signals, and other facilities on its operating right-of-way, and do such other work and furnish such services, as are required by the installation of the grade separation improvement, in accordance with the estimate of force account work marked **Exhibit 2**, attached hereto and made a part hereof. This work shall be performed by the Railroad with its own forces on a force account basis. If the Railroad is not equipped to perform any part of the work with its own forces, it may request the permission of INDOT and Design-Build Contractor to do the work by contract. After receiving written approval of the method of selection the Railroad may proceed, subject to written concurrence by INDOT and the Design-Build Contractor, to award a contract for the work. The provisions of section 11 of this agreement shall apply to any portion of the work, including engineering services, which the Railroad may perform by the contract method. The Railroad shall keep complete records of the cost of the above work to be performed by it and shall submit to INDOT and the Design-Build Contractor on request such information as it may require concerning the cost and other details of the work. The Railroad's accounts shall be kept in such manner that they may be readily audited and actual costs readily determined, and such accounts shall be available for audit by representatives of INDOT, Design-Build Contractor, and Federal Highway Administration for a period of three years from the date final payment has been received by the Railroad. Except as otherwise provided in this agreement, INDOT and/or the Design-Build Contractor shall reimburse the Railroad for the actual cost of the above work performed by it which, including the services identified in section 5, is estimated to be **XXXXXXXXXXXXXXXXXXXXXXX (\$XXX,XXX.XX)**. The Railroad shall not exceed the estimated amount set forth in Exhibit 2 without written approval from INDOT and Design-Build Contractor prior to incurring such costs. In the event there are increases in the extent of the work or changes in the methods of performing the work, this amount may be increased by mutual

agreement. The eligibility for reimbursement of costs of changes to the Railroad's facilities and facilities jointly owned or used by the Railroad and utility companies shall be determined in accordance with the regulations as set forth in the Federal-Aid Policy Guide 23 CFR, Part 140, Subpart I, Subchapter B, and 23 CFR, Part 646, Subpart B issued December 9, 1991, and subsequent amendments or supplements thereto, which are incorporated herein by reference. It is agreed that progress payments will be made by INDOT and/or the Design-Build Contractor to the Railroad for the total amount of work done as shown on monthly statements or when the amount due the Railroad equals \$1,000.00 or more, said progress billing to be paid within thirty-five (35) days of receipt of the Railroad progress billing. Upon receipt of the final bill, the Railroad shall be reimbursed for such items of project work and project expense, in such amounts as are proper and eligible for payment and the project shall be submitted for final audit by INDOT. In the event final audit discloses that INDOT and/or the Design-Build Contractor has reimbursed the Railroad more than the amount due under the terms of this agreement, the Railroad shall promptly repay INDOT and/or the Design-Build Contractor the amount overpaid it. To the extent Design-Build Contractor paid INDOT for such costs, INDOT shall refund such overpayment to the Design-Build Contractor. Billings to INDOT and/or the Design-Build Contractor shall clearly show whether they are partial or final claims. INDOT and/or the Design-Build Contractor will reimburse the Railroad for any items of work and expense performed by it at the written direction of INDOT and/or the Design-Build Contractor, which are not eligible for reimbursement from Federal funds. The Railroad shall not commence any of the work to be undertaken by it hereunder until notified in writing by INDOT to proceed and said work by the Railroad shall be commenced within thirty days after such notification to proceed. Buying and assembling of materials as well as scheduling required manpower shall be construed as compliance with the foregoing thirty-day provision.

Section 4. It is agreed that any necessary falsework, bracing, or forms may be erected to provide the following temporary minimum clearances:

Vertical: Twenty-three feet (23'-0") from top of highest rail.

Lateral: Thirteen feet (13'-0") from centerline of tangent track or
Fourteen feet (14'-0") from centerline of curved track.

Section 5. On all contract construction operations involving direct interference with the Railroad's tracks or traffic, the fouling of Railroad operating clearances, or reasonable probability of accidental hazard to Railroad traffic, INDOT shall require the Design-Build Contractor to arrange for the necessary Railroad personnel to protect such operations as required by the regular operating rules of the Railroad as determined by the Chief Engineer of the Railroad or his authorized representative, except in connection with the railroad force account work as provided in Section 3b hereof. The Railroad will be reimbursed for the actual cost of such protective services furnished by it, at project expense in accordance with the estimate of force account work, as set forth in **Exhibit 2**, attached hereto and made a part hereof. INDOT shall make final settlement with said Design-Build Contractor contingent on a showing that the Railroad has been reimbursed for any expenses which are for the sole benefit of the Design-Build Contractor or that satisfactory arrangements have been made for such reimbursement.

Section 6. All work herein provided to be done by INDOT and/or the Design-Build Contractor on the Railroad's operating right-of-way shall be done in a manner satisfactory to the Chief Engineer of the Railroad or his authorized representative, and shall be performed at such

times and in such manner as not to interfere unnecessarily with the movement of trains or traffic upon the tracks of the Railroad. The Design-Build Contractor agrees to comply with the terms of the Special Provisions and to use all reasonable care and precaution in order to avoid accidents, damage, or unnecessary delay or interference with the Railroad's trains or other property.

Section 7. The Design-Build Contractor, upon completion of the work, shall remove from within the limits of the Railroad's operating right-of-way all machinery, equipment, surplus materials, falsework, rubbish, or temporary buildings of such Design-Build Contractor, and to leave the operating right-of-way in a neat condition, satisfactory to the Chief Engineer of the Railroad or his authorized representative.

Section 8. The Design-Build Contractor shall take out, before work is commenced and to keep in effect until work is completed and accepted, which shall include a Railroad Protective Public Liability Policy of Insurance in the name of the Railroad, said policy to be in the form specified in the Federal-Aid Policy Guide 23 CFR, Part 646, Subpart B, issued December 9, 1991, and any subsequent amendments or supplements thereto. The policies of insurance specified in this section shall be with a company authorized to do business in the State of Indiana.

