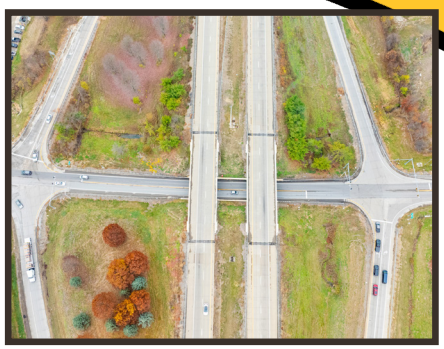
Submitted To:
Ohio Department of Transportation

Final Alternative Technical Concepts (ATC) Submittal

BEL-70-9.35 Interchange Improvement Design-Build

Belmont County, Ohio

PID 120547



Submitted By:

BEAVER EXCAVATING COMPANY

In Association With Lead Designer

TRC

Contents

Appendix

- Exhibit B – ATC 07
- Exhibit F – ATC 13

Alternative Technical Concept (ATC)

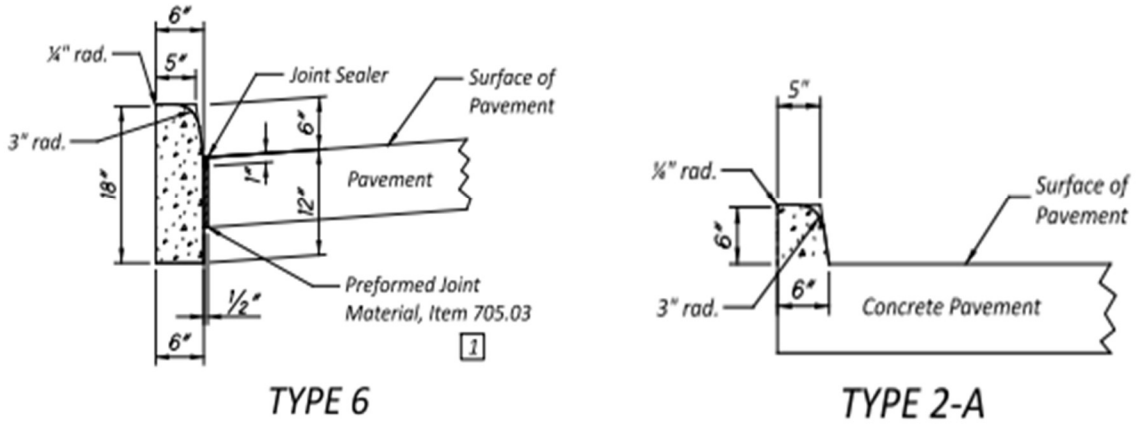
02 - Modification of Curb Type on SR-149

ATC No.: 02 | **Type:** Pavement, Roadway | **Date:** 02/11/2025

1. **Description:** This ATC proposes a modification to the curb specifications in the SCOPE OF SERVICES for BEL-70-9.35, PID 120547 (Addendum 1). The original specifications (Page 37 and Page 39) call for Item 609E26000 – CURB, TYPE 6 to be used for all proposed curbing along SR-149.

The DBT proposes changing the curb to Item 609E14000 – CURB, TYPE 2-A as shown in **Figure 1** below. This modification would improve production by allowing the curb to be paved with the pavement and eliminate the need for a separate activity with joints. This approach streamlines construction and potentially lowers costs, while maintaining the functional need for the curb.

Figure 1 - Specified (Type 6) versus proposed (Type 2-A) curb configuration.



2. **Deviation:** Page 37 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: "*All proposed curbing shall be Item 609E26000 – CURB, TYPE 6.*" Page 39 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: "*Curbing along SR-149 shall be Item 609E26000 – CURB, TYPE 6.*"

The DBT proposes to modify the above SCOPE OF SERVICES language to: *"All proposed curbing shall be Item 609E14000 – CURB, TYPE 2-A or* Item 609E26000 – CURB, TYPE 6." *"Curbing along SR-149 shall be Item 609E14000 – CURB, TYPE 2-A* or Item 609E26000 – CURB, TYPE 6."

3. **Usage:** This proposed ATC will be applied to all curb along SR-149 as specified in the conceptual plans from STA 107+50 to STA 137+99.80.

4. **Inspection:** Since Type 6 curb requires testing, this proposed ATC does not change or impact inspection or testing requirements during construction or during the life of the structure.

5. **Public Record:** We acknowledge that this Alternative Technical Concept (ATC) may not be considered a trade secret, but we request this ATC remain confidential to the DBT through the completion of the bid phase and project award.

Alternative Technical Concept (ATC)

05 – Reuse of Existing Drainage Facilities

ATC No.: 05 | **Type:** Drainage| **Date:** 02/11/2025

1. **Description:** This ATC proposes a modification to the culvert replacement requirements outlined on Page 40 of 63 of the BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1). The original specification mandates full replacement of the following culverts due to their fair or poor condition:

- CFN 1858223 – 292 feet of 48”x60” elliptical CMP under IR-70
- CFN 1858224 – 102 feet of 54” CMP under Ramp A
- CFN 1836941 – 120 feet of 36” CMP under SR-149

The DBT proposes modifying this requirement to allow for replacement, slip lining, or coating to extend service life, provided drainage calculations confirm the feasibility of these alternative rehabilitation methods.

