June 2020 NOTE: Upon approval by MSGOT, the following new section will be inserted into Section 3 of the Montana Mitigation System Policy Guidance Document for Greater Sage-Grouse Version 1.0, October 2019.

3.3.4: Modified Approach to Mitigation Requirements Applicable to Development Projects Utilizing Trenchless Methods

The following modified approach will be applied to disturbance types that are buried using equipment that meets the definition and criteria of "trenchless" methods and that are not otherwise exempted from Executive Order 12-2015. Examples include: buried telecommunication lines (e.g. fiber), buried electrical distribution lines or other utility lines, small diameter pipelines sometimes used in the oil and gas industry. Note that new residential electrical lines are generally exempt from Executive Order 12-2015, as described more fully in Attachment F.

To date, most trenchless projects have been buried telecommunications lines and nearly all of them were installed parallel to existing roads for ease of site access and maintenance. That track record, along with stakeholder input, informed this modified approach.

Buried telecommunications lines are typically proposed in discrete segments to bring fiber to a site. Individual buried telecommunications segments can vary from less than a mile to several miles in length. The Program is typically asked to review anywhere from a few segments to twenty or more segments proposed as part of a single project. In contrast, buried electrical distribution lines or small oil and gas pipelines are typically proposed as a single segment, running between two discrete points.

This modified approach was developed in collaboration with stakeholders from November 2019 through May 2020. The effort is an outgrowth of Senate Bill 299, which became law in May of 2019. The goals were to: (1) develop a standardized definition of "trenchless" method; (2) streamline the consultation process; and (3) reduce mitigation costs for low impact trenchless projects. Senate Bill 299 also requires discerning whether a proposed project existed prior to September 8, 2015, to determine whether or not seasonal use restrictions apply to what otherwise would be considered an existing land use within a defined project boundary.

Standardized Criteria: This modified approach only applies to buried disturbances that are implemented using machinery that meets a standardized definition. Having a standardized definition provides certainty and predictability to developers. As importantly, it instills confidence that the Program is implementing this modified approach fairly and consistently while reviewing projects and assures continuity of Program operations.

This modified approach to mitigation would be applicable to buried disturbance types that meeting the following criteria:

- machinery is equipped with a shank or vertical blade that penetrates the surface to bury cable, electric line or pipe as the shank is pulled forward; and
- machinery opens a slot in the ground about 6" wide, typically 3 -5' deep; and
- conduit, cable or pipe is fed into the ground, through a chute behind the blade as the slot opening is made; and
- soil is not scraped or removed; and
- vegetation and its root structure are not excavated, or removed; and
- ground disturbance is primarily associated with the vertical blade/shank; and
- vegetation may be crushed out to 12 feet by the equipment but is expected to grow back within one growing season.

The precise design and configuration of trenchless equipment will naturally evolve through time. Accordingly, the key distinguishing features are that a narrow vertical slot is opened up and filled back in during a single pass of machinery. Typical equipment names include: static plow, vibratory plow, or pull plow (Figure 1). In contrast machinery known as trenchers, back hoes, bull dozers, or scrapers are not considered a trenchless method. This is because soil is scrapped away first using blades, a distinct trench is excavated and back filled, vegetation and root structure is removed from the trench, and clear surface disturbance can be attributed to the machinery type.

Special cases involving directional boring, mixed projects that include both trenchless buried features and above ground features, and trenchless projects where a backhoe is temporarily needed in a localized area are addressed in greater detail below.

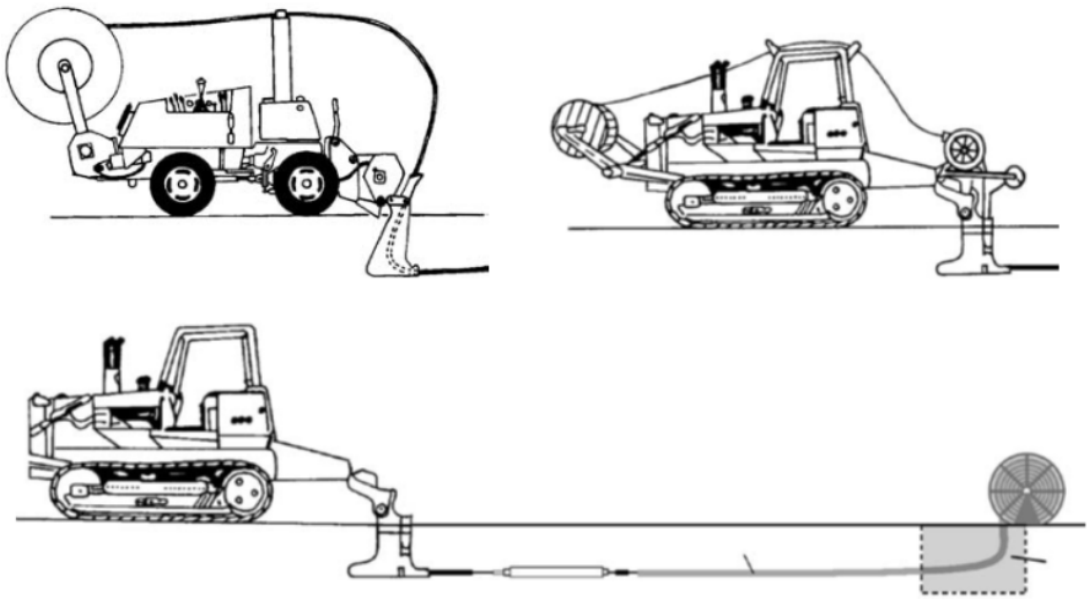

Figure 1. Schematic diagrams of typical trenchless equipment showing a single shank or blade cutting open a narrow slot and installing cable, conduit, or pipe in a single pass.

<u>Streamlined Approach and Reduced Mitigation Costs:</u>

Projects which meet the criteria to be considered "trenchless" will be reviewed according to whether or not it is replacing an existing project or is newly-proposed, its consistency with Executive Order 12-2015 as applicable, and whether or not it is co-located with the existing surface disturbance associated with a road corridor (Part 1) or meets the spirit of being co-located (Part 2).

Mitigation outcomes and the potential for reduced costs will depend on whether or not a project is new or replacing an existing buried feature, whether or not the segment is co-located under either Part 1 or Part 2, and whether or not the project is consistent with the applicable stipulations outlined in Executive Order 12-2015. Under some circumstances, mitigation obligations are waived entirely because there is no habitat quantification tool calculation, as illustrated in the flow charts in Figures 10-11 below. Based on past trenchless projects reviewed to date, mitigation would not be required for

the vast majority because the segments were implemented within the co-location zone and implemented consistent with any applicable stipulations outlined in Executive Order 12-2015.