Section 9. Upon completion of the project, INDOT shall at its own cost and expense maintain or by agreement with others provide for the maintenance of the bridge structure, approach grades and all other highway facilities including the drainage thereof, except that in the event of railroad derailments, accidents, or collisions resulting in damage to the bridge structure INDOT shall make the repairs necessary to restore the structure substantially to its former condition, and the Railroad agrees to reimburse INDOT for the cost of such repairs, if said derailments, accidents, or collisions are caused solely by the negligence of the Railroad, its agents or servants. The Railroad, at the expense of INDOT, will repair or replace or cause to be repaired or replaced the Railroad's track, ties, ballast, communications and signal system, and roadbed which may be damaged or destroyed by accident or as a result of structure maintenance, or otherwise resulting from the sole negligence of INDOT, its agents or servants. The Railroad shall at its own cost and expense maintain its own roadway and tracks and the drainage thereof; provided Railroad shall not be responsible for any personal injury or property damage losses that are caused by or result from INDOT's breach of this Agreement, including but not limited to its failure to maintain the highway facilities, including the drainage thereof.

Section 10. In the event that delays or difficulties arise in securing necessary approvals, or in acquiring necessary right-of-way, or in settling damages or damage claims, or for other reasons, which in the opinion of INDOT render it impracticable to utilize funds from current appropriation for the construction of the project, then at any time before actual construction is started by INDOT and/or Design-Build Contractor pursuant to proper approval or authority, INDOT may serve formal notice of cancellation upon the Railroad and this agreement shall thereupon become null and void. INDOT and/or the Design-Build Contractor shall reimburse the Railroad for all costs incurred by it at the written request of INDOT and/or the Design-Build Contractor on account of the project prior to cancellation.

Section 11. Non-Discrimination

1. To the extent required by I.C. 22-9-1-10 and Title VI of the Civil Rights Act of 1964, the Railroad shall not discriminate against any employee or applicant for employment, to be

employed in the performance of work under this Contract, with respect to hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of race, color, religion, sex, disability, national origin, ancestry or status as a veteran. Acceptance of this Contract also signifies compliance with applicable Federal laws, regulations, and executive orders prohibiting discrimination in the provision of services based on race, color, national origin, age, sex, disability or status as a veteran.

2. The Railroad understands that INDOT is a recipient of Federal Funds. Pursuant to that understanding, the Railroad agrees that if the Railroad employs fifty (50) or more employees and does at least \$50,000 worth of business with the State and is not exempt, the Railroad will comply with the affirmative action reporting requirements of 41 CFR 60-1.7. The Railroad shall comply with Section 202 of executive order 11246, as amended, 41 CFR 60-250, and 41 CFR 60-741, as amended, which are incorporated herein by specific reference.

It is the policy of INDOT to assure full compliance with Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act and related statutes and regulations in all programs and activities. Title VI and related statutes require that no person in the United States shall on the grounds of race, color or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. (INDOT's Title VI enforcement shall include the following additional grounds: sex, ancestry, age, income status, religion, disability, and status of a veteran.)

3. During the performance of this Contract, the Railroad, for itself, its assignees and successors in interest (hereinafter referred to as the "Railroad") agrees to the following assurances under Title VI of the Civil Rights Act of 1964:
 - a. Compliance with Regulations: In the performance of work under this agreement, the Railroad shall comply with the regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation, Title 49 CFR Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Contract.
 - b. Nondiscrimination: In the performance of work under this agreement, the Railroad, with regard to the work performed by it during the Contract, shall not discriminate on the grounds of race, color, sex, national origin, religion, disability, ancestry, or status as a veteran in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Railroad shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulation, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.
 - c. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In the performance of work under this agreement, in all solicitations either by competitive bidding or negotiation made by the Railroad for work to be performed under a subcontract, including procurements of materials or leases of

equipment, each potential subcontractor or supplier shall be notified by the Railroad of the Railroad's obligations under this Contract, and the Regulations relative to nondiscrimination on the grounds of race, color, sex, national origin, religion, disability, ancestry, or status as a veteran.

- d. Information and Reports: In the performance of work under this agreement, the Railroad shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Indiana Department of Transportation and Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of the Railroad is in the exclusive possession of another who fails or refuses furnish this information, the Railroad shall so certify to the Indiana Department of Transportation or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.
- e. Sanctions for Noncompliance: In the performance of work under this agreement, in the event of the Railroad's noncompliance with the nondiscrimination provisions of this Contract, the Indiana Department of Transportation shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to: (a) withholding payments to the Railroad under the Contract until the Railroad complies, and/or (b) cancellation, termination or suspension of the Contract, in whole or in part.
- f. Incorporation of Provisions: In the performance of work under this agreement, the Railroad shall include the provisions of paragraphs a through f in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

Section 12. This project does not eliminate an existing grade crossing with active warning devices; so in accordance with the Federal-Aid Policy Guide 23 CFR, Section 646.210, issued December 9, 1991, and subsequent amendments or supplements thereto, there shall be no required railroad share of the project cost.

Section 13. It is understood that the project herein contemplated is to be financed with the aid of funds appropriated by the Federal Government and expended under Federal regulations; that all plans, estimates of cost, specifications, awards of contracts, acceptance of work, and procedures in general are subject at all times to all Federal laws, rules, regulations, orders, and approvals applying to it, as a Federal project.

Section 14. Buy America Certification: The Railroad agrees that all steel and cast-iron materials and products to be used under this agreement will be produced and manufactured in the United States of America pursuant to the requirements of 23 CFR 635.410.

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This Agreement shall be binding upon the parties hereto, and their successors or assigns.

IN WITNESS WHEREOF, the parties have caused these presents to be executed by their proper officers thereunto duly authorized.

Design-Build Contractor

BY: _____

DATE: _____

Typed Name:

Title:

The Indiana Rail Road Company

BY _____

DATE: _____

Typed Name:

Title:

STATE OF INDIANA

BY _____

DATE: _____

Michael Jett, State Director of Utilities and
Railroads, Capital Program Management
For: Joseph McGuinness, Commissioner
Indiana Department of Transportation

Approved for form and legality by:

_____ (for)
Curtis T. Hill, Jr.
Indiana Attorney General

_____ (Date approved)

EXHIBIT 1: Project Location

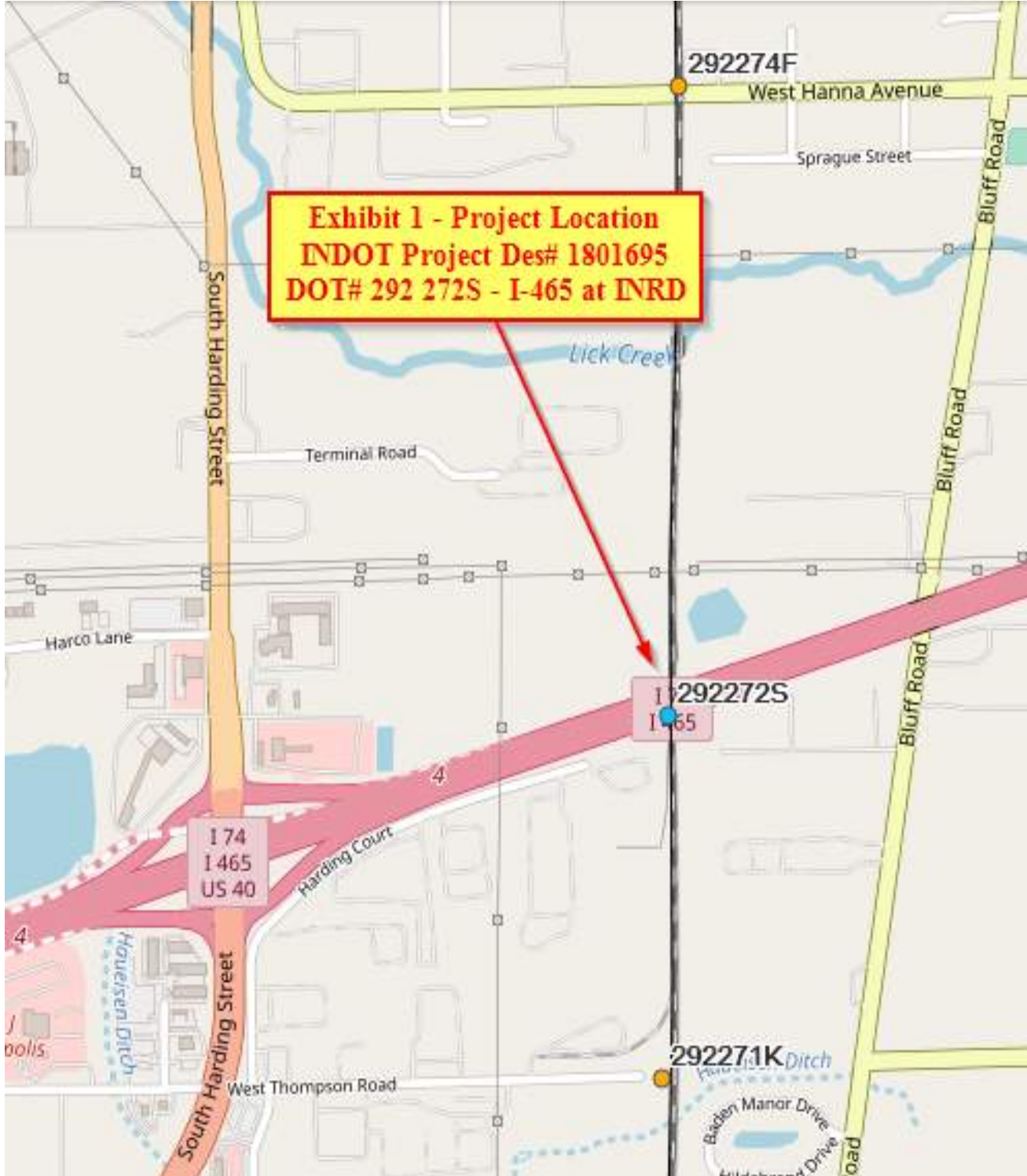


EXHIBIT 2: Force Account Estimate

State of Indiana

THE INDIANA RAIL ROAD COMPANY

ESTIMATE / SUMMARY SHEET

| PROJECT | | | |
|--|-----------------------------------|--------------|------------------------------|
| I-465 OVER THE INDIANA RAILROAD COMPANY | | | |
| INDOT PROJECT #: 1801695 | | | |
| INDOT Contract #: R-41536 | | | |
| USDOT/AAR #: 292272S | | | |
| | STREET or ROAD : | I-69/465 | |
| | NEAREST CITY OR TOWN: | INDIANAPOLIS | |
| | COUNTY: | MARION | |
| | ITEM DESCRIPTION | | ESTIMATE OF July 13, 2020 |
| | Based on | | |
| REVIEW, INSPECTION, & FLAGGING | P.E., RR (20 Inspection Trips) | 3000 | \$ 60,000.00 |
| | CONTRACTOR TRAINING (100 workers) | 50 | \$ 5,000.00 |
| | FLAGGING, RR (120 DAYS) | 1000 | \$ 120,000.00 |
| | PROJECT MANAGEMENT, RR (60 HOURS) | 180 | \$ 10,800.00 |
| | | | \$ - |
| | | | \$ - |
| | | | |
| | INSPECTION SUB TOTALS | | \$ 195,800.00 |
| | CONTINGENCIES | | |
| | | | |
| | PROJECT TOTALS | | \$ 195,800.00 |