This change would offer greater flexibility in addressing culvert conditions, potentially reducing construction costs, public travel impacts, and safety while still ensuring long-term functionality and drainage performance.

2. **Deviation:** Page 40 of 63 of the BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: “*The following conduits/culverts shall be replaced due to them being in fair or poor condition*:

- CFN 1858223, 292 feet in length of 48”x60” elliptical CMP – traverses under IR-70
- CFN 1858224, 102 feet in length of 54” CMP – traverses under Ramp A
- CFN 1836941, 120 feet in length of 36” CMP – traverses under SR-149

The DBT will replace the culverts in their entirety.”

The DBT proposes to modify the above language to:

“The following conduits/culverts shall be replaced or corrected due to them being in fair or poor condition:

- CFN 1858223, 292 feet in length of 48”x60” elliptical CMP – traverses under IR-70
- CFN 1858224, 102 feet in length of 54” CMP – traverses under Ramp A
- CFN 1836941, 120 feet in length of 36” CMP – traverses under SR-149

The DBT shall replace, slip-line, or coat the culverts in their entirety to extend their service life, provided drainage calculations support these methods. If slip-lined or coated, the final product must be equivalent to or better than replacing the drainage structures. ***All work shall comply with ODOT specifications, SS833, and SS899, ensuring the drainage structures meet final design capacity requirements."***

3. **Usage:** The proposed modification will be applied to the following drainage structures:

- CFN 1858223
- CFN 1858224
- CFN 1836941

4. **Inspection:** This proposed ATC does not change or impact inspection or testing requirements during construction. The proposed ATC would reduce the required inspection efforts during the life of the structures by increasing the service life of the structures.

5. **Public Record:** We acknowledge that this Alternative Technical Concept (ATC) may not be considered a trade secret, but we request this ATC remain confidential to the DBT through the completion of the bid phase and project award.

Alternative Technical Concept (ATC)

06A - Flexibility in Bridge Beam Selection

ATC No.: 06A | **Type:** Structures | **Date:** 02/11/2025

1. **Description:** This ATC proposes a modification to the structural beam requirements outlined on Page 43 of 63 of the BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1).

The original specification requires the use of longitudinal steel beams with a hot-dipped galvanized coating. The DBT proposes an alternative of prestressed I-beams as per PSID-1-13. This modification maintains flexibility in material selection while adhering to PSID-1-13 specifications to ensure structural integrity.

2. **Deviation:** Page 43 of 63 of the BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: "*Use longitudinal steel beams with a hot-dipped galvanized coating.*"

The DBT proposes to modify the above language to: *"Use longitudinal steel beams with a hot-dipped galvanized coating or prestressed I-beams as per PSID-1-13. **If prestressed I-beams are selected, ensure a minimum vertical clearance of 17' for the beams."***

3. **Usage:** The proposed ATC will be applied to the following two proposed structures:

- SFN 0702227
- SFN 0702251

4. **Inspection:** This proposed ATC does impact inspection or testing requirements during construction or during the life of the structure as additional inspection would be required per ODOT ITEM 515 PRESTRESSED CONCRETE BRIDGE MEMBERS.

5. **Public Record:** We acknowledge that this Alternative Technical Concept (ATC) may not be considered a trade secret, but we request this ATC remain confidential to the DBT through the completion of the bid phase and project award.

Alternative Technical Concept (ATC)

07 - Alternative Bridge Structure Type

ATC No.: 07 | **Type:** Structures | **Date:** 02/11/2025

1. **Description:** This ATC proposes a modification to the bridge design requirements outlined on Page 43 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1). The original specification mandates that all new bridges must be 3-span continuous composite steel beam structures with no skew, and no other structure type is permitted. Additionally, the eastbound and westbound bridge span arrangements must match.

The DBT proposes revising these requirements to allow for alternative structure types, such as a single span bridge, to be considered. This modification will provide flexibility in the design process. This approach could also lead to more cost-effective, innovative, or constructible solutions while still maintaining the requirement for consistency between the eastbound and westbound bridge span arrangements. The proposed change ensures the final design will meet project objectives while allowing the DBT to explore optimized structural options. See Exhibit B for additional details.

2. **Deviation:** Page 43 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: "*New bridges must be 3-span continuous composite steel beam structures with no skew. No other structure type will be allowed. The eastbound and westbound bridge span arrangements must match*."

The DBT proposes modifying this language to: *"New bridges may be designed as 3-span continuous or single span composite steel beam structures with no skew. The eastbound and westbound bridge span arrangements**, span lengths, and bridge types must match."***

3. **Usage:** The proposed ATC will be applied to the following two proposed structures:

- SFN 0702227
- SFN 0702251

4. **Inspection:** This proposed ATC does not change or impact inspection or testing requirements during construction. The proposed ATC would reduce the required inspection efforts during the life of the structures by reducing the overall size of the structures.

5. **Public Record:** We consider this Alternative Technical Concept (ATC) to be a trade secret and request that it remain confidential to the DBT throughout the bid phase, project award, and the completion of the project.