When a project is reviewed, first, the Program will work with developers to identify which segments are proposed for replacement and which segments are newly-proposed. Second, each segment is then considered individually under a two-part analysis to determine whether it will be co-located with existing surface disturbance associated with roads or it is proposed to go "cross country" and create new surface disturbance, even if temporary owing to its buried attribute. Lastly, whether or not a segment would be implemented consistently with Executive Order 12-2015 is considered.

Part 1: Part 1 entails determining whether the trenchless segment is co-located with the existing disturbance associated with a road corridor. If a segment is within a fixed distance of a particular category of road, it is considered co-located. Four categories of roads were delineated based on the existing anthropogenic disturbance layer that was "heads up" digitized using satellite imagery and aerial photographs by a contractor hired by the Program. The existing disturbance footprint of each road category increases with the width of each road type, respectively (Table 1 and Figures 2-5).

The co-location zone scales to the specific road category and will abut existing roadways in most cases. The area will extend from the center line of the road out on either side for a fixed distance. This provides predictability for developers and the Program and facilitates computer automation to further streamline the process. If replacement or new segments would be installed within the fixed distance of the existing surface disturbance road corridor, it does not contribute to new, temporary surface disturbance. If the segment is proposed outside of the fixed co-location zone, the segment is analyzed under Part 2 to see if it meets the spirit of being co-located for reasons unique to that segment.

The co-location zone (zone) for trenchless methods projects is defined according to the road size category. The zone is a standard width, measured from the road centerline on either side of the road. The zone gets progressively wider as the roadbed gets wider. The total width of the zone accommodates variation in pavement or asphalt widths.

Distances are based on a thorough review of all buried fiber and power projects submitted to the Program through March 2020. Using satellite imagery, past projects were examined to determine whether segments were implemented parallel to an existing road corridor and the approximate distance away from the corridor. Past projects were also reviewed to determine if there were local circumstances or reasons a segment may not have been sited parallel to an existing road. Only rarely did segments depart from a pathway paralleling existing roads. When that was the case, reasons for the departure were usually very evident, such as topographic features that needed to be avoided. Occasionally, departures were because of errant spatial data.

Table 1. Co-location zones for determining whether a replacement or new segment of a feature buried using trenchless methods, scaled to the road category to provide for additional area (wider zones) with increasing width of roads, respectively.

Road Category[1]	From the Centerline of the Road, Measure in Either Direction	Total Width of Defined Co-Location Zone[2]
Local Road (see Figure 2 below) – total width of approximately 5-12 feet – may or may not be paved – examples: dirt roads, driveways, USFS or BLM roads – not two-tracks	50 feet, either side of the centerline	100 feet total
County Road (see Figure 3 below) – total width of asphalt edge to edge is about 28 feet – usually paved, but not always – two-way traffic	100 feet, either side of the centerline	200 feet total
State Highway (see Figure 4 below) – total width of asphalt edge to edge is about 34 feet – typically, 2-lanes of traffic	120 feet, either side of the centerline	240 feet total
Interstate Highway (see Figure 5 below) – may or may not have a grassy median between 2 lanes going the same direction – each traffic direction is treated as a separate road – measurement of reference point is the centerline of the pavement of the lanes for a single direction of traffic – very rare	130 feet, either side of the centerline	260 feet total

[1] Categories based on the heads-up digitized layer which delineates existing roads in the roads layer included in the HQT Basemap.

[2] If a utility or pipe is installed using a trenchless method within zone, it would be co-located (Part 1) for purposes of considering reduced mitigation costs. See Figures 10-11 below. If a utility or pipe is installed outside this zone and met the case-by case criteria (Part 2), it would be considered co-located for purposes of considering reduced mitigation costs. See Figures 10-11 below.

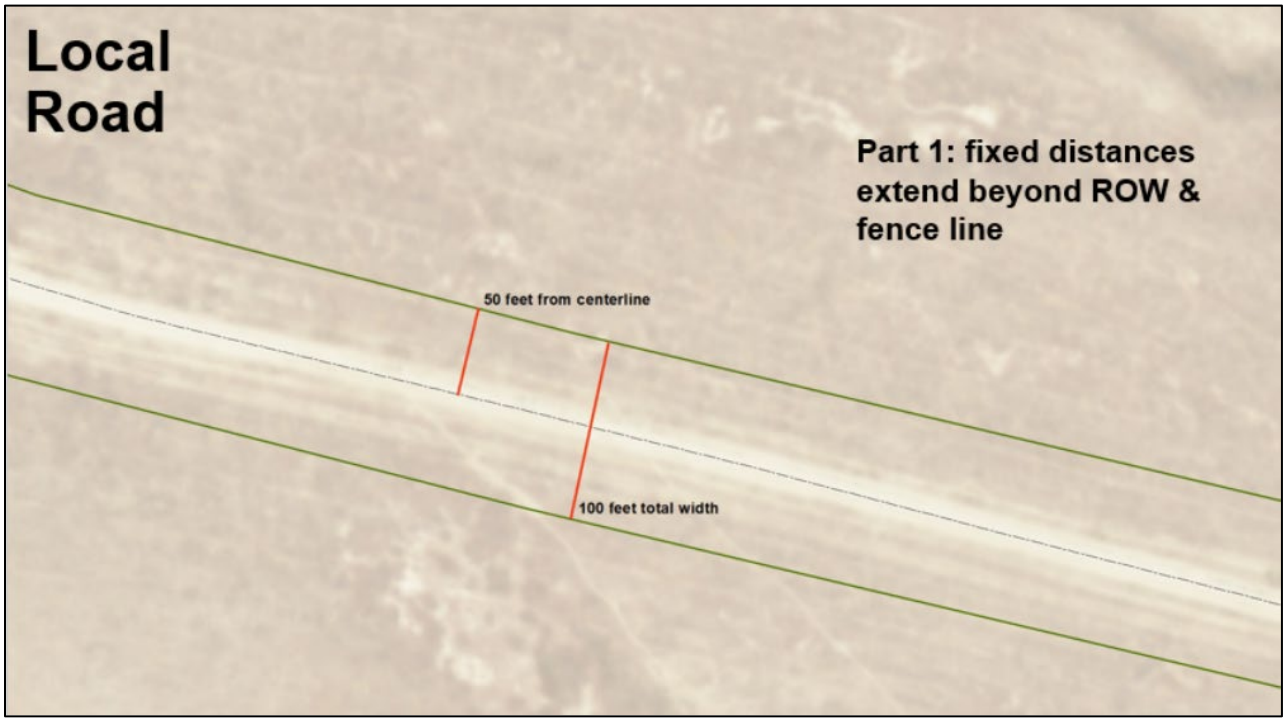

Figure 2. From the centerline of a local road, ranch access, or driveway, the co-location zone extends 50 feet in either direction for a total existing road disturbance corridor of 100 feet. The fixed distance extends beyond the right of way and the fence line.

