Least Damaging Practicable Alternative Analysis

Project Name: Flathead River – 3 M NW Bigfork
Project Number: BR 82-1(5)5
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1 INTRODUCTION

Under the Section 404(b)(1) Guidelines (40 CFR 230), the U. S. Army Corps of Engineers (Corps) may only permit discharges of dredged or fill material into waters of the United States that represent the least environmentally damaging practicable alternative (LEDPA), so long as the alternative does not have other significant adverse environmental consequences. Based on this provision, the applicant is required to evaluate opportunities for use of non-aquatic areas and other aquatic sites that would result in less adverse impact on the aquatic ecosystem. Pursuant to these guidelines, an alternatives analysis was conducted during for the Flathead River – 3 M NW Bigfork project to illustrate the project has been designed to minimize impacts to project area wetlands to the greatest extent practicable.

1.1 PROJECT LOCATION

The Flathead River Bridge, otherwise known as the Sportsman's Bridge, is located on Highway 82 in Flathead County near Bigfork, Montana. The project area spans from Reference Post 5.0 to Reference Post 6.4. The Sportsman's Bridge Fishing Access Site (FAS) is located to the southeast of the existing bridge.

2 NEED AND PURPOSE

The Sportsman's Bridge, constructed in 1955, has a 24-foot clear roadway consisting of two 11-foot travel lanes and two 1-foot shoulders. Standard deck width per current design standards is 12-foot lanes and 8-foot shoulders. Additionally, the current non-redundant two-girder bridge design does not provide any redundancy in the event of a beam failure. The bridge will be replaced with a redundant five-girder system. Based on these conditions, the existing bridge is functionally obsolete, and replacement is necessary to provide a safer corridor for the increasing traffic in this area.

3 PROJECT HISTORY SUMMARY

The proposed project was nominated for replacement by MDT in 2009. An initial meeting with nearby landowners and Montana Fish, Wildlife and Parks (FWP) was held for the project on November 16, 2011 to assess bridge alignment options, resulting impacts to the FAS, and potential FAS location options. During this meeting, the following items were noted:

- FWP preference for the FAS is on the inside bend of the river downstream from a bridge (current location).
- The landowner at the northeast end of the existing bridge expressed opposition against moving the bridge alignment north because the toe of the slope would only be approximately 150 feet from his house. The landowner was concerned about road noise and expressed they may be forced to move to another location.
- The landowner southwest of the existing bridge noted that there were erosion issues on the west river bank. Their preference was for the FAS to remain southeast of the bridge.

A Risk Assessment meeting was held internally by MDT on June 7, 2012 to formalize the bridge alignment decision and FAS location. Multiple bridge alignment options were discussed during these meetings, and included:

- Phased construction – rebuild the bridge as close to the current bridge as possible, which would require lane closures during project phasing. This option would have high costs and could take much longer to complete construction.
- Rebuild the bridge in place – this would require complete closure of the bridge during construction. This option would have severe impacts to traffic due to the lack of existing bridges over the Flathead River, resulting in the need for a long detour route (~35 miles).
- Retrofit and widen the existing bridge – this option was determined to not be technically or financially feasible because of the two girder system and since the existing structure was near the end of its lifespan.
- Northern alignment – construct a new bridge 50 – 70 feet to the north of the existing bridge. This option had strong landowner opposition and high construction costs.
- Southern alignment and relocation of FAS – would include construction of the bridge 50 – 60 feet to the south of the current alignment and the FAS would be entirely relocated to the west side of the Flathead River. Location of the FAS on the outside bend of the river was a concern to FWP and there was potential for strong landowner opposition that would result in high costs and schedule delays.
- Southern alignment and reconfiguration of FAS – construction of the bridge 50 – 70 feet to the south of the current alignment. Existing FAS site would remain on the southeast side of the bridge and be reconfigured.

The two meetings resulted in a decision to carry forward with the southern alignment of the bridge and reconfiguration of the FAS to the southeast of the bridge. This option was selected because it carried less landowner opposition, fewer schedule delays, and a lower overall cost.

The FAS is a state-owned recreation area that is subject to requirements of federal law contained in Section 4(f) of the Department of Transportation Act of 1966. Section 4(f) negotiations between FWP, MDT, and the Hanging Rock Harbor Homeowner's Association (HOA) began in 2012. In order to shift the new bridge to the south, acquisition from the HOA was required. Therefore, the HOA was involved with the FAS design and Section 4(f) process. The HOA expressed several concerns with the FAS reconfiguration due to the public use of the site, including an increase in noise and dust, public encroachment, trespassing on private land, and the disruption of the aesthetics of the area. Additionally, the HOA was not willing to accept an alternative design that brought the road closer to their subdivision and decreased the green space buffer between the buildings and the FAS approach. Based on discussions with FWP and the public, the FAS is a high-use site and FWP required that the new design include additional parking spaces and a different boat ramp configuration. Overall, the 4(f) negotiations for the proposed project took approximately five years to ultimately come to an agreement in 2017.

The project underwent environmental review in accordance with the National Environmental Policy Act (NEPA) and was approved under a Federal Highway Administration (FHWA)

Categorical Exclusion in April 2020. The Proposed Action has been evaluated in a Biological Assessment and the US Fish and Wildlife Service is in process of completing a Biological Opinion, which will be provided to USACE as part of the permitting package once it is complete.

Big Sky Public Relations was added to the project in February 2021 to have an increased focus on public interaction for MDT projects. The public interaction has shown a high level of support for the project. Negotiations with the HOA for acquisition and easements have been ongoing and have strongly steered the FAS access road design. The Plan in Hand project milestone was completed in March 2021.

4 IDENTIFICATION AND DESCRIPTION OF ALTERNATIVES

This analysis is prepared to satisfy the United States Army Corps of Engineers Section 404(b)(1) Guidelines and the alternatives analysis requirements. The alternatives discussed below follow the order of progression used to get to the Proposed Action design. The following alternatives are described in greater detail in the sections to follow.

Bridge Alignment Alternatives

As discussed in the Project History Summary above, alternatives for bridge alignment included a northern alignment, southern alignment, and replacing the bridge in place.

- Bridge Alignment Option 1 – No Impact Alternative (No Build)
- Bridge Alignment Option 2 – Replace Bridge in Place
- Bridge Alignment Option 3 – North Bridge Alignment
- *Southern Bridge Alignment (discussed in Proposed Action)*

The decision was made to move forward with a southern bridge alignment based on landowner preference, schedule risks, and overall project cost factors.