Alternative Technical Concept (ATC)

09 - Modification of Bridge Skew

ATC No.: 09 | **Type:** Structures | **Date:** 02/11/2025

1. **Description:** This ATC proposes a modification to the bridge design requirements outlined on Page 43 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1). The original specification mandates that all new bridges must be 3-span continuous composite steel beam structures with no skew, and no other structure type is permitted. Additionally, the eastbound and westbound bridge span arrangements must match.

The DBT proposes revising the requirement to allow for skew in the bridges. This modification provides greater design flexibility, allowing for the inclusion of skewed bridge configurations and alternative structure types where beneficial. The ability to consider skewed spans could improve geometric alignment with the existing infrastructure, reduce span length, enhance constructability, and reduce costs associated with unnecessary constraints.

2. **Deviation:** Page 43 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: "*New bridges must be 3-span continuous composite steel beam structures with no skew. No other structure type will be allowed. The eastbound and westbound bridge span arrangements must match*."

The DBT proposes modifying the above language to: *"New bridges may be designed as 3-span continuous composite steel beam structures with or without skew.* ***Bridge skew must be under 10 degrees if used.*** *Alternative structure types may also be considered. The eastbound and westbound bridge span arrangements must match*."

3. **Usage:** The proposed ATC will be applied to the following two proposed structures:

- SFN 0702227
- SFN 0702251

4. **Inspection:** This proposed ATC does not change or impact inspection or testing requirements during construction or during the life of the structure.

5. **Public Record:** We acknowledge that this Alternative Technical Concept (ATC) may not be considered a trade secret, but we request this ATC remain confidential to the DBT through the completion of the bid phase and project award.

Alternative Technical Concept (ATC)

13 - Modification of Side Slopes Along IR-70, SR-149, Reco Drive, & Ramps

ATC No.: 13 | **Type:** Roadway | **Date:** 02/11/2025

1. **Description:** This ATC proposes a change to the maximum side slopes specified Page 38 of 63 in the BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) along IR-70 mainline, state routes, local roads, and ramps. Steeper slopes would minimize impacts to existing culverts, drainage, wetlands, or utilities. The use of steeper slopes is a sustainable solution that offers the following advantages over a precast or cast-in-place retaining wall option:

- Naturally aesthetic look with vegetation options
- Eliminates the effects that differential settlement can have on a precast or cast-in-place concrete wall
- Offers a natural sound absorption option
- Improves roadway drainage
- Eliminates future inspection and maintenance requirements of a precast or cast-in-place wall

Our team may also implement combination 2H:1V on top of 1.5H:1V / 1H:1V slopes to minimize taller 1-1.5H:1V fills. See Exhibit F for additional details.

2. **Deviation:** Page 38 of 63 of BEL-70-9.35, PID 120547 SCOPE OF SERVICES (Addendum 1) states: "*The maximum side-slopes along SR-149, Reco Drive, and the ramps shall be 2:1. A 1.5:1 slope may be used only along IR-70 WB near the proposed approach slabs and bridge abutments*."

The DBT proposes to modify the above language to: *"The maximum side-slopes along SR-149, Reco Drive, and the ramps shall be 2:1. A 1:5 slope may be used along IR-70 near the proposed approach slabs and bridge abutments, and a 1.5:1 slope at the following locations:*

- SR-149 Sta. 112+00 – 115+00 Left and Right
- Reco Dr. Sta. 13+00 – 15+50 Right
- SR-149 Sta. 115+50 – 119+00 Left
- SR-149 Sta. 124+00 – 125+00 Left
- SR-149 Sta. 125+00 – 127+50 Left
- SR-149 Sta. 129+50 – 131+00 Left.
- I70 EB Sta. 516+50 – 518+50 Rt.

*1.5:1 may be steepened to 1:1 in locations above to minimize the impacts to existing culverts, drainage, wetlands, or utilities. **All side slopes must comply with ODOT SS863 and Geotechnical Design Manual 502.2 requirements**."*

3. **Usage:** The proposed ATC will be applied to the side slopes along IR-70 and the associated ramps within the project limits of BEL-70-9.35, PID 120547. The modification revises the maximum side slopes from 2:1 in the following locations:

- SR-149 Sta. 112+00 – 115+00 Left and Right
- Reco Dr. Sta. 13+00 – 15+50 Right
- SR-149 Sta. 115+50 – 119+00 Left
- SR-149 Sta. 124+00 – 125+00 Left
- SR-149 Sta. 125+00 – 127+50 Left
- SR-149 Sta. 129+50 – 131+00 Left
- I70 EB Sta. 516+50 – 518+50 Right

This slope design (steeper than 1.5:1) has already been used on roadway improvements for the adjacent Love's Travel Stop (BEL-149-23.44) Sta. 112+80 to 113+33 Lt., Sta. 113+00 to 113+50 Rt., and Sta. 115+73 to 117+35 Lt. This design uses special slope backfill and reinforced soil slopes. A 1:1 is also shown on Appendix B – Conceptual Drawings Sta. 124+50 Lt (1.1:1).

4. **Inspection:** This proposed ATC does not change or impact inspection or testing requirements during construction or during the life of the roadway/structure.