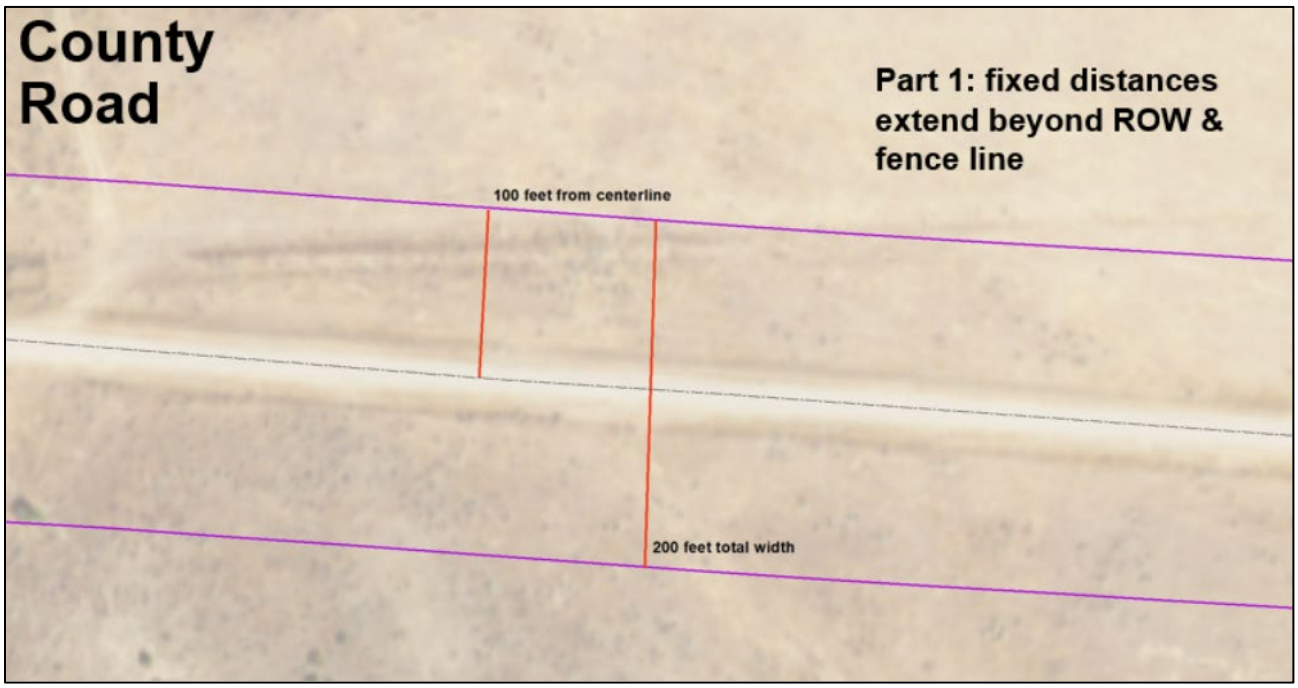

Figure 3. From the centerline of a county road, the co-location zone extends 100 feet in either direction for a total existing road disturbance corridor of 200 feet. The fixed distance extends beyond the right of way and the fence line.

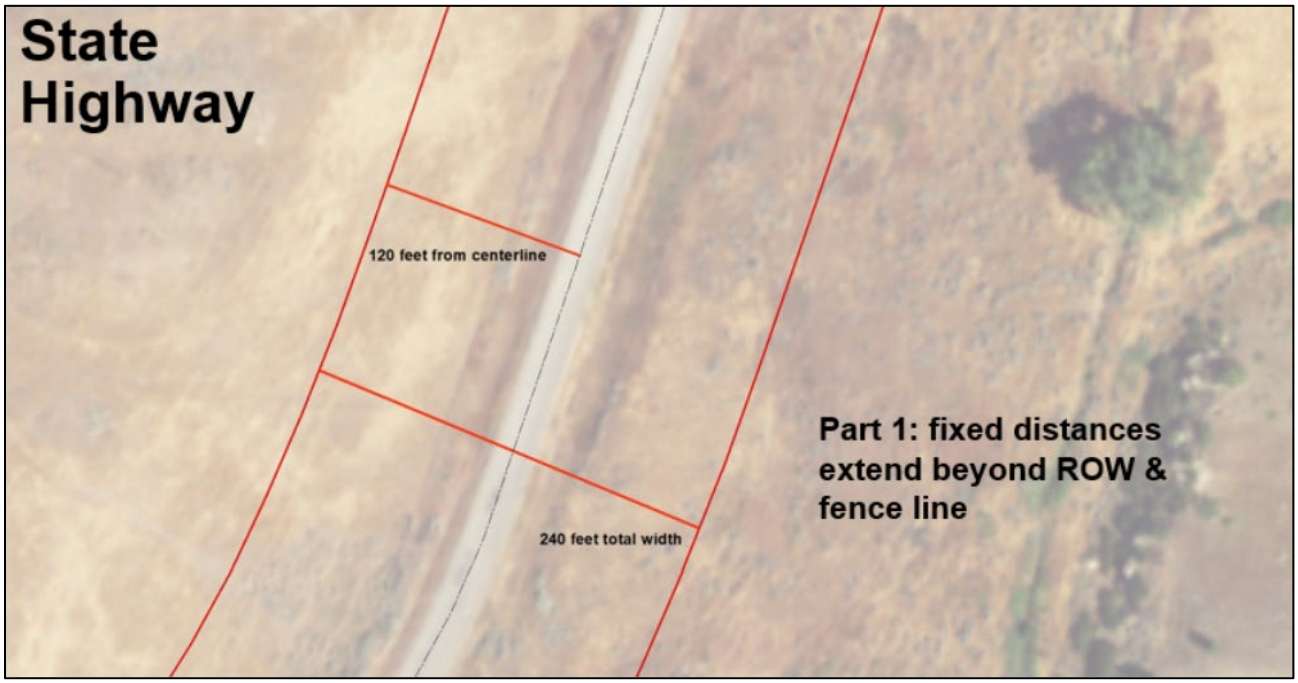

Figure 4. From the centerline of a state highway, the co-location zone extends 120 feet in either direction for a total existing road disturbance corridor of 240 feet. The fixed distance extends beyond the right of way and the fence line, which are both clearly visible by changes in vegetation patterns.