FAS Location Alternatives

The southern bridge alignment resulted in impacts to the FAS and access road. Therefore, alternatives for the location of the FAS were evaluated.

- FAS Location Option 1 – Relocate FAS to Offsite Location
- FAS Location Option 2 – FAS Location on North Side of Highway 82
- FAS Location Option 3 – FAS Location on West Side of Flathead River
- *FAS Location to Southeast of Bridge (discussed in Proposed Action)*

Placement of the FAS to the southeast of the bridge was determined the most practicable solution based on FWP preference and land acquisition obstacles.

FAS Design Alternatives

The FAS design took into consideration the preferences of effected landowners, the Hanging Rock Harbor HOA, and FWP. Additionally, it was important to maintain at least the same number of parking spaces for this high-use FAS and to improve the safety of users turning off Highway 82.

- FAS Design Option 1 – Design without Avoidance/Minimization
- FAS Design Option 2 – Bridge over Wetland
- FAS Design Option 3 – Southern FAS Access Road Alignment
- FAS Design Option 4 – FAS Parking Lot with Tree Island
- Shortened FAS Design Option (Proposed Action)

The alternatives listed above have been assessed for practicability based on cost, existing technology factors, logistics, and availability. Cost is difficult to determine for alternatives other than the Applicant's Preferred because of rapidly changing economic factors. Therefore, cost is listed as a practicability factor in the table below but is not discussed in further detail in this analysis.

Design for the bridge has been ongoing since 2013 and has included extensive coordination with Montana Fish, Wildlife and Parks (FWP) due to the Section 4(f) designation of the FAS, landowners and homeowner's association (HOA), and the general public/recreational users. The FAS has been identified as one of the area's most highly used recreational sites for access to the Flathead River. These factors have been taken into consideration in development of this LEDPA analysis.

4.1 Bridge Alignment Location Alternatives

4.1.1 Bridge Alignment Option 1 - No Build

Due to the required expansion of the bridge deck width to meet standard shoulder widths, there are no construction alternatives that would result in no permit required or no impacts to wetlands. The only no impact alternative would be the No Build alternative. The existing Sportsman's Bridge would remain as is and continue to be a safety hazard due to narrow lanes, a lack of shoulder and turn lanes, and increasing traffic volumes. This alternative would not meet the project purpose and need.

4.1.2 Bridge Alignment Option 2 – Replace Bridge in Place

This alternative would involve complete replacement of the Sportsman's Bridge in its existing alignment, which would result in a wider bridge to meet MDT and FHWA requirements. Replacing the bridge in place would require a detour to route all traffic around the bridge. The nearest bridge crossing for the Flathead River is on Highway 35 in Evergreen. Detour routes for traffic, east bound or west bound, would be approximately 17 miles and range from 17 – 22 minutes one way during low traffic volume hours. Traffic delays could be substantially greater during rush hour times for both work commuters and school buses. Replacing the bridge in place with a wider bridge would force the FAS to be shifted or relocated. Impacts to wetlands would be incurred both to the south and the north of the bridge alignment. The Risk Assessment meeting in June 2012 supports the elimination of this alternative based on the costly nature of impacts to the public. This alternative has been determined not practicable.

4.1.3 Bridge Alignment Option 3 – North Bridge Alignment

This alternative would involve moving the new bridge alignment to the north of the existing bridge alignment. Therefore, there would be no impacts to the FAS site. This alternative would likely still include a new approach off Hanging Rock Drive rather than Highway 82 to address safety concerns with the current FAS access point off Highway 82. During the November 16, 2011 landowner and FWP meeting, there was strong opposition from the landowner to the northeast of the bridge for this alternative. The new toe of slope for the bridge approach and roadway would be close to the house located on this property and would likely force the landowner to move to another location. Wetland impacts would be incurred to the north of the bridge for the roadway slope. This alternative has been dismissed based on these reasons.

4.1.4 Southern Bridge Alignment (discussed in Section 4.3.4)

The decision was made to move forward with a southern bridge alignment based on landowner preference, schedule risks, and overall project cost factors. The southern alignment would result in required updates to the FAS. However, there was overall less opposition by FWP and landowners for this option. The southern bridge alignment is discussed in Section 4.3.4.

4.2 FAS Location Alternatives

4.2.1 FAS Location Option 1 – Relocate FAS to Offsite Location

This alternative would involve relocating the FAS to an entirely different location along the Flathead River. There are no other state-owned parcels along the Flathead River and near highway access to the north or south of the Sportsman's Bridge. These areas are heavily residential or agricultural and undeveloped areas appear to have high concentrations of wetlands according to the USFWS NWI. Availability of privately owned upland parcels is unknown. However, FWP would have to acquire new lands and easements and entirely restart the 4(f) process. This alternative is not practicable or available.

4.2.2 FAS Location Option 2 – FAS Location on North Side of Highway 82

This alternative would involve relocation of the FAS to the northeast of the proposed southern bridge alignment. All parcels to the north of Highway 82 near the east side of the bridge are privately owned residential properties. The FAS would have to be located adjacent to the Flathead River for boat launch access. Condemnation or complete sale of the parcel in that location would be required to have enough land for the FAS to be designed in that location. During public landowner meetings early in the design process, the landowner to the north along the river expressed strong opposition against any facilities being constructed closer to his residence. Easements would be required through five private property parcels to gain access to the FAS from Highway 82 with the required turn off setbacks from the bridge approach. Additionally, FWP stated their preference for the FAS to be located on the downstream side of the bridge. Placing the boat ramp on the upstream side of the bridge would have a higher risk of wave action erosion and would

require additional erosion protection measures. This alternative would result in a new Section 4(f) agreement and would present significant schedule risks to the project. Lack of available property and FWP preference determined this alternative to be not practicable or available.

4.2.3 FAS Location Option 3 – FAS Location on West Side of Flathead River

This alternative would include construction of the bridge on the southern alignment and relocation of the FAS to the west side of the Flathead River on the south side of Highway 82. The land is currently private agricultural land. New turn lanes may be required on Highway 82 for the FAS access off Oldenburg Road. A new traffic study would be required to know if turn lanes would need to be installed. In order to meet MDT and FHWA requirements, the Oldenburg Road and Highway 82 intersection may require reconstruction to reduce the skew angle and improve line of site for users. No design figure has been developed for this alternative due to lack of available studies and survey data.