5. **Public Record:** We acknowledge that this Alternative Technical Concept (ATC) may not be considered a trade secret, but we request this ATC remain confidential to the DBT through the completion of the bid phase and project award.

Alternative Technical Concept (ATC)

14 - SS 863 Reinforced Soil Slopes

ATC No.: 14 | **Type:** Roadway | **Date:** 02/11/2025

1. **Description:** This ATC proposes a change to the ODOT Supplemental Specification 863 Reinforced Soil Slopes (October 17, 2014). This change allows for the use of stronger slope backfill material that is equal to or better than the typical 863 RSS embankment spec which uses natural soils or granular embankment materials.

2. **Deviation:** Page 3 of the Specification. B. Reinforced Embankment. "*Furnish embankment soil to be used in conjunction with the geogrid reinforcement that is either natural soil as defined in 703.16.A or granular embankment material as defined in 703.16.B.*"

Revise the above language to the following: "*Furnish embankment soil to be used in conjunction with the geogrid reinforcement that is either natural soil as defined in 703.16.A, granular embankment material as defined in 703.16.B, or Section 703.16C, granular material Type C with the following gradation as determined in accordance with ASTM D-422:*"

Sieve Size	Percent Passing
3 inches	100
2 inches	70-90
½ inch	30-60
No. 200	0-13

3. **Usage:** The proposed ATC will be applied to the side slopes along IR-70 and the associated ramps within the project limits of BEL-70-9.35, PID 120547. The modification revises the maximum side slopes from 2:1 in the following locations:

- SR-149 Sta. 112+00 – 115+00 Left and Right
- Reco Dr. Sta. 13+00 – 15+50 Right
- SR-149 Sta. 115+50 – 119+00 Left
- SR-149 Sta. 124+00 – 125+00 Left
- SR-149 Sta. 125+00 – 127+50 Left
- SR-149 Sta. 129+50 – 131+00 Left

This slope design (steeper than 1.5:1) has already been used on roadway improvements for the adjacent Love's Travel Stop (BEL-149-23.44) at Sta. 112+80 to 113+33 Lt., Sta. 113+00 to 113+50 Rt., and Sta. 115+73 to 117+35 Lt. This design uses

special slope backfill and reinforced soil slopes. A 1:1 is also shown on Appendix B – Conceptual Drawings, Sta. 124+50 Lt (1.1:1).

4. **Inspection:** This proposed ATC does not change or impact inspection or testing requirements during construction or during the life of the structure.

5. **Public Record:** We acknowledge that this Alternative Technical Concept (ATC) may not be considered a trade secret, but we request this ATC remain confidential to the DBT through the completion of the bid phase and project award.