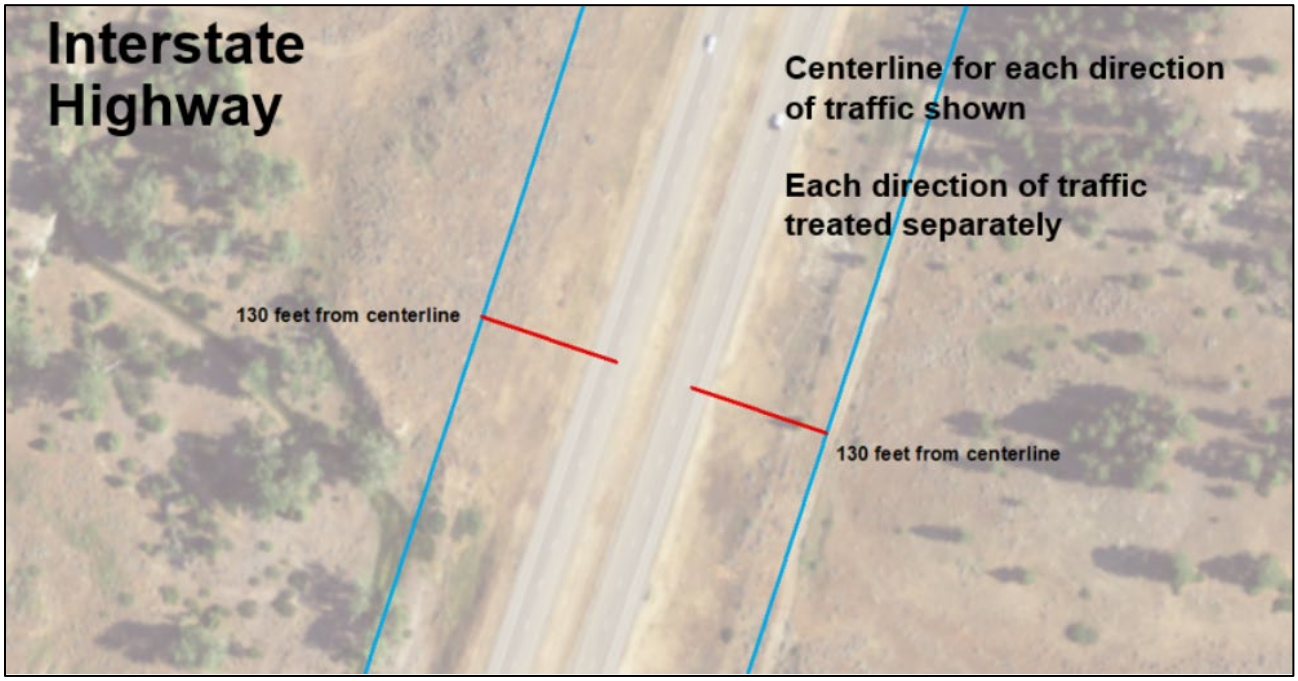

Figure 5. From the centerline of each direction of traffic on an interstate highway, the co-location zone extends 130 feet away and in the direction of the shoulder for each respective direction of traffic which are treated separately.

Part 2: Part 2 provides flexibility. It considers whether or not a segment falling outside the fixed distance co-location zone for that particular road category still meets the spirit of being co-located or whether there is a reason why it is being proposed outside the co-location zone. Part 2 allows a case-by-case determination to accommodate local circumstances, local landscape features, private landowner or permitting agency preferences, or whether or not there was a data error.

In the event a buried fiber optic cable, electric line, pipe or other buried utility utilizing trenchless methods must be sited outside of the co-location zone, the following criteria would be considered on a case-by-case basis to determine if the location outside the co-location zone meets the spirit of being co-located by paralleling an existing linear feature, being located within existing disturbance, avoiding or following specific landscape feature, or some other extenuating circumstance presents itself (Figures 6-9). For example:

- avoidance of a stationary feature on the landscape (e.g. building, wetland or mesic area, rock outcrop, parking area); or
- topography; or
- by request of the private landowner or permitting agency; or
- short efficiency segments to maintain a straight route while the road curves sharply and returns to its prior straight line; or
- highly disturbed landscapes that are already fragmented (e.g. exurban areas outside municipal boundaries).

Efforts to follow or avoid certain landscape features, as well as challenged posed by topography or other anthropogenic aspects of the landscape are readily obvious to the Program using satellite imagery. Where obvious, the Program will proceed accordingly.

Where there are no obvious landscape features, the Program will inquire about specific segments that are sited outside the co-location zone. Less obvious situations are where a segment is purposefully sited outside the co-location zone by request of the private landowner or the permitting agency (e.g. Montana Department of Transportation). Additionally, prior experience has also demonstrated that occasionally data submitted for review are in error. The developer made a mistake and sited the segment outside the co-location zone when it should have been inside the zone. Flexibility in Part 2 also allows accommodating such preferences and opportunities to correct the data before the Program completes its review.

Figure 6. Example of a trenchless segment satisfying the Part 2 co-location criteria (e.g. avoiding a rock outcrop, short efficiency segment of 50 feet that rejoins the primary route, or even data error).

Figure 7. Example of a trenchless segment satisfying the Part 2 co-location criteria (e.g. detouring around a wetland and mesic area upstream) and re-joins the primary route.