Practicability

During early meetings with FWP, it was noted that the FAS should be located on the inside bend of the river (east side) downstream from the bridge to reduce the risk of erosion issues. This alternative would require additional river bank stabilization due to the actively eroding banks on the west side of the Flathead River. It was determined that without significant bank modifications, the outside bend of the river is not conducive for a boat launch.

A new Section 4(f) agreement and landowner negotiations would be required to move the FAS to the west side of the river. During the Risk Assessment meeting in June 2012, placing the FAS to the southwest of the bridge was identified as a large cost and schedule risk to the project due to the amount of land needed from this river-front parcel to facilitate a new FAS. As stated previously, condemnation is not allowed for a Section 4(f) property. Due to the potential opposition from FWP and the landowners, this alternative has been determined not practicable or available, and would likely be significantly higher construction cost for bank stabilization efforts.

Availability

It is unknown if landowner negotiations would be successful for acquisition of enough land to relocate the FAS site to the appropriate size and layout. Multiple landowners would be affected to construct this alternative if Oldenburg Road required reconfiguration. Additionally, the river-adjacent landowner has expressed concern for the eroding river bank on multiple occasions and is intending to pursue bank stabilization for a substantial length of their river frontage that is susceptible to wave-action erosion. If this alternative was implemented, it is likely that additional length of bank stabilization would be part of landowner negotiations. The area most effected by wave action is approximately 2,500

linear feet of crop land, but their parcel extends much farther upstream and is over 1.3 miles long.

Waters of the U.S.

It is anticipated this alternative would result in 0.61 acres of impacts to wetlands on the east side of the Flathead River due to bridge construction and fill slopes. Based on aerial imagery and NWI data, it is unlikely wetlands are present in the potential footprint of the FAS southwest of the bridge. However, impacts to the Flathead River bank from placement of permanent erosion could be much higher than the Applicant's Preferred Alternative because of the unstable banks and increased wave action from boat ramp activity. It is estimated that a minimum of 0.27 acres (308 linear feet) would require placement of riprap. However, if landowner negotiations require agreement to stabilize more river bank, this alternative could result in upwards of 2.30 acres (2,500 linear feet) or more of rip rap installation below the ordinary high-water mark of the Flathead River.

4.2.4 FAS to Southeast of Bridge (discussed in Section 4.3.4)

Placement of the FAS to the southeast of the bridge was determined the most practicable solution based on FWP preference and land acquisition obstacles. The FAS would remain downstream of the bridge on the inside bend of the river, which has less risk for erosion issues. Placing the FAS to the southeast would utilize the existing FAS site to the extent possible, requiring less purchase costs. FWP would be involved with design of the FAS to ensure it meets Section 4(f) requirements. As part of the bridge reconstruction and the goal to increase the safety of the area, a new approach for the FAS will be created off Hanging Rock Drive to utilize the new proposed turn lanes.

At this point in this LEDPA analysis, the most practicable solution has been to place the bridge on a southern alignment and to reconfigure the FAS to the southeast of the new Sportsman's Bridge.

4.3 FAS Design Alternatives

4.3.1 FAS Design Option 1 – Standard Design

This alternative includes design of the replacement bridge structure on a southern alignment approximately 57 feet to the south of its existing location. Additionally, the FAS would be shifted the same distance to the southeast of the new bridge and reconfigured to meet FWP preferences. Turn lanes would be added at the intersection of Hanging Rock Drive and Highway 82 to improve safety for left- and right-hand turns off the highway at the intersection. Fill slopes for the road and FAS site would follow MDT and FHWA standard fill slope requirements. The new FAS access road would be two-lanes all the way from Hanging Rock Drive to the FAS, including through the wetland areas. No wetland avoidance or minimization measures would be incorporated into this design alternative. See Figure 1 for design details.

Practicability

This alternative would be constructable based on available site knowledge. However, a new Section 4(f) agreement would be required to accommodate for the expanded area for the FAS site. Land acquisition would likely result in condemnation, which is not allowed for a fishing access site under the Section 4(f) regulations.

Availability

Additional land would need to be acquired to the south of the current alignment to accommodate for the wider fill slopes across the project. Based on negotiations with the Hanging Rock HOA, it is unlikely they would agree to the loss of additional river front and other acreage. This alternative would likely result in condemnation.

Waters of the U.S.

This alternative would result in 2.20 acres of impacts to wetlands, 0.23 additional acres of impacts than the Proposed Action. The Flathead River bank stabilization (riprap) extents would be 0.27 acres (308 linear feet). This alternative does not incorporate any of the avoidance or minimization measures that have been implemented in the Proposed Action.