Appendix: ATC Exhibits

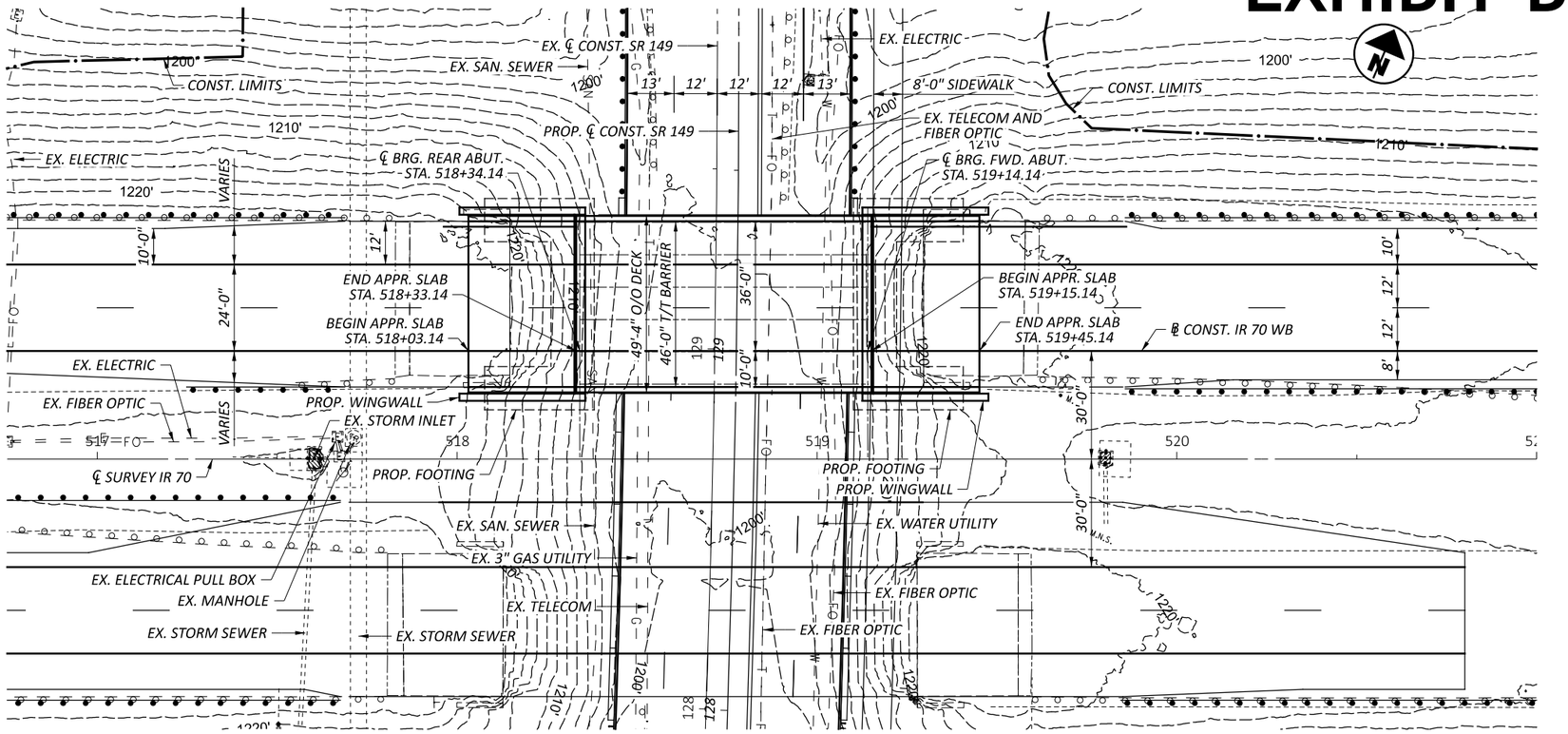
Exhibit B - ATC 07
Exhibit F - ATC 13

BEAVER EXCAVATING COMPANY

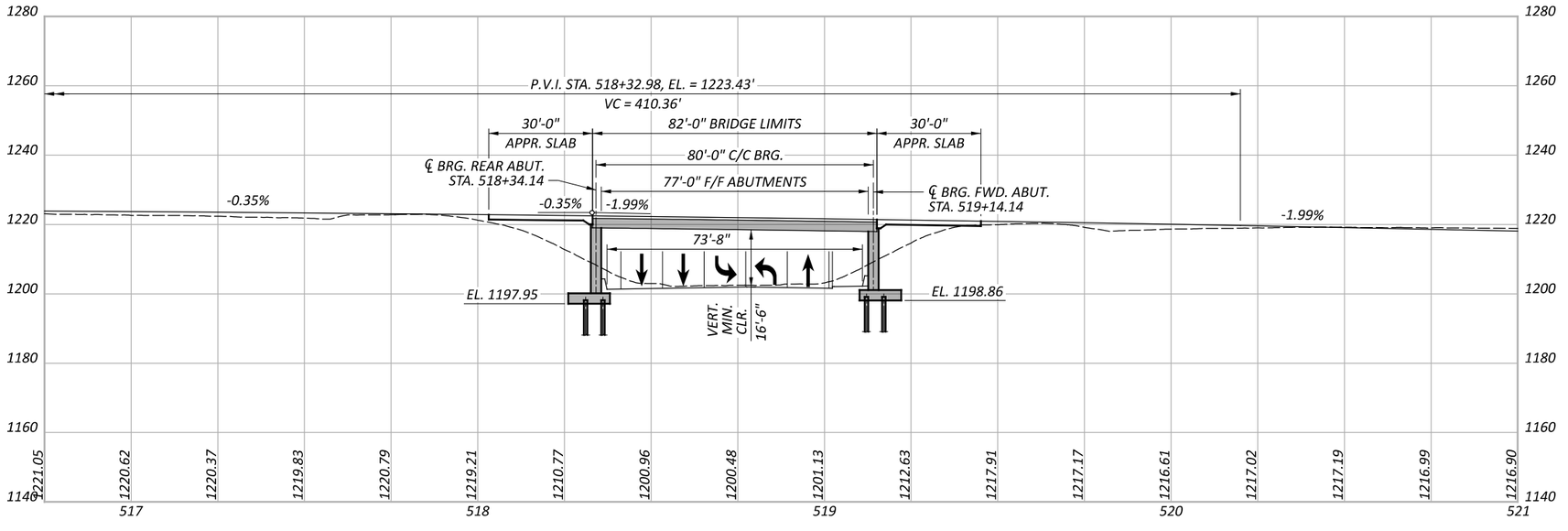
In Association With Lead Designer

TRC

EXHIBIT B



PLAN



PROFILE

BENCHMARK DATA

BM #1 STA.	,	ELEV.	,	OFFSET	,
BM #2 STA.	,	ELEV.	,	OFFSET	,
BM #3 STA.	,	ELEV.	,	OFFSET	,
BM #4 STA.	,	ELEV.	,	OFFSET	,

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
20XX ADT = 20XX ADTT =
20XX ADT = 20XX ADTT =
DIRECTIONAL DISTRIBUTION =

LEGEND

- BORING LOCATION
- - CHANNEL EXCAVATION
- * - PHASE 1 CONSTRUCTION
- ** - PHASE 2 CONSTRUCTION
- ● 16'-6" REQUIRED MINIMUM VERTICAL CLEARANCE
  15'-9¼" ACTUAL MINIMUM VERTICAL CLEARANCE

HYDRAULIC DATA

DRAINAGE AREA = SQ. MILES
Q ( ) = CFS V ( ) = FT/S
Q ( ) = CFS V ( ) = FT/S
STRUCTURE CLEARS THE YEAR DESIGN HW BY FEET.