| I-69 SECTION 6 CONTRACT 5 PROJECT | | | | | | |
|--|---|------------------|--|---|---|------------------|
| PUBLIC-PRIVATE AGREEMENT | | | | | | |
| TECHNICAL PROVISIONS | | | | | | |
| ATTACHMENT 18-2 | | | | | | |
| ROW ACQUISITION STATUS | | | | | | |
| ROW Acquisition Status I-69 Section 6 Contract 5 (As of 7/10/2020) Note: Addendum 2 revisions are shown in red. | | | | | | |
| <u>Parcel No.</u> | <u>Owner</u> | <u>L.A. Code</u> | <u>State Parcel No.</u> | <u>Mailing Address</u> | <u>Date Parcel Available to Design-Build Contractor for Construction Work</u> | <u>Notes:</u> |
| 587 | Kopetsky, George F II | 6345 | 41-03-33-022-018.000-038; 41-03-33-022-016.003-038; 41-03-33-022-015.000-038; 41-03-28-033-001.000-038; 41-03-28-032-001.000-038 | 5583 W. Fairview Road, Greenwood, In. 46142 | 1/31/2021 | |
| 593 | Market Place At State Rd 37 LLC | 6345 | 41-03-28-034-002.000-038 | P.O. Box 573, Franklin, In. 46131 | 1/31/2021 | |
| 594 | Sisters of St Francis Health Services Inc | 6345 | 41-03-28-031-007.000-038; 41-03-28-031-004.000-038; 41-03-28-031-005.000-038 | 8111 S. Emerson Avenue, Greenwood, In. 46142 | 1/31/2021 | |
| 595 | Wellingshire Joint Venture | 6345 | 41-03-28-023-001.000-038; 41-03-28-022-001.000-038; 41-03-28-022-002.000-038; 49-14-21-110-008.000-500; 49-14-21-110-003.000-500 | 234 S. Franklin Road, Indianapolis, In. 46219 | 1/31/2021 | |
| 596 | Tuttle, Larry E & Jane E | 6345 | 41-03-28-021-001.000-038 | 48 N. Emerson Avenue, Ste 300, Greenwood, In. 46143 | 1/31/2021 | |
| 597 | Bargersville State Bank | 6345 | 41-03-28-012-062.000-038 | 38 Fountain Square Plaza, Cincinnati, OH. 46263 | 11/17/2021 | Available at NTP |
| 598 | Becker, Oksoo | 6345 | 41-03-28-012-063.000-038; 41-03-28-012-001.002-038; 41-03-28-012-001.001-038 | 1518 Heron Ridge Blvd., Greenwood, In. 46143 | 4/29/2021 | |
| 599 | Young, Richard A | 6345 | 41-03-28-012-001.003-038; 41-03-28-012-065.000-038; 41-03-28-012-065.000-038 | 128 N. Delaware Street, Fl 3, Indianapolis, In. 46204 | 11/17/2021 | Available at NTP |
| 600 | Platinum Financial Trust LLC | 6345 | 41-03-28-012-060.000-038; 41-03-28-012-059.002-038; 41-03-28-012-059.000-038 | 2801 Fairview Place, Ste W., Greenwood, In. 46142 | 1/31/2021 | |
| 601 | Montgomery, Ronald L | 6345 | 41-03-28-012-058.000-038 | 5363 W. County Line Road, Greenwood, In. 46142 | 1/31/2021 | |
| 602 | Pinkiston, Kenneth | 6345 | 41-03-28-012-057.000-038 | 5341 W. County Line Road, Greenwood, In. 46142 | 1/31/2021 | |
| 603 | Wyrick, James R., Trustee Under The James R Wyrick Trust Agreement Dated April 10, 2014 | 6345 | 41-03-28-012-056.000-038 | 5319 W. County Line Road, Greenwood, In. 46142 | 1/31/2021 | |
| 604 | Strahla, Sherman L. & Ruth Trustees of the Strahla Revc. Trust | 6345 | 41-03-28-012-055.000-038 | 5303 West County Line Road, Greenwood, In. 46142 | 1/31/2021 | |
| 606 | Strahla, James | 6345 | 41-03-28-012-054.000-038 | 5279 W. County Line Road, Greenwood, In. 46142 | 1/31/2021 | |
| 620 | Wellingshire Joint Venture | 6345 | 49-14-21-110-008.000-500 | 234 S. Franklin Road, Indianapolis, In. 46219 | 5/15/2021 | |
| 620SA | SA Regan Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 633 | G&D Realty, LLC | 6345 | 49-14-03-115-015.000-500 | 241 N. Pennsylvania Street, Ste. 300, Indianapolis, IN. 46204 | 11/17/2020 | Available at NTP |
| 649 | Wadsworth, Kevin R. & Mary L. | 6345 | 49-14-09-116-004.000-500 | 5520 W. Stones Crossing Road, Greenwood, In. 46143 | 2/1/2021 | |
| 650 | Milestone Constructors, L.P. | 6345 | 49-14-09-116-005.000-500 | P.O. Box 68123 Indianapolis, In. 46268 | 11/17/2020 | Available at NTP |
| 653 | K&S Realty LLC | 6345 | 49-14-04-102-101.000-500; 49-14-04-106-004.000-500 | 5730 Kopetsky Drive, Suite A, Indianapolis, In. 46217 | 1/31/2021 | |
| 687 | Speer, Richard C. Et Ux. | 6345 | 49-14-15-114-004.000-500 | 1741 W. Southport Road, Indianapolis, IN 46217 | 11/17/2020 | Available at NTP |
| 688 | The 8620 Land Trust | 6345 | 49-14-21-110-007.000-500 | 8630 Bluff Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 690 | Blackburn, James S. Et Ux. | 6345 | 49-14-04-102-008.000-500 | 5115 S. Warman Avenue Indianapolis, In. 46217 | 1/31/2021 | |
| 691 | Cravens, Tommy W. Et Ux. | 6345 | 49-14-04-102-006.000-500 | 5125 S. Warman Avenue Indianapolis, In. 46217 | 5/15/2021 | |
| 692 | Kopetsky Family LLC. | 6345 | 49-14-03-116-002.000-500; 49-14-04-104-002.000-500; 49-14-04-104-002.000-500; 49-14-04-104-001.000-500; 49-14-04-104-001.000-500; 49-14-04-104-001.000-500; 49-14-04-104-007.000-500; 49-14-04-106-004.000-500; | 5730 Kopetsky Drive, Suite A, Indianapolis, In. 46217 | 5/27/2021 | |
| 693 | New Skelgas, Inc. | 6345 | 49-14-03-115-002.000-500 | 1 Liberty Plz., Liberty, Mo. 64068 | 5/15/2021 | |
| 694 | Kopetsky, Laura | 6345 | 49-14-03-104-015.000-500; 49-14-03-104-013.000-500; 49-14-03-104-012.000-500 | 1745 W. Epler Avenue, Indianapolis, In. 46217 | 5/15/2021 | |
| 695 | Dancey, Sandra M. | 6345 | 49-14-21-102-008.000-500 | 2336 Morris Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 696 | Weber, Nathan R. Et Ux. | 6345 | 49-14-21-112-002.000-500 | 2920 Wicker Road, Indianapolis, In. 46217 | 5/15/2021 | |
| 697 | Football Anytime, LLC | 6345 | 49-14-21-112-004.000-500 | 8885 S. County Road, 925E., Plainfield, In. 46168 | 1/31/2021 | |
| 698 | Hillock, Brent M. | 6345 | 49-14-21-116-002.000-500 | 2780 Wicker Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 699 | Hillock, Brent M. Et Ux. | 6345 | 49-14-21-116-009.000-500 | 2780 Wicker Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 700 | Edlund, Mason D. Et Al. | 6345 | 49-14-21-116-008.000-500 | 14221 Dallas Pkwy, Suite 1000, Dallas, Tx. 75254 | 1/31/2021 | |
| 701 | Reeder real Estate Holdings LLC | 6345 | 49-14-21-111-001.000-500 | 7255 Haverhill Court, Indianapolis, In. 46250 | 1/31/2021 | |
| 702 | Dancey, Sandra Marie Et Al. | 6345 | 49-14-21-111-004.000-500 | 2336 Morris Road, Indianapolis, In. 46217 | 1/31/2021 | |