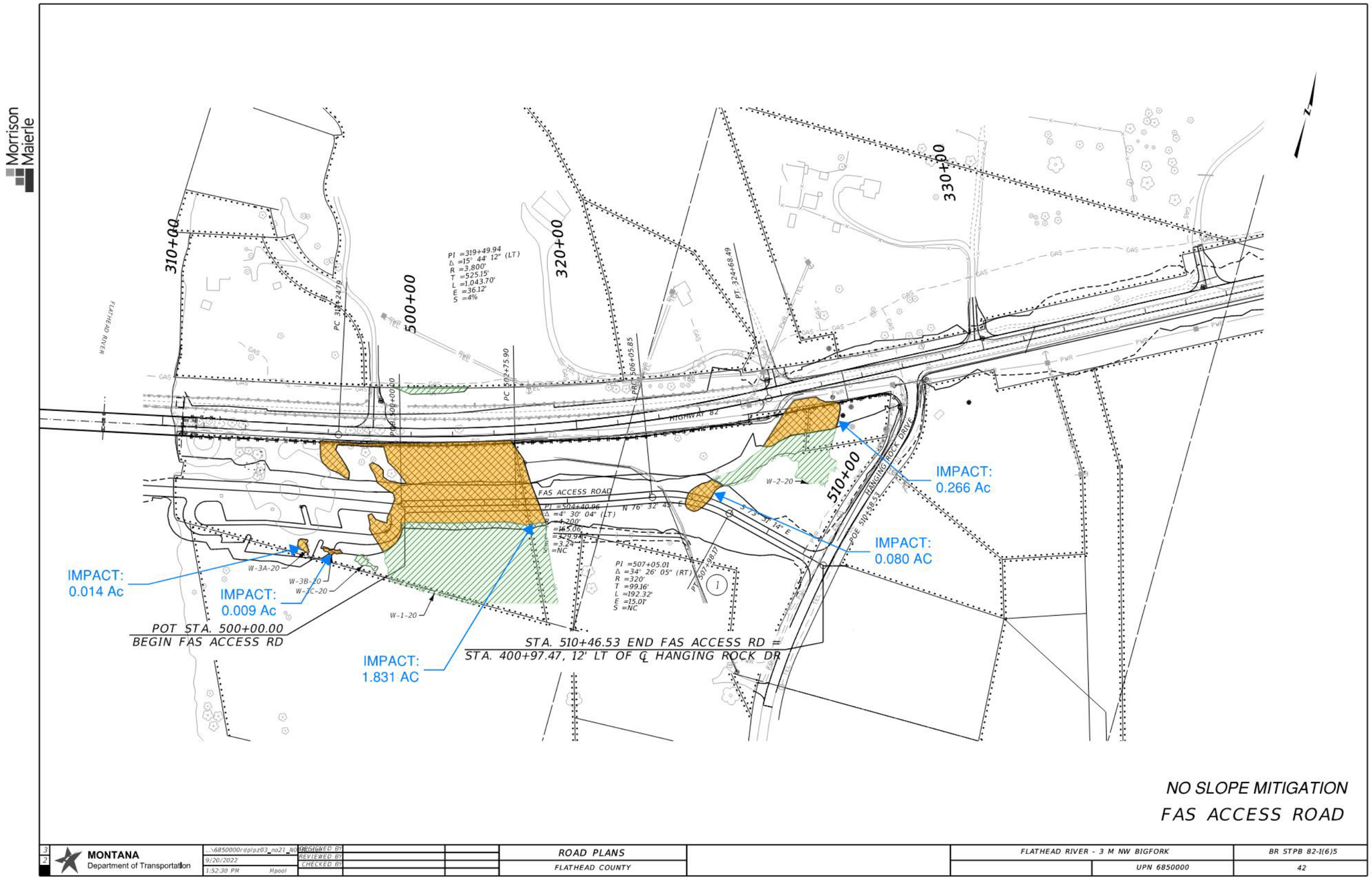

Figure 1. FAS Design Option 1 – Standard Design

4.3.2 FAS Design Option 2 – Southern FAS Access Road Alignment

This alternative would include the southern bridge alignment and the placement of the FAS to the southeast of the new bridge. Facilities associated with the FAS would be relocated and a single 80-foot-long concrete boat launch would be constructed to replace the existing high water boat launch. Replacement of the boat launch design was a requirement by FWP to reduce sedimentation impacts to the Flathead River from recreational usage. The new FAS site would consist of 26 truck/trailer, 2 handicap accessible parking stalls and eight standard vehicle parking stalls. The two handicap stalls would be located next to the relocated pit toilet.

The FAS access road would be located off Hanging Rock Drive to the south of the wetland identified as W-2-20 on the design figure included below. The FAS road would be designed as a one-lane road south of W-2-20 and through W-1-20. The access road was designed to the maximum allowable skew while still providing good line of sight through the single-lane areas and space to pass vehicles through two-lane areas.

A ditch needed for capture of runoff water from the roadway, adjacent properties, and the groundwater seep (part of W-2-20) would need realigned to the south of the new FAS access road. Realignment of this ditch would result in impacts to parcel 1, as identified in Figure 2.

Practicability

This alternative would also result in the need for a new 4(f) agreement due to the extensive design change and shift into an additional parcel. It is unlikely this FAS road alignment would be negotiable due to opposition from the HOA and landowners of parcel 1. Section 4(f) does not allow for condemnation for a fishing access site and therefore this alternative would not be practicable.

Availability

This alternative would require additional land acquisition from the Hanging Rock HOA compared to the Proposed Action. During land negotiations, the Hanging Rock HOA was not willing to accept an alternative design that brought the road closer to their subdivision and decreased the green space buffer between the buildings and the FAS approach. The homeowners in this subdivision view the potential impacts of alternate designs of this site as a depreciation of value to their properties which in today's market would be valued in excess of a million dollars. Therefore, it is assumed acquiring additional property from the HOA would result in condemnation and this alternative would not be available based on Section 4(f) regulations.

Waters of the U.S.

This FAS road alignment would reduce impacts to W-2-20 from the FAS access road but impacts from the highway would remain the same. This alternative would result in a total

of 1.43 acres of wetland impacts. Impacts to the Flathead River would be 0.27 acres (308 linear feet).

Avoidance and Minimization Measures

- Fill slopes on the east roadway approach to the Flathead River Bridge have been steepened from 4:1 to 2:1 to reduce impacts to W-1-20.
- Fill slopes associated with the Sportsman FAS road have been reduced from 4:1 to 3:1 at W-1-20 and W-2-20 to further minimize wetland impacts to those two wetland areas.
- The FAS access road width is reduced to one lane through W-1-20 and south of W-2-20 to reduce impacts and is widened outside of wetland areas for passing lanes and for the Hanging Rock Drive approach.