EXISTING STRUCTURE

TYPE: 3 SPAN CONTINUOUS COMPOSITE STEEL BEAM A709 GRADE 50W WITH CONCRETE DECK SUPPORTED BY MODIFIED SUBSTRUCTURE

SPANS: 35'-10", 44'-11¾", 35'-9¼" C/C BEARINGS
ROADWAY: 43'-0" T/T BARRIER
LOADING: HS20 CASE I AND THE ALTERNATIVE MILITARY LOADING
SKEW: NONE
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81, 25' LONG
ALIGNMENT: TANGENT
CROWN: 0.016
STRUCTURE FILE NUMBER: 0702226L
DATE BUILT: 1964 (MODIFIED 2012)
DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: SINGLE SPAN CONTINUOUS COMPOSITE STEEL GRADE 50 BEAMS WITH REINFORCED CONCRETE DECK ON SEMI-INTEGRAL ABUTMENTS

SPANS: 80'-0" C/C BEARINGS
ROADWAY: 46'-0"
LOADING: HL93 AND 0.06 KIPS PER SQ. FT. FUTURE WEARING SURFACE
SKEW: NONE
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLABS: 30'-0" LONG (AS-1-15, AS-2-15)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
DECK AREA: 4,046 SF

COORDINATES: LATITUDE 40°03'36" N
LONGITUDE 81°03'11" W

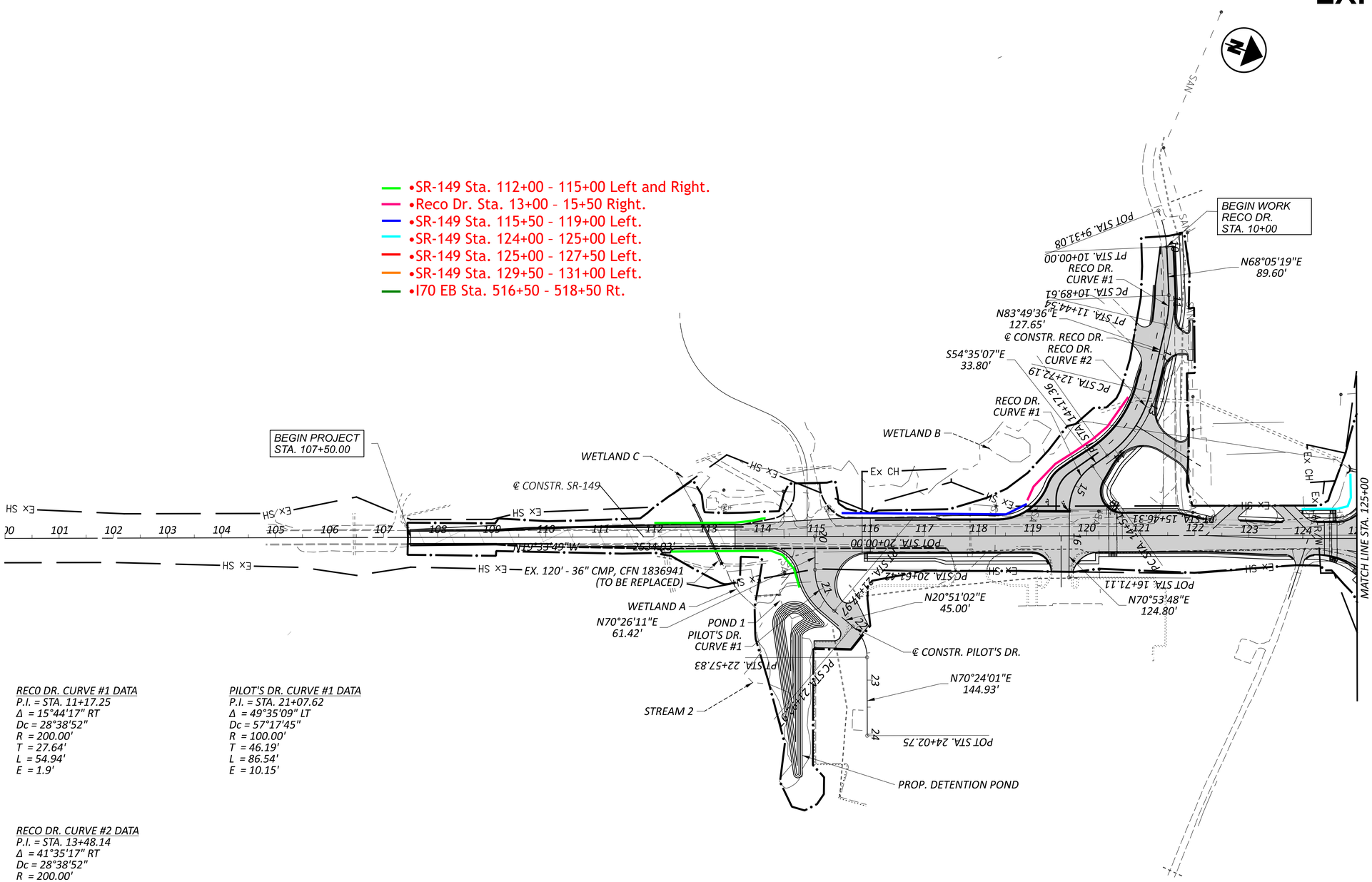
SITE PLAN
BRIDGE NO. BEL-70-0963 L/R
I.R. 70 OVER S,R, 149