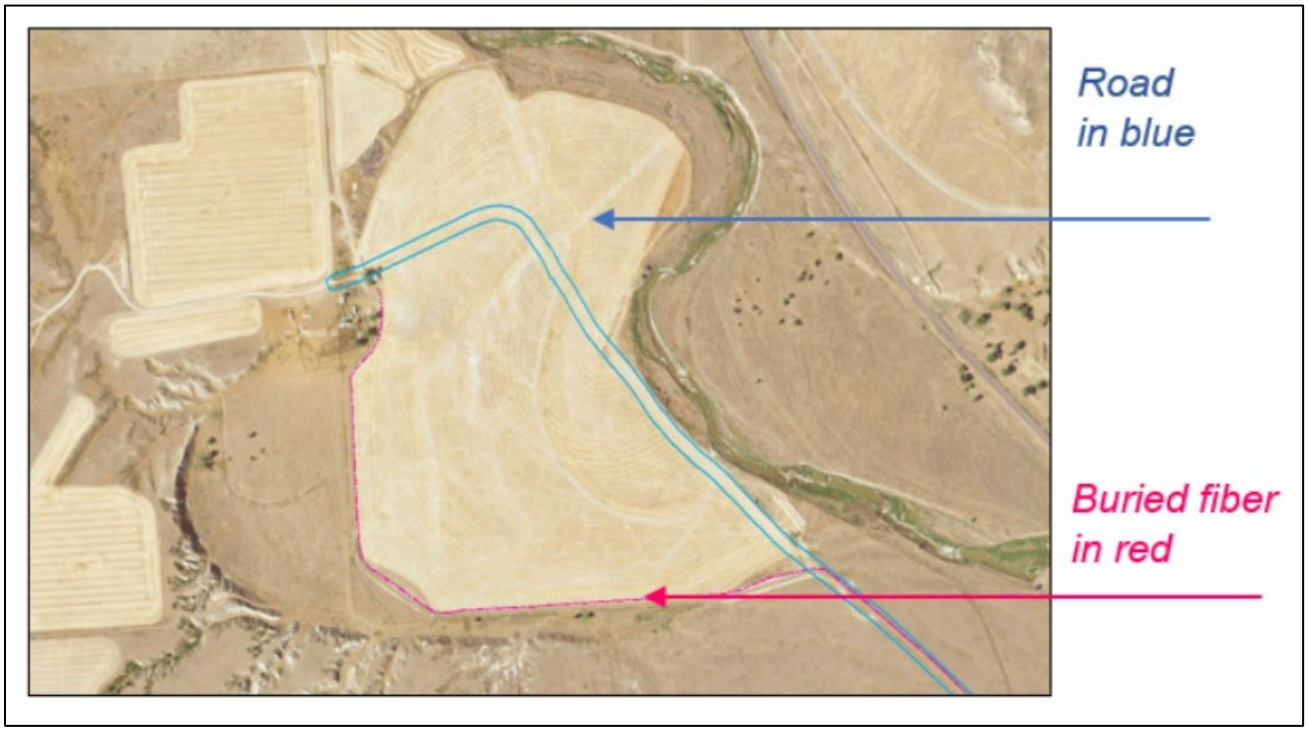

Figure 8. Example of a trenchless segment satisfying the Part 2 co-location criteria (e.g. due to private landowner preference and the route parallels other existing cultivation disturbance).

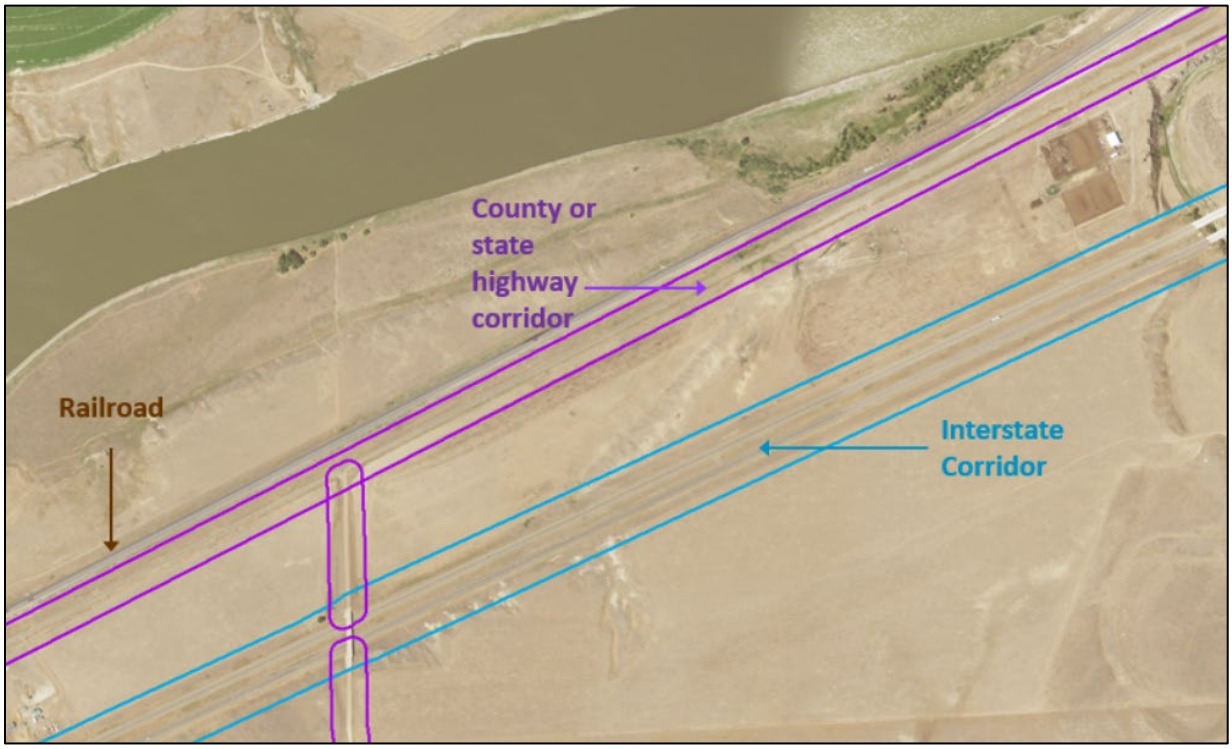

Figure 9. Example of a highly disturbed landscape setting that is already fragmented and that would satisfy the Part 2 co-location criteria.

Consistency Determination: After first determining whether a segment is replacing an existing segment and then whether or not the segment is co-located within a fixed distance of an existing road disturbance corridor (or meets the spirit of it in Part 2), the next determination is whether or not the segment location and its implementation are consistent with applicable stipulations outlined in Executive Order 12-2015. Applicable stipulations will be determined based on: (1) whether or not the proposed segment is replacing an existing segment that pre-dates Executive Order 12-2015 or is new; and (2) implementation dates and segment locations relative to active sage grouse leks. For example, the seasonal use stipulation of March 15 – July 15 is not applicable when a segment would be implemented farther than two miles from active sage grouse leks in General Habitat.