| I-69 SECTION 6 CONTRACT 5 PROJECT | | | | | | |
|--|--|------------------|---|--|---|---------------|
| PUBLIC-PRIVATE AGREEMENT | | | | | | |
| TECHNICAL PROVISIONS | | | | | | |
| ATTACHMENT 18-2 | | | | | | |
| ROW ACQUISITION STATUS | | | | | | |
| ROW Acquisition Status I-69 Section 6 Contract 5 (As of 7/10/2020) Note: Addendum 2 revisions are shown in red. | | | | | | |
| <u>Parcel No.</u> | <u>Owner</u> | <u>L.A. Code</u> | <u>State Parcel No.</u> | <u>Mailing Address</u> | <u>Date Parcel Available to Design-Build Contractor for Construction Work</u> | <u>Notes:</u> |
| 703 | Reeder, John Et Ux. | 6345 | 49-14-21-111-002.000-500 | 2400 W. County Line Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 704 | Crowley, Robbie C., Et Ux. | 6345 | 49-14-21-102-003.000-500 | 2410 W. County Line Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 705 | Dancey, Barbara | 6345 | 49-14-21-111-003.000-500 | 9763 E. Northshore Drive, Unionville, In. 47468 | 1/31/2021 | |
| 706 | Townsend, Raneet Et Vir. | 6345 | 49-14-21-111-005.000-500 | 8807 Bluff Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 707 | Johnson, Jennifer | 6345 | 49-14-21-111-008.000-500; 49-14-21-111-007.000-500 | 8715 Bluff Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 708 | Birk, Mary K. & Robert W., Et Al. | 6345 | 49-14-21-111-009.000-500; 49-14-21-111-010.000-500 | 8603 Bluff Road, Indianapolis, In. 46217 | 5/27/2021 | |
| 709 | Mary K. & Robert W., Birk Trustees Under the Mary K. Birk Living Trust | 6345 | 49-14-21-111-011.000-500 | 8603 Bluff Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 710 | The Glens Valley Methodist Church, Inc. of Indianapolis | 6345 | 49-14-21-110-004.000-500 | 2625 Glens Valley Lane, Indianapolis, In. 46217 | 6/3/2021 | |
| 711 | Randy Faulkner & Associates, Inc. | 6345 | 49-14-21-110-006.000-500 | 435 E. Main Street, Ste 260, Greenwood, In. 46143 | 1/31/2021 | |
| 712 | The 8630 Land Trust | 6345 | 49-14-21-110-002.000-500 | 8630 Bluff Road, Indianapolis, In. 46217 | 5/27/2021 | |
| 713 | Southern Dunes Golf, LLC | 6345 | 49-14-21-123-001.003-500 | 234 S. Franklin Road, Indianapolis, In. 46219 | 1/31/2021 | |
| 714 | Thomas, G. Minor Trust Et Al. | 6345 | 49-14-21-109-004.000-500 | 2725 Wicker Road, Indianapolis, In. 46217 | 5/27/2021 | |
| 715 | Barnhart, Jason A. Et Ux. | 6345 | 49-14-21-109-006.000-500 | 2625 Wicker Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 716 | Vestco of Indiana, LLC | 6345 | 49-14-21-109-001.000-500 | 1110 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 717 | Tump, Franklin A. | 6345 | 49-14-21-119-001.000-500 | 8530 Bluff Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 718 | Carlino, Katherine R. | 6345 | 49-14-21-124-012.000-500 | 8450 S. Belmont Avenue, Indianapolis, In. 46217 | 1/31/2021 | |
| 719 | Carlino, Katherine R. | 6345 | 49-14-21-124-013.000-500 | 8450 S. Belmont Avenue, Indianapolis, In. 46217 | 1/31/2021 | |
| 720 | Pierle, Belinda L. | 6345 | 49-14-21-124-014.000-500 | 8436 S. Belmont Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 721 | Peoples, Albert R. Et Ux. | 6345 | 49-14-21-124-015.000-500 | 8410 S. Belmont Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 722 | Marchione, Joseph F. Et Ux. | 6345 | 49-14-21-124-016.000-500 | 8350 S. Belmont Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 723 | Collins, Justin L. | 6345 | 49-14-21-124-017.000-500 | 8344 S. Belmont Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 724 | Bauerle, Joseph L. Et Ux. | 6345 | 49-14-21-124-018.000-500 | 8340 S. Belmont Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 725 | Sponsel Property Group, LLC | 6345 | 49-14-21-124-008.000-500 | 251 N. Illinois Street, Ste 450, Indianapolis, In. 46204 | 1/31/2021 | |
| 726 | Rabaduex, Darren T. | 6345 | 49-14-21-124-009.000-500 | 8314 S. Belmont Avenue, Indianapolis, In. 46217 | 1/31/2021 | |
| 727 | Foster, Charles R. Et Ux. | 6345 | 49-14-21-116-006.000-500; 49-14-21-116-007.000-500; 49-14-21-116-011.000-500 | 2710 Wicker Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 728 | Gregg, Robert F. | 6345 | 49-14-21-116-005.000-500 | 2602 Wicker Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 729 | Mahant, Yogesh | 6345 | 49-14-24-116-004.000-500 | 2550 Wicker Road, Indianapolis, In. 46217 | 5/27/2021 | |
| 730 | Wellingshire Joint Venture | 6345 | 49-14-16-114-046.000-500; 49-14-16-123-001.000-500; 49-14-16-126-002.000-500; 49-14-16-126-003.000-500 | 234 S. Franklin Road, Indianapolis, In. 46219 | 1/31/2021 | |
| 731 | Consolidated City of Indianapolis | 6345 | 49-14-21-124-001.000-500 | 8100 S. Belmont Avenue Indianapolis, In. 46217 | 1/31/2021 | |
| 732 | Brown, Mark A. | 6345 | 49-14-16-124-012.000-500 | 7505 S. Belmont Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 733 | Revocable Trust of Ronald E. Brown | 6345 | 49-14-16-124-023.000-500 | 7440 S. Belmont Street, Indianapolis, In. 46217 | 5/15/2021 | |
| 734 | Southern Dunes Self-Storage, LLC | 6345 | 49-14-16-137-002.000-500 | 151 N. Delaware Street, Ste 1440, Indianapolis, In. 46204 | 5/15/2021 | |
| 735 | Southern Dunes Partners, LLC | 6345 | 49-14-16-123-002.000-500; 49-14-16-123-003.000-500 | 6930 Atrium Boardwalk S, Ste 100, Indianapolis, In. 46250 | 5/15/2021 | |
| 736 | Bush Development Company, LP | 6345 | 49-14-16-124-025.000-500 | 221 E. 4th Street, Ste 2510, Cincinnati, OH 45202 | 5/15/2021 | |
| 737 | Aspen Lakes LLC & Winslet Lakes | 6345 | 49-14-15-144-006.000-500; 49-14-15-144-007.000-500; 49-14-15-144-008.000-500; 49-14-15-144-002.000-500; 49-14-15-144-001.000-500; 49-14-15-144-009.000-500 | 26 Corporate Plaza Drive, Ste 270, Newport Beach, CA 92660 | 7/3/2021 | |
| 738 | L&Q Realty, LLC | 6345 | 49-14-15-144-003.000-500 | P.O. Box 150, Anderson In. 46015 | 6/18/2021 | |
| 739 | Hunterwood Southport Landings, LLC % Evergreen Investment Corp | 6345 | 49-14-09-124-003.000-500 | 34 W. Rampart Street, Shelbyville, In. 46176 | 5/15/2021 | |
| 739SA | Hunterwood Southport Landings, LLC % Evergreen Investment Corp | 6345 | | | 2/26/2021 | Billboard |