SFN	0702227
DESIGN AGENCY	TRC
DESIGNER	JCP
CHECKER	CMH
REVIEWER	CJW 02-04-25
PROJECT ID	120547
SUBSET	1
TOTAL	1
SHEET	P.1
TOTAL	1

BEL-70-09.63

EXHIBIT F

- •SR-149 Sta. 112+00 – 115+00 Left and Right.
- •Reco Dr. Sta. 13+00 – 15+50 Right.
- •SR-149 Sta. 115+50 – 119+00 Left.
- •SR-149 Sta. 124+00 – 125+00 Left.
- •SR-149 Sta. 125+00 – 127+50 Left.
- •SR-149 Sta. 129+50 – 131+00 Left.
- •I70 EB Sta. 516+50 – 518+50 Rt.



RECO DR. CURVE #1 DATA
P.I. = STA. 11+17.25
Δ = 15°44'17" RT
Dc = 28°38'52"
R = 200.00'
T = 27.64'
L = 54.94'
E = 1.9'

PILOT'S DR. CURVE #1 DATA
P.I. = STA. 21+07.62
Δ = 49°35'09" LT
Dc = 57°17'45"
R = 100.00'
T = 46.19'
L = 86.54'
E = 10.15'

RECO DR. CURVE #2 DATA
P.I. = STA. 13+48.14
Δ = 41°35'17" RT
Dc = 28°38'52"
R = 200.00'
T = 75.95'
L = 145.17'
E = 13.94'

RECO DR. CURVE #3 DATA
P.I. = STA. 15+02.68
Δ = 54°31'05" LT
Dc = 57°17'45"
R = 100.00'
T = 51.52'
L = 95.15'
E = 12.49'

HORIZONTAL SCALE IN FEET
0 50 100 200

SCHEMATIC PLAN
BEGIN TO STA. 125+00

DESIGN AGENCY
AECOM

DESIGNER MA
REVIEWER MAW 11-01-24
PROJECT ID 120547
SHEET P.2 TOTAL 133

BEL-70-9.35

MODEL: CLP_S.R. 149 - Plan 1 PAPERSIZE: 34x22 (in.) DATE: 11/1/2024 TIME: 8:42:20 AM USER: WillS
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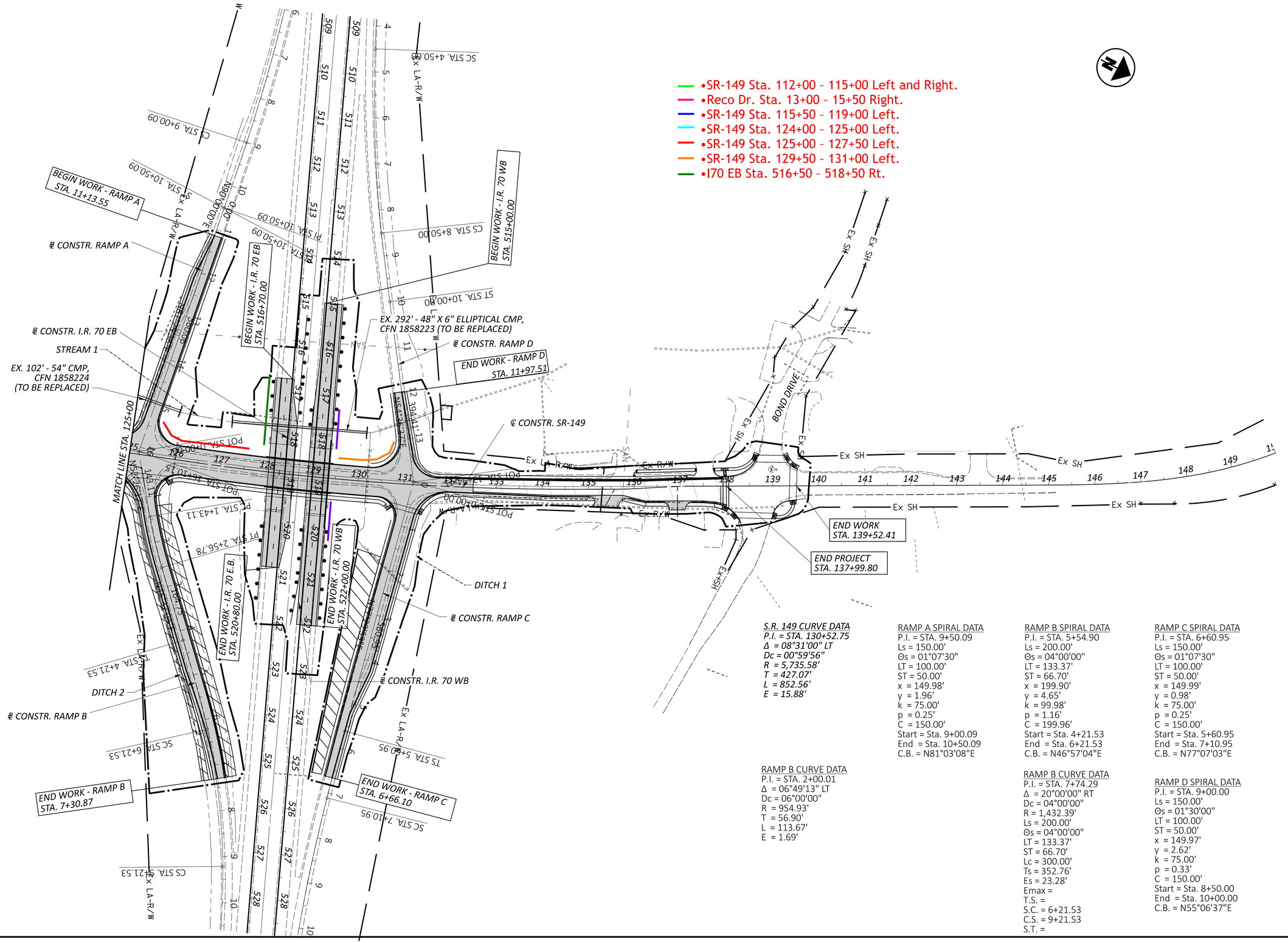
EXHIBIT F