Potential for Lower Mitigation Costs: For replacement segments that are implemented fully consistent with Executive Order 12-2015 because seasonal use stipulations can be observed, no mitigation is required. There will not be a habitat quantification tool calculation. Consultation will still be required so that developers of trenchless projects can obtain the necessary documentation required by the permitting agency at the time a permit application is submitted. Documentation will consist of a short form letter and map that the developer can then attach to the actual permit application. It is likely that auto-generated documentation can be incorporated into the current web application.

For replacement segments that can't be implemented consistent with the seasonal use stipulations of Executive Order 12-2015, mitigation will be required. Each segment that must be implemented near active sage grouse leks within the seasonal stipulation period of March 15 to July 15, as outlined in Executive Order 12-2015, will be included in the habitat quantification tool calculation. Results are expected to be very low, based on prior experience. If the segment is co-located in a Core Area and the DDCT results exceed the 5% threshold, that multiplier will be waived. Otherwise, the Reserve Account Multiplier, along with any seasonal use stipulation multipliers will be included in the mitigation calculation. If the developer opts to make a contribution to the Stewardship Account instead of

implementing their own permittee-responsible credit project or working with a third party, the Advanced Payment multiplier will also be included. See Figure 10.

For newly-proposed segments, the review process similarly starts with determining whether or not the new segment is co-located within the fixed distances under Part 1 or met the spirit of co-location under Part 2. If a new segment is co-located and fully consistent with Executive Order 12-2015, then no mitigation is required. There will not be a habitat quantification tool calculation. If, however, a newly proposed segment is co-located but cannot be implemented consistent with Executive Order 12-2015, mitigation will be required. Each individual segment that can't be implemented consistent with Executive Order 12-2015 will be included in the habitat quantification tool calculation. Policy multipliers will be included in the mitigation outcomes, as applicable. See Figure 11

For newly proposed segments sited outside the co-location zone, the Program will closely examine surrounding landscape and confirm there are no data errors. If the segment is sited where it truly is supposed to be and the project is otherwise consistent with Executive Order 12-2015, mitigation will only be applicable to the segments sited outside the co-location zone. If the project can't be otherwise implemented consistent with Executive Order 12-2015, mitigation will be assessed and include any applicable multipliers for specific deviations.

Summary: Based on experience to date, the vast majority of all trenchless segments were co-located under the 2-part analysis (i.e. within the fixed distance zone or met the spirit of co-location) and could be implemented outside of the seasonal stipulation period of March 15-July 15 so they are fully consistent with Executive Order 12-2015. Therefore, the vast majority of trenchless projects to date would have no mitigation obligation. That is expected to be the case moving forward.

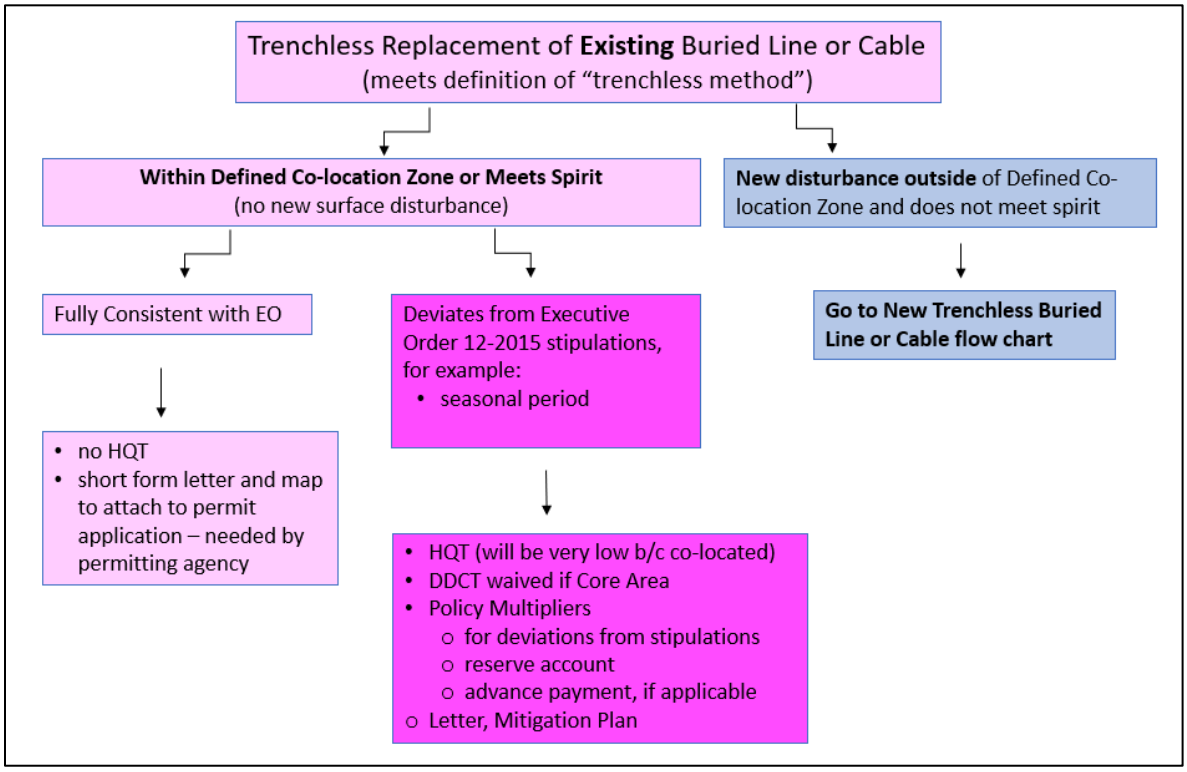

Figure 10. Flow chart for replacement trenchless segments showing potential mitigation outcomes (up to and including complete waiver), depending on whether the replacement is sited within the co-location zone and whether the segment is installed consistent with the March 15-July 15 seasonal use stipulation, as outlined in Executive Order 12-2015.