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| PUBLIC-PRIVATE AGREEMENT | | | | | | |
| TECHNICAL PROVISIONS | | | | | | |
| ATTACHMENT 18-2 | | | | | | |
| ROW ACQUISITION STATUS | | | | | | |
| ROW Acquisition Status I-69 Section 6 Contract 5 (As of 7/10/2020) Note: Addendum 2 revisions are shown in red. | | | | | | |
| <u>Parcel No.</u> | <u>Owner</u> | <u>L.A. Code</u> | <u>State Parcel No.</u> | <u>Mailing Address</u> | <u>Date Parcel Available to Design-Build Contractor for Construction Work</u> | <u>Notes:</u> |
| 740 | Crown Property Management II, LLC | 6345 | 49-14-09-124-002.000-500 | 5346 W. Pike Plaza Road, Indianapolis, In. 46254 | 5/15/2021 | |
| 741 | TBK II, LLC | 6345 | 49-14-09-124-001.000-500; 49-14-09-124-010.000-500 | 7149 Vauxhall Road, Indianapolis, In. 46250 | 1/31/2021 | |
| 742 | BlueRoad Net Lease, LLC | 6345 | 49-14-09-124-008.000-500 | 180 N. Stetson Avenue, Ste 2880, Chicago, IL 60501 | 5/15/2021 | |
| 743 | Belport, LLC | 6345 | 49-14-09-124-010.000-500 | P.O. Box 7220, Fishers, In. 46037 | 5/15/2021 | |
| 744 | Southport Center, LLC | 6345 | 49-14-09-124-009.000-500 | 1110 W. Thompson Road, Indianapolis, In. 46217 | 11/17/2020 | Available at NTP |
| 745 | State of Indiana, formerly Pipers Hospitality Group, LLC | 6278 | 49-14-09-124-004.000-500 | 2130 W. Southport Road Indianapolis, In. 46217 | 11/17/2020 | Available at NTP |
| 746 | Rainbow Rascals Southport, LLC | 6345 | 49-14-09-124-012.000-500 | 1732 Crooks Road, Troy MI 48084 | 5/15/2021 | |
| 747 | Johnston, Leonard E. | 6345 | 49-14-09-124-011.000-500; 49-14-09-124-007.000-500; 49-14-09-124-005.000-500 | 7337 Hearthstone Way, Indianapolis, In. 46227 | 5/15/2021 | |
| 748 | State Road 37, LLC., Et Al | 6345 | 49-14-10-115-003.000-500 | 4320 Deerwood Lake Pkwy, Ste 101-111, Jacksonville, FL 32218 | 5/15/2021 | |
| 749 | Paladin Investments, Inc. | 6345 | 49-14-10-115-005.000-500 | 7050 Madison Avenue, Indianapolis, In. 46227 | 1/31/2021 | |
| 750 | Department of Public Utilities, Clth of Indianapolis | 6345 | 49-14-10-115-002.000-500 | 2020 N. Meridian Street, Indianapolis, In. 46202 | 11/17/2020 | Available at NTP |
| 751 | Lighthouse Landings Property LL, LLC | 6345 | 49-14-09-121-005.000-500 | 114 W. 47th Street, Ste 2310, New York, NY 10036 | 5/15/2021 | |
| 752 | MMC Realty LLC | 6345 | 49-14-09-105-009.000-500; 49-14-09-121-004.000-500 | 6480 S. Belmont Street, Indianapolis, In. 46217 | 5/15/2021 | |
| 753 | Indianapolis Power & Light Company | 6345 | 49-14-10-108-002.000-500 | P.O. Box 1595, Indianapolis, In. 46206 | 5/15/2021 | |
| 754 | Herman, John R. Et Al | 6345 | 49-14-10-107-001.000-500 | 6512 Sonesta Drive, Indianapolis, In. 46217 | 5/15/2021 | |
| 755 | R.H. Marlin, Inc. | 6345 | 49-14-10-105-004.000-500 | 2202 W. Thompson Road, Indianapolis, In. 46217 | 5/15/2021 | |
| 756 | Lake Haven, LLC | 6345 | 49-14-10-105-003.000-500 | 1951 W. Edgewood Avenue, Indianapolis, In. 46217 | 6/3/2021 | |
| 757 | Rose Properties, LLC | 6345 | 49-14-04-105-001.000-500 | 5294 S. Leonard Springs Road, Bloomington, In. 47403 | 5/15/2021 | |
| 757SA | JR Promotions, LLC | 6345 | | | 2/26/2021 | Billboard |
| 758 | Milestone Contractors, L.P. | 6345 | 49-14-04-105-002.000-500 | P.O. Box 68123, Indianapolis, In. 46268 | 2/5/2021 | |
| 759 | American Aggregates Corp. | 6345 | 49-14-04-103-001.000-500 | P.O.Box 8040, Fort Wayne, In. 46898 | 3/5/2021 | |
| 760 | D&E Kopetsky, LLC | 6345 | 49-14-03-105-001.000-500 | 300 N. Meridian Street, Ste 100, Indianapolis, In. 46204 | 5/15/2021 | |
| 762 | 2041 W. Epler Avenue, LLC | 6345 | 49-14-03-116-001.000-500 | 2041 W. Epler Avenue, Indianapolis, In. 46217 | 5/15/2021 | |
| 766 | Kopetsky, Linda L. | 6345 | 49-14-03-115-003.000-500 | 1664 W. Edgewood Avenue, Ste C, Indianapolis, In. 46217 | 5/15/2021 | |
| 767 | Howard, Kathryn A. Et Ux. | 6345 | 49-14-04-106-001.000-500; 49-14-04-106-001.000-500; 49-14-04-104-004.000-500; | 5730 Kopetsky Drive, Ste A, Indianapolis, In. 46217 | 5/27/2021 | |
| 768 | Kriech, Cynthia A. | 6345 | 49-14-04-104-003.000-500 | 432 Die Drive, Indianapolis, In. 46227 | 1/31/2021 | |
| 770 | Lift Land, LLC | 6345 | 49-14-04-104-006.000-500 | 2415 W. Thompson Road, Indianapolis, In. 46217 | 6/11/2021 | |
| 771 | K&S Realty LLC | 6345 | 49-14-04-106-005.000-500 | 5730 Kopetsky Drive, Ste A, Indianapolis, In. 46217 | 5/15/2021 | |
| 772 | Baaron Properties, LLC | 6345 | 49-14-04-102-007.000-500 | 10830 Beechwood Drive W., Indianapolis, In. 46280 | 5/15/2021 | |
| 773 | Dorris, Travis | 6345 | 49-14-04-104-005.000-500 | 2625 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 774 | Gammon, Robert S. Et Al | 6345 | 49-14-04-102-003.000-500 | 2635 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 775 | Singh, Gurdeep | 6345 | 49-14-04-102-005.000-500 | 1504 Danielle Drive, Indianapolis, In. 46231 | 1/31/2021 | |
| 776 | Hendricks Sarah J. Et Al | 6345 | 49-14-04-101-003.000-500 | 3310 Byrkit Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 777 | Brock, Donald C. Et Al | 6345 | 49-14-04-101-004.000-500 | 2830 Byrkit Street, Indianapolis, In. 46217 | 1/31/2021 | |
| 778 | The Edd Brock & Daisy Brock Rev. Living Trust | 6345 | 49-14-04-101-019.000-500 | 2934 Byrkit Street, Indianapolis, In. 46217 | 5/15/2021 | |
| 779 | Visoso, Sergio Roman | 6345 | 49-14-04-101-016.000-500 | 2925 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 780 | Olguin, Beatris Chavez | 6345 | 49-14-04-101-027.000-500 | 3005 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 781 | Pruitt, Robert Et Al | 6345 | 49-14-04-101-021.000-500 | 3025 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 782 | Christian, Deborah L. | 6345 | 49-14-04-101-025.000-500 | 3037 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |

| I-69 SECTION 6 CONTRACT 5 PROJECT | | | | | | |
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| PUBLIC-PRIVATE AGREEMENT | | | | | | |
| TECHNICAL PROVISIONS | | | | | | |
| ATTACHMENT 18-2 | | | | | | |
| ROW ACQUISITION STATUS | | | | | | |
| ROW Acquisition Status I-69 Section 6 Contract 5 (As of 7/10/2020) Note: Addendum 2 revisions are shown in red. | | | | | | |
| <u>Parcel No.</u> | <u>Owner</u> | <u>L.A. Code</u> | <u>State Parcel No.</u> | <u>Mailing Address</u> | <u>Date Parcel Available to Design-Build Contractor for Construction Work</u> | <u>Notes:</u> |
| 783 | Wolfe, Clifford A. Et Ux. | 6345 | 49-14-04-100-003.000-500 | 3101 W. Thompson Road, Indianapolis, In. 46217 | 5/27/2021 | |
| 784 | Davis, Larry Joe Et Ux. | 6345 | 49-14-04-100-002.000-500 | 3119 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 785 | Dostal, Jason P. Et Ux. | 6345 | 49-14-04-100-012.000-500 | 3201 S. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 786 | Koger, James D. | 6345 | 49-14-04-100-007.000-500 | 3229 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 787 | Gammon, Robert Steven | 6345 | 49-14-04-100-008.000-500 | 3245 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 788 | Burns, William T. | 6345 | 49-14-04-100-026.000-500 | 3311 W. Thompson Road, Indianapolis, In. 46217 | 1/31/2021 | |
| 796 | Neace, Bill | 6345 | 49-14-05-100-019.000-500 | 3211 Byrkit Street, Indianapolis, In. 46217 | 11/17/2020 | Available at NTP |
| 797 | Hanson Aggregates Midwest, Inc. | 6345 | 49-11-33-100-003.000-500 | 3520 Piedmont Road, NE Ste 410, Atlanta, GA 30305 | 5/15/2021 | |
| 797SA | Lamar Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 797SB | Lamar Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 798 | Indiana Realty Rental, Inc. | 6345 | 49-11-33-100-006.000-500 | 2202 W. Thompson Road, Indianapolis, In. 46217 | 11/30/2020 | |
| 798SA | Reagan Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 799 | Indiana Crane Rental Company | 6345 | 49-11-33-100-005.000-500 | 2202 W. Thompson Road, Indianapolis, In. 46217 | 5/15/2021 | |
| 799SA | Outfront Media | 6345 | | | 2/26/2021 | Billboard |
| 800 | Nancy S. Gutting Trust | 6345 | 49-11-34-100-007.000-500 | 8614 Maple View Drive, Indianapolis, In. 46217 | 5/15/2021 | |
| 800SA | Reagan Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 801 | CFJ Properties | 6345 | 49-11-34-100-001.000-500 | P.O. Box 54470, Lexington, Ky 40555 | 1/31/2021 | |
| 802 | Petro Hotels, LLC. | 6345 | 49-11-34-100-004.000-500 | 4909 Knights Way, Indianapolis, In. 46217 | 5/15/2021 | |
| 803 | AKM Holdings, Inc. | 6345 | 49-11-34-107-002.000-500 | 8800 Byron Commerce Drive SW, Byron Center, MI 49315 | 11/17/2020 | Available at NTP |
| 804 | PCA Enterprises, LLC. | 6345 | 49-11-34-107-005.000-500 | 1245 Harding Court, Indianapolis, In. 46217 | 11/17/2020 | Available at NTP |
| 805 | Harding Court Properties, LLC. | 6345 | 49-11-34-108-003.000-500 | 8255 Winthrop Avenue, Indianapolis, In. 46240 | 11/17/2020 | Available at NTP |
| 806 | Airco, Inc. | 6345 | 49-11-34-108-006.000-500 | 200 Somerset Corporate Blvd., Ste 7000, Bridgewater, NJ. 08807 | 5/15/2021 | |
| 809 | Love, Rebecca L. | 6345 | 49-11-35-101-049.000-500 | 9936 Peddlers Way, Orlando, FL 32817 | 11/17/2020 | Available at NTP |
| 810 | Knowles, Danny Ray | 6345 | 49-11-35-101-006.000-500 | P.O. Box 17842, Indianapolis, In. 46217 | 11/17/2020 | Available at NTP |
| 811 | Duke Energy Indiana, Inc. | 6345 | 49-11-35-101-088.000-500 | 550 S. Tryson Street, Dec41B, Charlotte, NC 28202 | 5/15/2021 | |
| 812 | Bixler, George M. Et Al. | 6345 | 49-11-35-102-017.000-500; 49-11-35-101-089.000-500 | P.O. Box 47310, Indianapolis, In. 46247 | 5/15/2021 | |
| 827 | Peaper & Proctor Real Estate, LLC Et Al. | 6345 | 49-11-35-102-002.000-500 | 4655 Allen Drive, Carmel, In. 46033 | 5/15/2021 | |
| 828 | State of Indiana | 6345 | | 4401 Bluff Rd | 11/17/2020 | Available at NTP |
| 829 | W.R. Beach, Inc. | 6345 | 49-11-35-103-005.000-500; 49-11-35-103-004.000-500 | 820 W. Summer Avenue, Indianapolis, In. 46217 | 5/27/2021 | |
| 830 | S&S Ind, LLC | 6345 | 49-11-34-105-002.000-500; 49-11-34-105-006.000-500 | 21309 Snag Island Drive, Lake Tapps, WA 98391 | 5/15/2021 | |
| 830SA | Lamar Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 830SB | Outdoor Advertising Company | 6345 | | | 2/26/2021 | Billboard |
| 831 | Pilot Travel Centers, LLC | 6345 | 49-11-34-105-001.000-500 | P.O. Box 54470, Lexington, Ky 40555 | 5/15/2021 | |
| 832 | Arogas, Inc. | 6345 | 49-11-34-106-010.000-500 | P.O. Box 54470, Lexington, Ky 40555 | 1/31/2021 | |
| 833 | Heritage Aggregates, LLC | 6345 | 49-11-34-103-001.000-500 | 5400 W. 86th Street, Indianapolis, In. 46268 | 5/15/2021 | |
| 833SA | Outfront Media | 6345 | | | 2/26/2021 | Billboard |
| 834 | Bex Farms, Inc. | 6345 | 49-11-32-102-021.000-200 | | 5/15/2021 | |
| 841 | SLB Acquisition, LLC | 6345 | 49-11-32-106-007.000-200 | 3720 Washington Blvd., Ste 201, Indianapolis, In. 46205 | 5/15/2021 | |
| 842 | Johnson, Jeremy D. | 6345 | 49-11-32-106-008.000-200 | 4050 Viewside Drive, Indianapolis, In. 46221 | 5/15/2021 | |
| 843 | Ansini, Edmund N. | 6345 | 49-11-31-107-001.000-200 | 1401 79th Street Cswy, North Bay Village, FL 33141 | 5/15/2021 | |
| 844 | Storage Express Holdings, LLC | 6345 | 49-11-31-114-001.000-200 | P.O. Box 70, Bloomington, In. 47402 | 5/15/2021 | |
| 844SA | Fairway Outdoor Advertising, LLC. | 6345 | | | 2/26/2021 | Billboard |
| 846 | White River Associates, LP | 6345 | 49-12-36-127-013.000-200 | 1605 Main Street, Ste 606, Sarasota, FL 34236 | 5/15/2021 | |