- •SR-149 Sta. 112+00 - 115+00 Left and Right.
- •Reco Dr. Sta. 13+00 - 15+50 Right.
- •SR-149 Sta. 115+50 - 119+00 Left.
- •SR-149 Sta. 124+00 - 125+00 Left.
- •SR-149 Sta. 125+00 - 127+50 Left.
- •SR-149 Sta. 129+50 - 131+00 Left.
- •I70 EB Sta. 516+50 - 518+50 Rt.



S.R. 149 CURVE DATA
P.I. = STA. 130+52.75
Δ = 08°31'00" LT
Dc = 00°59'56"
R = 5,735.58'
T = 427.07'
L = 852.56'
E = 15.88'

RAMP B CURVE DATA
P.I. = STA. 2+00.01
Δ = 06°49'13" LT
Dc = 06°00'00"
R = 954.93'
T = 56.90'
L = 113.67'
E = 1.69'

RAMP A SPIRAL DATA
P.I. = STA. 9+50.09
Ls = 150.00'
Θs = 01°07'30"
LT = 100.00'
ST = 50.00'
x = 149.98'
y = 1.96'
k = 75.00'
p = 0.25'
C = 150.00'
Start = Sta. 9+00.09
End = Sta. 10+50.09
C.B. = N81°03'08"E

RAMP B SPIRAL DATA
P.I. = STA. 5+54.90
Ls = 200.00'
Θs = 04°00'00"
LT = 133.37'
ST = 66.70'
x = 199.90'
y = 4.65'
k = 99.98'
p = 1.16'
C = 199.96'
Start = Sta. 4+21.53
End = Sta. 6+21.53
C.B. = N46°57'04"E

RAMP B CURVE DATA
P.I. = STA. 7+74.29
Δ = 20°00'00" RT
Dc = 04°00'00"
R = 1,432.39'
Ls = 200.00'
Θs = 04°00'00"
LT = 133.37'
ST = 66.70'
Lc = 300.00'
Ts = 352.76'
Es = 23.28'
Emax =
T.S. =
S.C. = 6+21.53
C.S. = 9+21.53
S.T. =

RAMP C SPIRAL DATA
P.I. = STA. 5+60.95
Ls = 150.00'
Θs = 01°07'30"
LT = 100.00'
ST = 50.00'
x = 149.99'
y = 0.98'
k = 75.00'
p = 0.25'
C = 150.00'
Start = Sta. 5+60.95
End = Sta. 7+10.95
C.B. = N77°07'03"E

RAMP D SPIRAL DATA
P.I. = STA. 9+00.00
Ls = 150.00'
Θs = 01°30'00"
LT = 100.00'
ST = 50.00'
x = 149.97'
y = 2.62'
k = 75.00'
p = 0.33'
C = 150.00'
Start = Sta. 8+50.00
End = Sta. 10+00.00
C.B. = N55°06'37"E

RAMP D CURVE DATA
P.I. = STA. 6+50.88
Δ = 11°00'00" LT
Dc = 02°00'00"
R = 2,864.79'
Ls = 150.00'
Θs = 01°30'00"
LT = 100.00'
ST = 50.00'
Lc = 400.00'
Ts = 350.88'
Es = 13.58'
Emax =
T.S. =
S.C. = 4+50.00
C.S. = 8+50.00
S.T. =

HORIZONTAL
SCALE IN FEET
0 50 100 200

SCEMATIC PLAN
STA. 125+00 TO END

DESIGN AGENCY
AECOM

DESIGNER
MA

REVIEWER
MAW 11-01-24

PROJECT ID
102547

SHEET P.3 TOTAL 133

BEL-70-9.35

MODEL: CLP_S.R. 149 - Plan 2 PAPERSIZE: 34x22 (in.) DATE: 11/1/2024 TIME: 8:42:30 AM USER: WillS
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