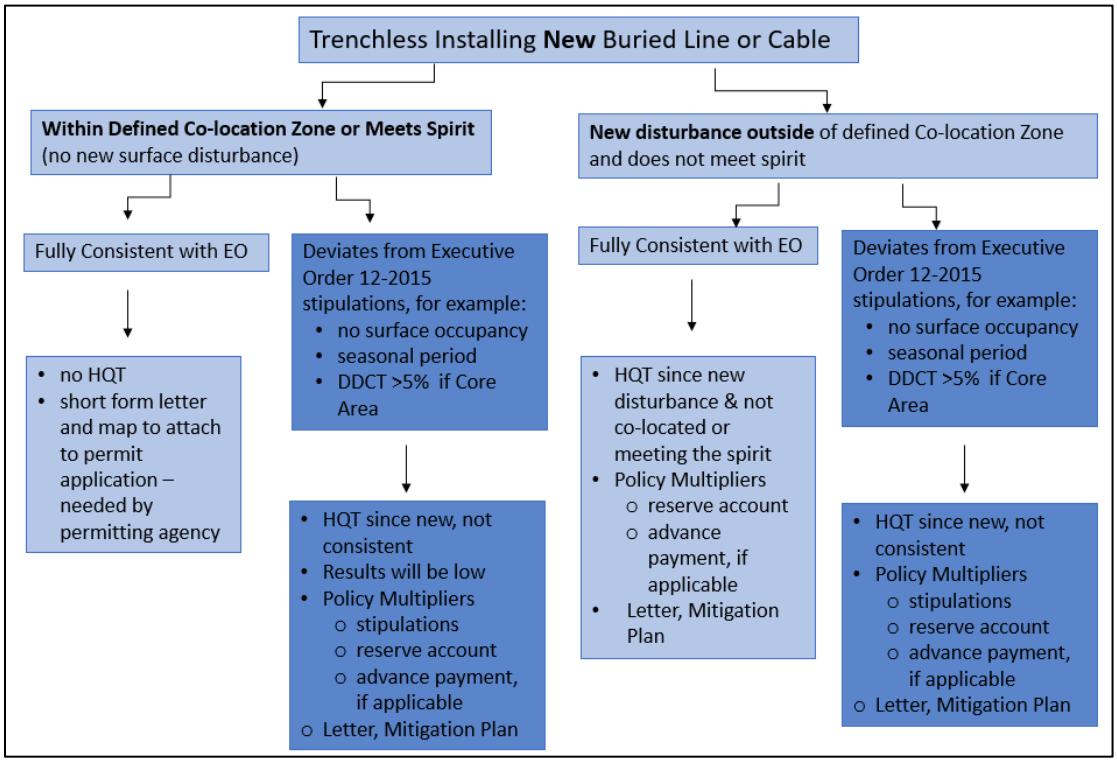

Figure 11. Flow chart for newly-proposed trenchless segments showing potential mitigation outcomes, depending on whether the new segment is sited within the co-location zone and whether the new segment is installed consistent with stipulations outlined in Executive Order 12-2015.

<u>Special Cases of Trenchless Projects</u>:

Three special cases were identified where unique circumstances require further refinement of the modified approach. Each is discussed in greater detail below.

1. Directional Boring

Prior experience has shown that it is not uncommon for buried utilities (e.g. fiber or electrical lines) and occasionally small diameter pipelines must be placed beneath existing roads or waterways for a short portion of a much longer trenchless project. In these situations, specialized equipment is needed and is usually called a boring machine. Construction consists of the use of a boring machine and or backhoe, to dig a hole for the entry and exit points of the bore or auger. A directional boring machine then runs the cable, electric line or pipe underground, directionally boring beneath the surface. The cable, electric line or pipe is pulled through the ground, exiting on the other side of the road or obstacle. New surface disturbance is limited to the entry and exit points. See Figure 10. Reclamation and revegetation of entry and exit points is standard practice.

Here, the segment that is bored under an existing road or waterway would be omitted from formal review and ignored for mitigation purposes. Only the entry and exit points would be reviewed in greater detail by the Program. If the entry and exit points fall within the co-location zone or otherwise fit the Part 2 criteria, no mitigation would be assessed for those new disturbances. If the segment fell outside the fixed co-location zone for trenchless projects and did not otherwise fit the Part 2 criteria, mitigation would be assessed in accordance with the size and duration of the new surface disturbance.

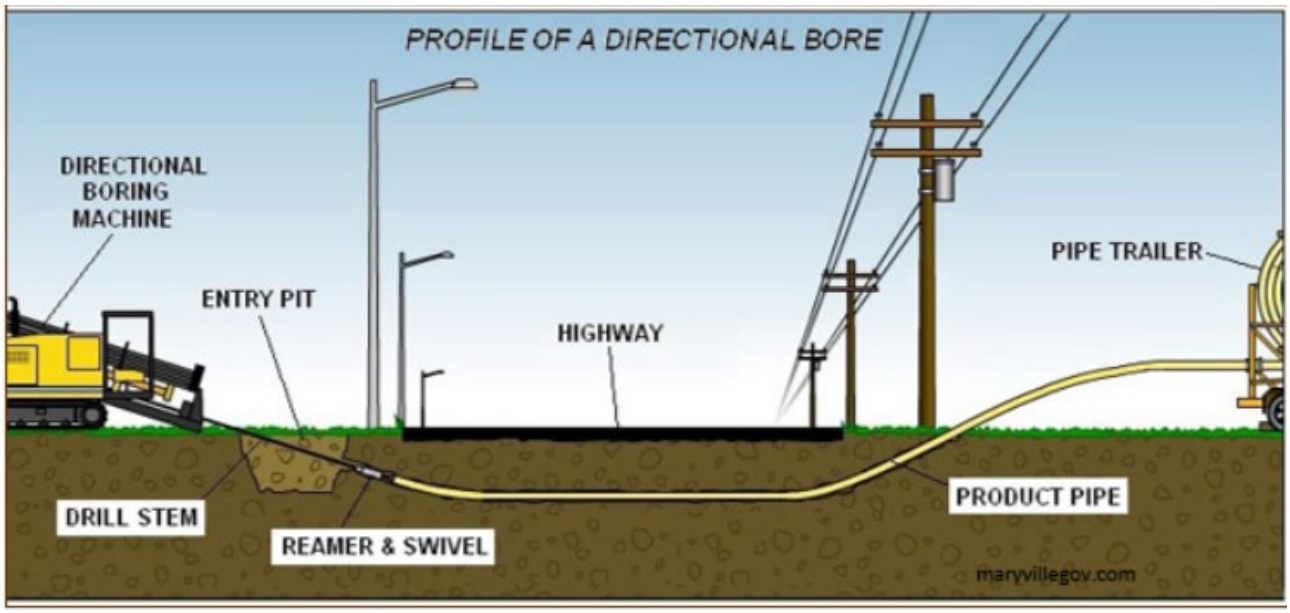

Figure 12. Schematic diagram of a trenchless segment that is bored under a highway using a directional boring machine. An entry pit is dug using a back hoe and the bore/auger creates the tunnel through which the product pipe or conduit is pulled.