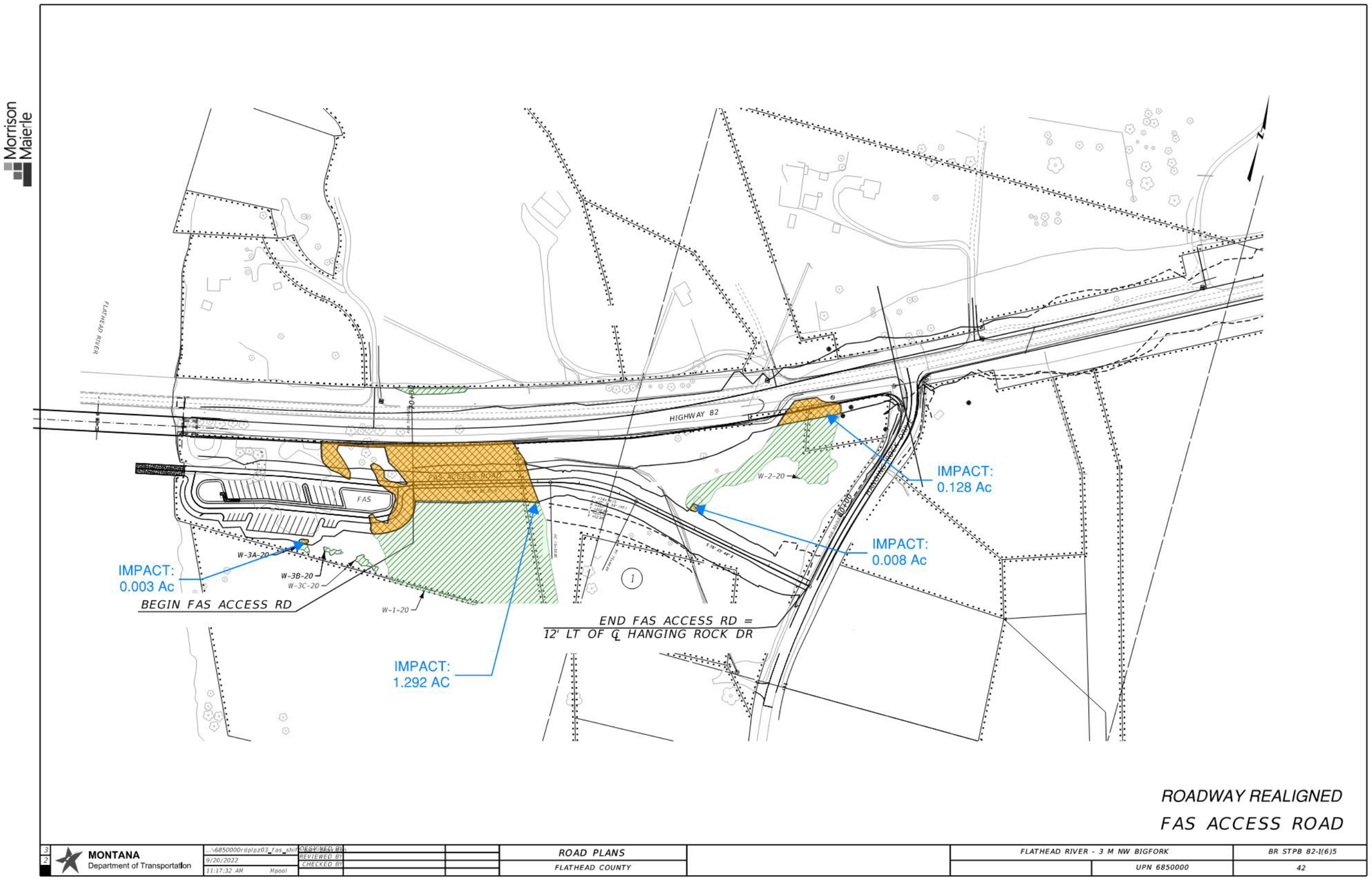

Figure 2. FAS Design Option 2 – Southern FAS Access Road Alignment

4.3.3 FAS Design Option 3 – FAS Parking Lot with Tree Island

This alternative would include the southern bridge alignment and maintain the same FAS parking area and boat launch design as FAS Design Option 2. The FAS access road would be located off Hanging Rock Drive but would be farther north than FAS Design Option 2. The access road would be two-lanes but condensed down to one-lane through W-1-20 and W-2-20. The east end of the FAS parking area would be expanded to include preservation of an island of cottonwood trees. This island was a request by the HOA to preserve trees for a visual barrier between their property and the FAS. See Figure 3 below for site design details.

Practicability

Construction of the new bridge to the south of the existing bridge will eliminate the need for a full detour or lane closures during construction that would cause extensive costs to users. Geotechnical studies drove the fill slope design on the south side of the road due to the unstable and permeable wetland and floodplain soils. The fill slope has been steepened to a 2:1 with the caveat that the placement of the FAS access road at the toe of the slope will provide the additional stability needed to prevent the highway slopes from settling.

Additionally, installation of turn lanes and relocation of the FAS access to Hanging Rock Drive will address safety hazards associated with the existing FAS access point. The FAS road and parking area design has undergone extensive public comment and negotiations, and this alternative would meet FWP, HOA, and landowner requests for property acquisition and design elements.

Availability

New right-of-way and/or construction permits from adjoining landowners will be required. This alternative includes acquisition of a new road easement to construct the realigned FAS Road, new FWP property to construct the relocated FAS, and other land negotiations with the Hanging Rock HOA. Extensive work has been completed to alleviate landowner and HOA concerns and create a working relationship with the HOA.

Waters of the U.S.

This alternative would result in 1.56 acres of permanent wetland impacts from placement of the bridge and FAS site. Additionally, 0.27 acres of impacts to the Flathead River would occur from placement of bank/abutment stabilization methods. Impacts to wetlands have been minimized while also meeting the project purpose and need.

Avoidance and Minimization Measures

- Fill slopes on the east roadway approach to the Flathead River Bridge have been steepened from 4:1 to 2:1 to reduce impacts to W-1-20.

- Fill slopes associated with the Sportsman FAS road have been reduced from 4:1 to 3:1 at W-1-20 and W-2-20 to further minimize wetland impacts to those two wetland areas.
- The FAS access road width is reduced to one lane through W-1-20 and W-2-20 to reduce impacts and is widened outside of wetland areas for passing lanes and for the Hanging Rock Drive approach.