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| PUBLIC-PRIVATE AGREEMENT | | | | | | |
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| ROW ACQUISITION STATUS | | | | | | |
| ROW Acquisition Status I-69 Section 6 Contract 5 (As of 7/10/2020) | | | | | | |
| Note: Addendum 2 revisions are shown in red. | | | | | | |
| <u>Parcel No.</u> | <u>Owner</u> | <u>L.A. Code</u> | <u>State Parcel No.</u> | <u>Mailing Address</u> | <u>Date Parcel Available to Design-Build Contractor for Construction Work</u> | <u>Notes:</u> |
| 847 | Southwest Church of the Nazarene, Inc. | 6345 | 49-12-36-125-001.000-200 | 4797 Tincher Road, Indianapolis, In. 46221 | 5/15/2021 | |
| 848 | Decatur Propco, LLC Et Al. | 6345 | 49-11-31-117-003.000-200 | 650 Madison Avenue, New York, NY. 10022 | 5/15/2021 | |
| 849 | Ansin, Toby Lerner | 6345 | 49-11-31-117-001.000-200 | P.O. Box 610727, North Miami, FL 33261 | 5/15/2021 | |
| 859 | Skaggs, Hobert Dale Et Ux. | 6345 | 49-14-05-104-001.000-200 | 4107 W. Thompson Road, Indianapolis, In. 46221 | 5/15/2021 | |
| 860 | Skaggs, Hobert Dale Et Al. | 6345 | 49-14-05-106-001.000-200; 49-14-05-104-002.000-200 | 4107 W. Thompson Road, Indianapolis, In. 46221 | 5/15/2021 | |
| 860SA | Lamar Outdoor Advertising | 6345 | | | 2/26/2021 | Billboard |
| 861 | Denzio, Anthony | 6345 | 49-14-05-107-001.000-200 | 5427 E. Edgewood Avenue, Indianapolis, In. 46237 | 5/15/2021 | |
| 863 | Denic Corp. | 6345 | 49-14-10-108-004.000-500 | 7735 Marsh Road, Indianapolis, In. 46278 | 5/15/2021 | |
| 865 | Kriech, Joseph K. | 6345 | 49-14-04-104-005.000-500 | 432 Dixie Drive, Indianapolis, In. 46227 | 5/15/2021 | |
| 866 | Gammon, Robert S. | 6345 | 49-14-04-102-001.000-500 | 2635 W. Thompson Road, Indianapolis, In. 46217 | 5/27/2021 | |