2. Mixed Projects

There are three scenarios of mixed projects: (A) a project includes both features buried using trenchless methods and new, above ground features; (B) trenchless projects that include both buried replacement segments and buried new segment; and (C) trenchless projects that include a mix of segments where some, but not all segments, meet the co-location criteria.

A. Mix of above and below ground features

Above ground features are sometimes included in what would otherwise be an entirely buried trenchless method project. Examples include pedestals, overhead transmission poles and lines, cell towers, or overhead lighting.

Where there is a "mixed" project consisting of buried utility lines / segments using trenchless methods and new disturbances above ground, the trenchless portion of the project would be reviewed using the revised trenchless methods approach. However, the above ground features would be analyzed according to the type of disturbance and generally considered new surface disturbance. For example, if the segment being directionally bored under a newly-proposed highway was included alongside a proposal to install new overhead lighting and a new transmission line, the buried segment would be analyzed according to this section where as the new overhead lighting and transmission line will be analyzed for what they are and in accordance with the mitigation framework because these features present impacts beyond the highway footprint even if they are co-located with the highway.

B. Mix of replacement segments and new segments

Prior experience has shown that some trenchless projects contain a mix of segments, some of which are replacing existing copper segments already in the ground while other segments are newly-proposed for burying using trenchless methods. Here, each segment would be analyzed according to its status as being either replacement or new. Mitigation outcomes would follow Figures 10 and 11.

C. Mix of segments, only some of which meet the co-location criteria under either Part 1 or Part 2

It's possible that a trenchless project would contain a mix of segments, some of which are co-located while others are not. Here, each segment would be analyzed according to its status as being either co-located or not, respectively. Mitigation outcomes would follow Figures 10 and 11.

3. Temporary Use of a Backhoe

Occasionally a backhoe is necessary, to remove rock or other obstacles encountered during the course of installing buried fiber optic cable, electric line, pipe or other buried utility. This is because the trenchless machinery is incapable of cutting through the obstacle, and the obstacle must first be removed before the trenchless machinery can proceed. In these scenarios, the back hoe is needed for a short distance and a small portion of a much longer trenchless project.

Typically, mineral soil is scraped and vegetation is crushed, if not removed by the equipment. Due to the hardship it would impose, proponents need not stop work to initiate a new consultation with the Program prior to using a backhoe to remove the object. The back hoe may be brought to the site and used temporarily at the site of the obstacle to remove it. Work may proceed continuously. However, developers are expected to follow Best Management Practices, as follows below.

Best Management Practices to Minimize Disturbance, Local Site Reclamation, and Weed Control:

- All equipment should first be washed before entering the area where a backhoe or trencher is needed. Equipment should be washed after use in areas having state-listed noxious weeds or other county-identified invasive species or species of concern.
- Follow the local County Weed Coordinator's recommendations and all county guidance.
- Actively reseed the area of localized disturbance caused by the backhoe. The seed mix should be according to private landowner preference, permitting agency specifications, or align with NRCS recommendations for the local area.
- Noxious weed control is mandatory by law. Noxious weed or invasive species should be actively managed within the first year after reseeding and thereafter. Either undertake the work directly or make arrangements with the private landowner to control noxious weeds.

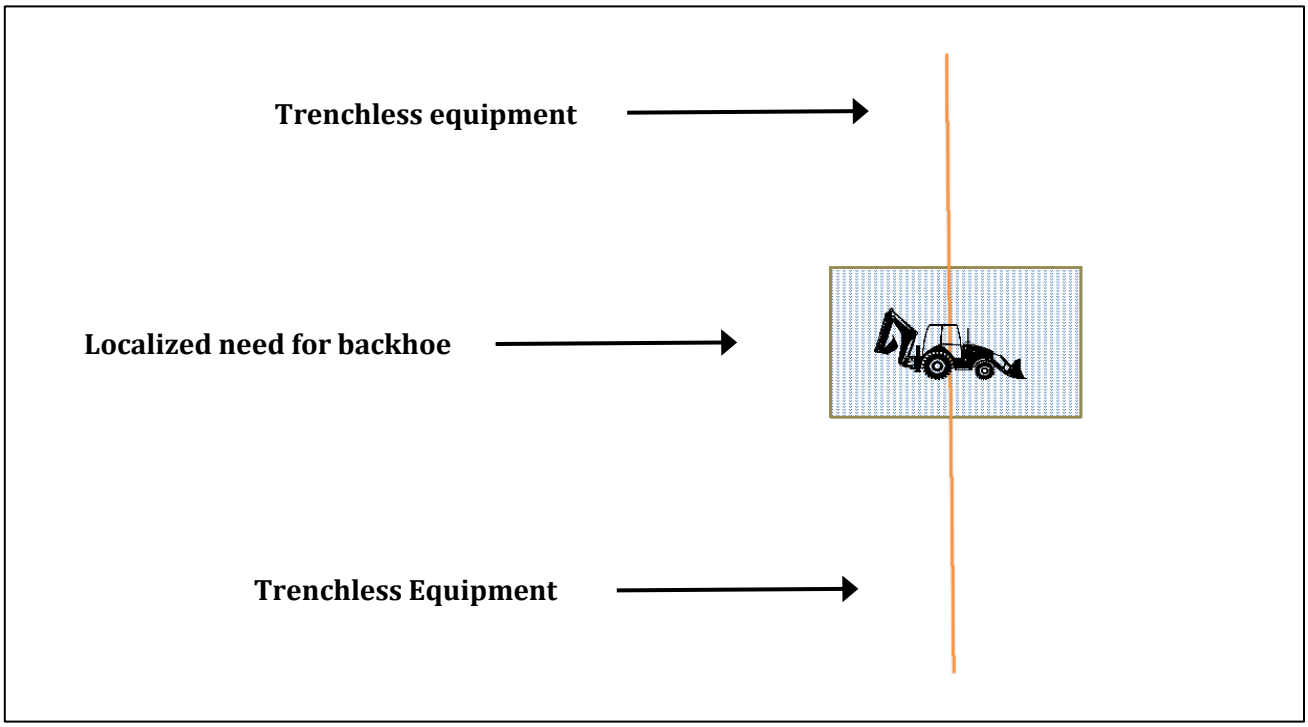

Figure 13. Schematic representation of a localized area shown in the box where a back hoe may be used locally and temporarily after encountering an obstacle along the trenchless equipment pathway. A second consultation is not needed. Follow Best Management Practices for the localized area of disturbance.