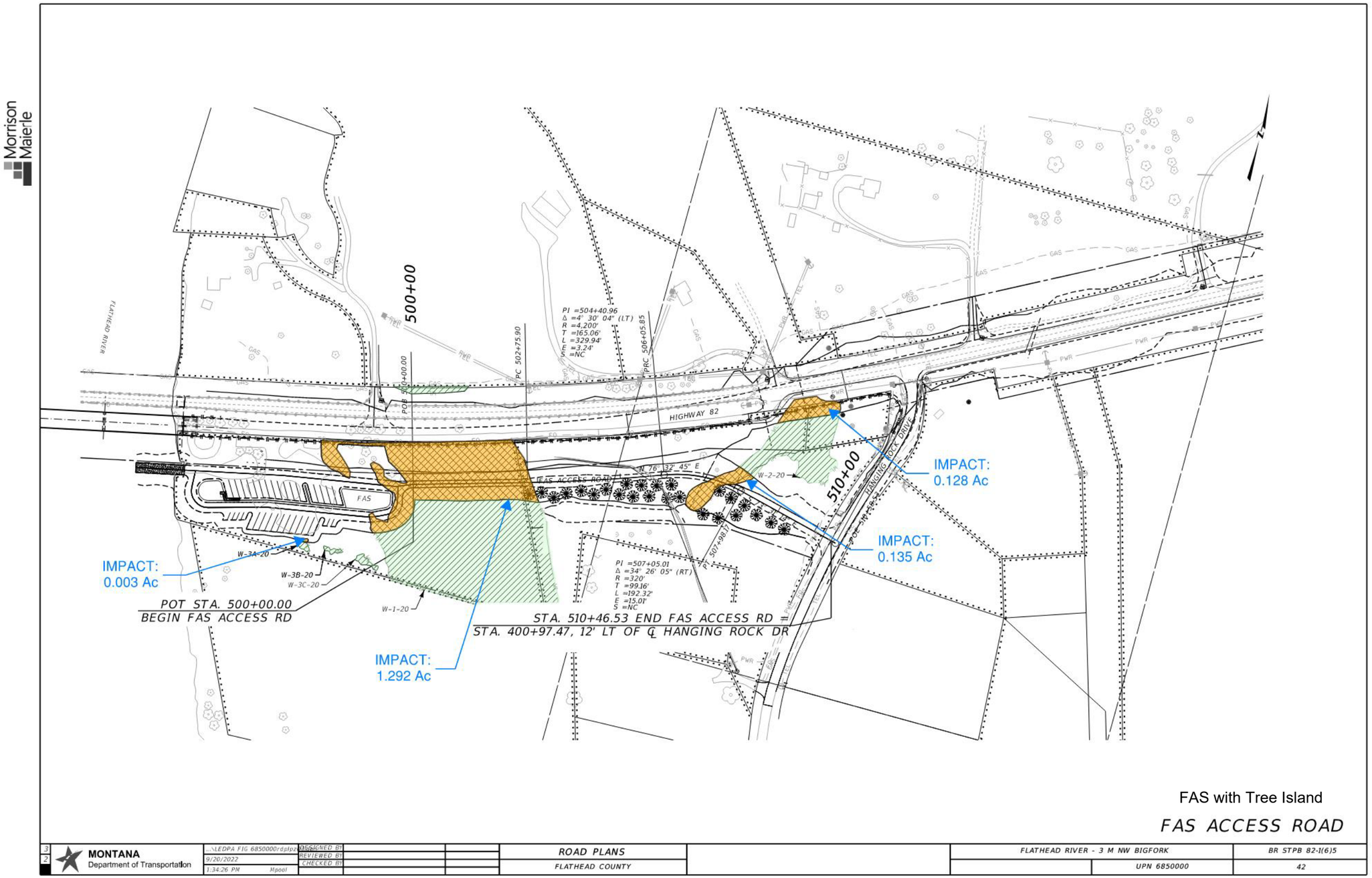

Figure 3. FAS Design Option 3 – FAS Parking Lot with Tree Island

4.3.4 FAS Design Option 4 – Bridge over Wetlands

This alternative would include placement of the FAS access road in its northern alignment as shown in FAS Design Option 3. Instead of the alignment traversing through the wetlands, bridges would be constructed over each wetland. The crossing at W-2-20 would be at least 70 feet to span the wetland, which eliminates the possibility of using a culvert. The proposed grade of the FAS road through W-2-20 includes approximately 14 feet of fill. Therefore, the bridge over W-2-20 would have to be approximately 200 feet in length to span the wetland and meet the proposed grade at either end of the bridge. W-1-20 is approximately 370 feet across where the proposed FAS road traverses. A grade raise for both the roadway and FAS parking area would be required to create a smooth transition from one side of the wetland to the other and result in a bridge approximately 350 feet long. Multiple piers would have to be installed within W-1-20 to cross the wetland. See Figure 4 below for site design details.

Practicability

Bridging over the wetlands presents a high-cost scenario due to the length of the bridges and the need for a more expensive foundation system in wetland soils. It is estimated that the bridge over W-2-20 would increase construction costs by more than $500,000 and the bridge over W-1-20 would likely exceed one million dollars. Additionally, FWP has stressed the importance of reducing their long-term maintenance costs for the FAS and access road, and bridge maintenance would be costly. It is unlikely FWP would agree to this alternative and they would not sign the updated Section 4(f) agreement.

Availability

This alternative would stay within currently negotiated parcels and right of ways that have been agreed upon with FWP and the HOA. Parcel 1 would not be impacted by this alternative and would therefore not lead to the need for condemnation. However, as stated above, it is unlikely FWP would sign a new Section 4(f) agreement with this design due to maintenance costs.

Waters of the U.S.

This alternative would result in 1.00 acres of total wetland impacts. Impacts to the Flathead River would be 0.27 acres (308 linear feet). Direct impacts to W-1-20 would be associated with the Highway 82 fill slope and FAS access road bridge piers. However, additional indirect impacts to W-1-20 would occur due to the shading of the wetland vegetation by the access road bridge. Vegetation in W-2-20 would likely not be impacted because that bridge would be raised high enough to allow for sunlight under the bridge.

Avoidance and Minimization Measures

- Fill slopes on the east roadway approach to the Flathead River Bridge have been steepened from 4:1 to 2:1 to reduce impacts to W-1-20.

- Fill slopes associated with the Sportsman FAS road have been reduced from 4:1 to 3:1 at W-1-20.
- The FAS access road width is reduced to one lane through W-1-20 to reduce impacts and is widened outside of the wetland for passing lanes and for the Hanging Rock Drive approach.
- A bridge would be constructed over W-1-20 and W-2-20 to reduce impacts from fill to wetlands.

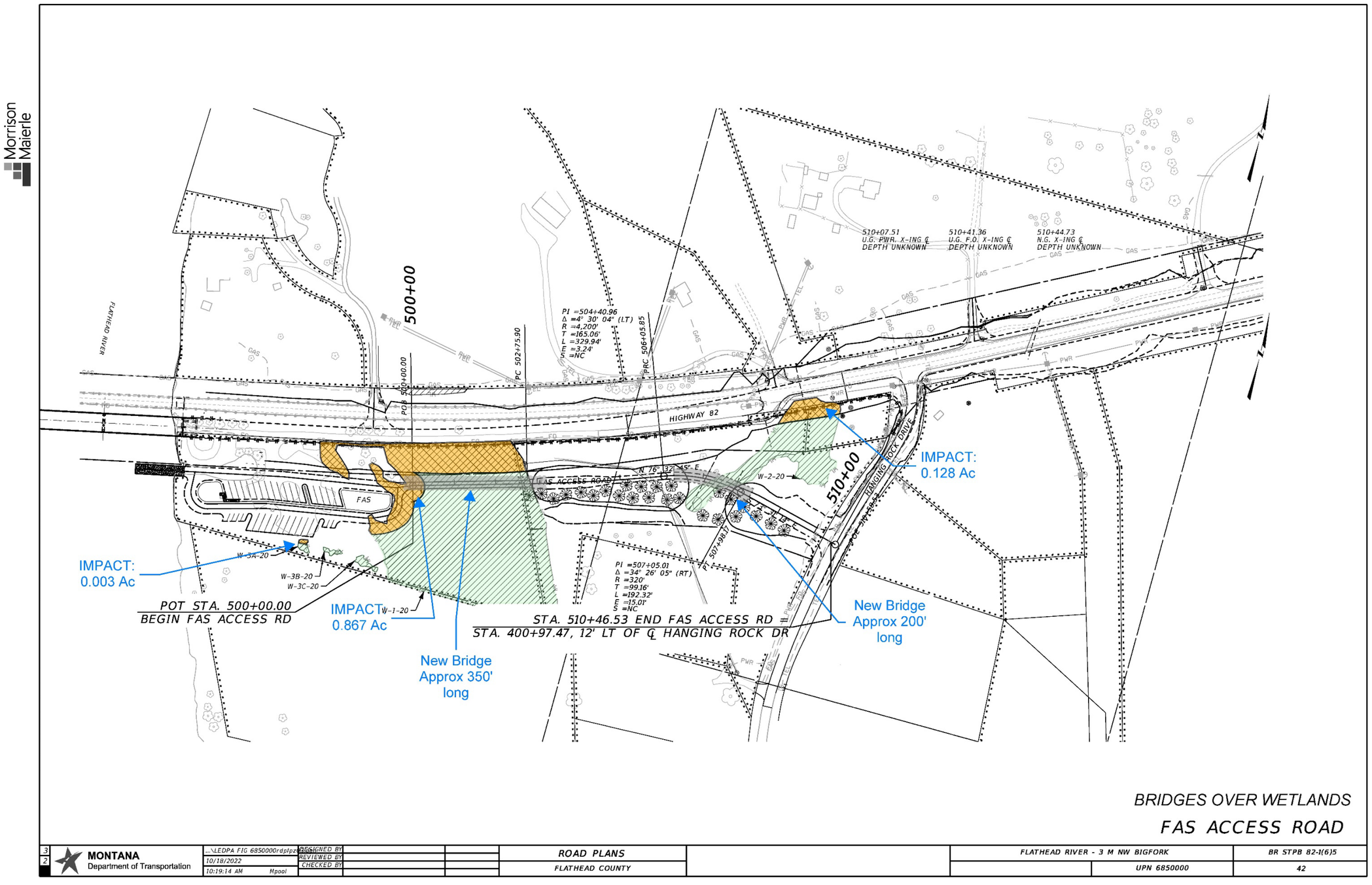

Figure 4. FAS Design Option 4 – Bridge over Wetlands

4.3.5 Shortened FAS Design – Proposed Action

This alternative would involve reducing the east end of the FAS site that would result in removal of a treed area that was requested during negotiations with FWP and the HOA. The number of FAS parking spaces would not be affected by this design change. A row of new trees would be planted along the proposed fence line through the southern portion of W-2-20 to connect forested areas on either side of the wetland. This will create an effective buffer between the HOA and the FAS, including reducing impacts from noise and visual aesthetics. Additionally, the ditch used for stormwater from the adjacent neighborhood would need to be realigned to the south of the new access road to capture various sources of runoff water. See Figure 5 for site design details.

Practicability

This alternative would be constructable based on site conditions and knowledge. FWP has reviewed this conceptual design and are in support of this alternative. This change represents a minor change to the one developed in the original negotiations (FAS Design Option 3). Additional tree clearing would need to occur. New trees would be planted in W-1-20 to provide a visual barrier between the FAS and adjacent landowners.

Availability

This alternative would stay within currently negotiated parcels and right of ways that have been agreed upon with FWP and the HOA. Parcel 1 would not be impacted by this alternative and would therefore not lead to the need for condemnation.

Waters of the U.S.

This alternative would result in 1.45 acres of total wetland impacts. Impacts to the Flathead River would be 0.27 acres (308 linear feet).

Avoidance and Minimization Measures

- Fill slopes on the east roadway approach to the Flathead River Bridge have been steepened from 4:1 to 2:1 to reduce impacts to W-1-20.
- Fill slopes associated with the Sportsman FAS road have been reduced from 4:1 to 3:1 at W-1-20 and W-2-20 to further minimize wetland impacts to those two wetland areas.
- The FAS access road width is reduced to one lane through W-1-20 and W-2-20 to reduce impacts and is widened outside of wetland areas for passing lanes and for the Hanging Rock Drive approach.
- The east end of the FAS parking lot area has been reduced to the extent possible to minimize impacts to W-1-20 but not reduce the number of FAS parking spaces.

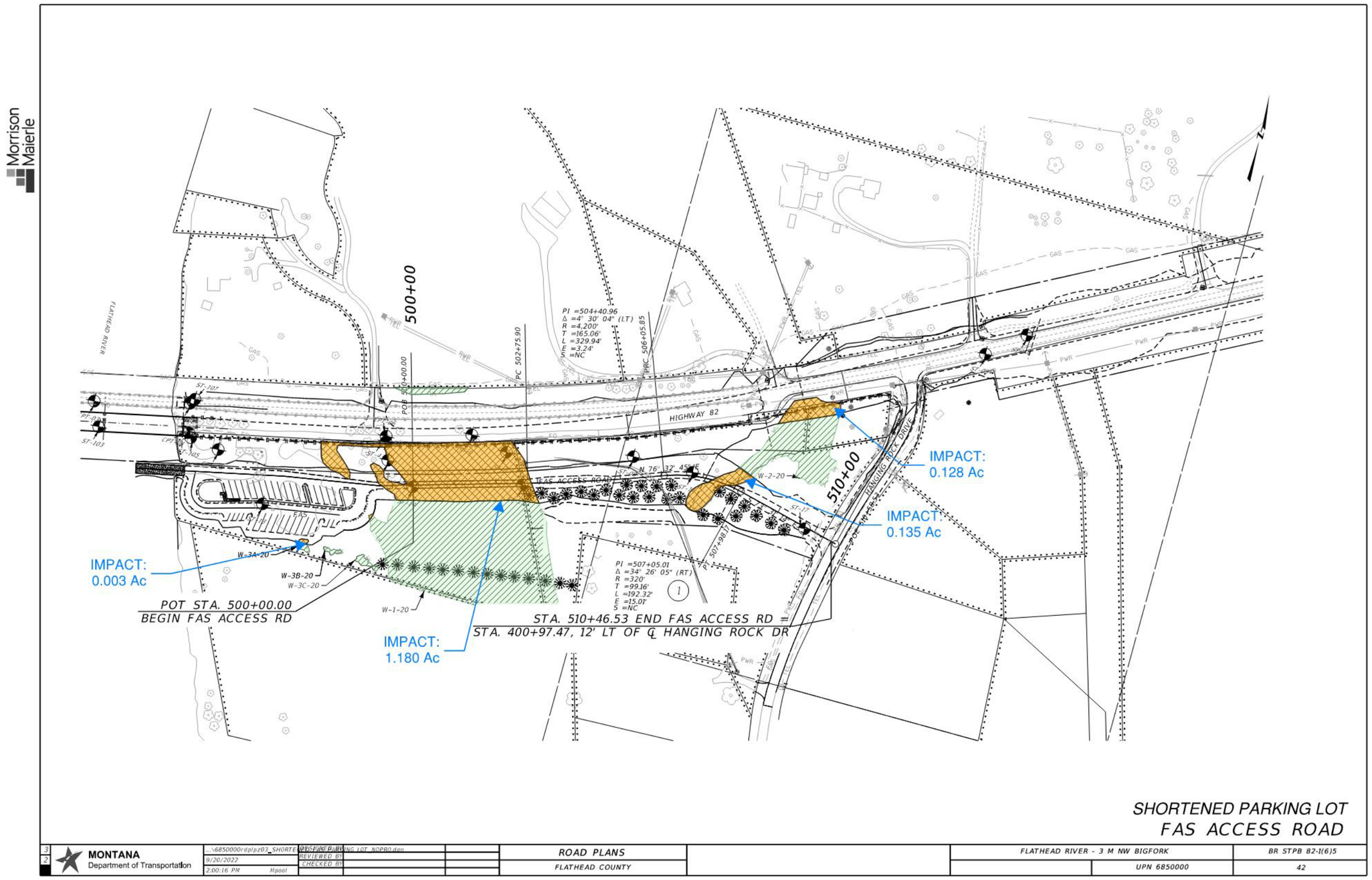

Figure 5. Shortened FAS Parking Lot (Proposed Action)

4.4 Alternatives Comparison Matrix

The identified alternatives were first analyzed to determine their practicability. According to the Section 404(b)(1) Guidelines, an alternative is practicable if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." A matrix was used to determine which of the alternatives are practical based on this definition and the previously stated project purpose. Alternatives that met all of the criteria were considered to be practicable.

Table 1. Alternatives Comparison Matrix

Alternative Options	Practicability Category				Practicability
	Cost	**Existing Technology**	**Logistics**	**Availability**	
	Reasonable Acquisition Cost and Constructability Cost	**Topography and Other Site Conditions Feasible for Construction of Project**	**4(f) Process/FWP Agreement**	**Available for Acquisition**	
BRIDGE ALIGNMENT ALTERNATIVES					
Bridge Alignment Option 1 – No Impact Alternative (No Build)	N/A	NO Does not meet project purpose and need	N/A	N/A	**NO**
Bridge Alignment Option 2 – Replace Bridge in Place	NO High user cost for ~17-mile one-way detour routes.	NO Detour route options limited – would result in long detours for nearby residents.	YES	YES	**NO**
Bridge Alignment Option 3 – North Bridge Alignment	NO Potential condemnation for property northeast of existing bridge	YES	NO FWP preference is FAS placement downstream of bridge. Section 4(f) does not allow condemnation.	NO Potential condemnation for property northeast of existing bridge	**NO**
Southern Bridge Alignment (Applicant's Preferred)	YES	YES	YES	YES	**YES**
FAS LOCATION ALTERNATIVES					
FAS Location Option 1 – Relocate FAS to Offsite Location	UNKNOWN	NO Flathead River widens out upstream – would likely have higher wetland impacts	UNKNOWN	NO No state-owned parcels in the area that would allow public access	**NO**
FAS Location Option 2 – FAS Location on North Side of Highway 82	NO Potential condemnation for property northeast of existing bridge	YES Likely high wetland impacts	NO FWP preference is FAS placement downstream of bridge. Section 4(f) does not allow condemnation.	NO Potential condemnation for property northeast of existing bridge	**NO**
FAS Location Option 3 – FAS Location on West Side of Flathead River	UNKNOWN Potentially high private property purchase costs	YES Would require additional length of bank stabilization	NO FWP preference is FAS placement on inside bend of river to prevent erosion issues	UNKNOWN Would require ~3 or more acres of private river front property to be purchased, multiple landowners	**NO**
FAS Location to Southeast of Bridge (current location and Applicant's Preferred)	YES	YES	YES	YES	**YES**
FAS DESIGN ALTERNATIVES					
FAS Design Option 1 – Standard Design (no minimization or avoidance)	NO Potential condemnation for additional acreage from HOA	YES Would result in higher wetland impacts	NO Section 4(f) does not allow condemnation	NO Potential condemnation for additional acreage from HOA	**NO**
FAS Design Option 2 – Shift FAS Access Road South	NO Potential condemnation for additional acreage from HOA	YES	NO Section 4(f) does not allow condemnation	NO Potential condemnation for additional acreage from HOA	**NO**
FAS Design Option 3 – FAS Parking Lot with Tree Island	YES	YES	YES	YES	**YES**
FAS Design Option 3 – Bridge over Wetlands	NO Substantially higher construction cost for bridges. Higher FWP maintenance costs.	YES Expensive foundation systems for bridges.	NO FWP wants low maintenance costs.	YES	**NO**
Shortened FAS Design Option (Proposed Action)	YES	YES	YES	YES	**YES**

5 IDENTIFICATION OF LEAST ENVIRONMENTALLY DAMAGING ALTERNATIVE

The Corps cannot authorize any activity unless it is identified as the least environmentally damaging practical alternative (LEDPA), meeting the project purpose and using the regulations found at 40 CFR Part 230.

Table 2. Identification of LEDPA

Environmental Factors	FAS Design Option 3 – FAS Parking Lot with Tree Island	Shortened FAS Design Option (Proposed Action)
Wetland Impacts	1.56 acres	1.45 acres
Stream Impacts	0.27 acres / 308 linear feet	0.27 acres / 308 linear feet
Waters of the US Total Impacts	***1.83 acres***	***1.72 acres***
Floodplain Impacts	4.62 acres	4.08 acres
LEDPA	**NO**	**YES**

Based on the information presented in this analysis, the Shortened FAS Design (Proposed Action) has been identified as the LEDPA. This alternative is practicable, available, and meets the project purpose and need while minimizing impacts to Waters of the US to the extent possible.