



ANR PIPELINE COMPANY

Heartland Project

Illinois Agricultural Impact Mitigation Plan

Prepared by:



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ACRONYMS AND ABBREVIATIONS

ANR	ANR Pipeline Company
BMP	Best Management Practice
CS	Compressor Station
CWA	construction work area
EI	Environmental Inspector
ICC	Illinois Commerce Commission
Merjent	Merjent, Inc.
MP	Milepost
MS	Meter Station
Project	Heartland Project

1.0 INTRODUCTION

On behalf of ANR Pipeline Company (ANR), Merjent, Inc. (Merjent) has prepared this Illinois Agricultural Impact Mitigation Plan (Plan) for the Heartland Project (Project), an interstate pipeline project that does not require Illinois Commerce Commission (ICC) approval. This Plan has been developed to prescribe best management practices to minimize or mitigate impacts on agricultural land that may occur due to pipeline construction. Contractors will be required to structure their construction activities to be consistent with this Plan.

1.1 PURPOSE AND SCOPE

The purpose of this Plan is to provide a description of agricultural minimization, mitigation, and restoration methods to be used for Project construction. This Plan applies to all construction activities occurring within areas of agricultural use in Illinois.

In the event of condemnation on any property statements reflecting a mutually agreeable situation are rescinded in lieu of court opinion.

2.0 PROJECT OVERVIEW

The Project is located within both Illinois and Wisconsin and proposes the installation of approximately 70.4 miles of new loop pipeline at four distinct locations; the replacement and upsizing of approximately 1.5 miles of existing pipeline; the construction of three new compressor stations (CSs); the modification of one existing CS; the construction of two new meter stations (MSs); the modification of three existing MSs; and the construction or modification of associated appurtenant facilities.

Within Illinois, the following work is proposed. These locations are shown on figures included as **Attachment A**.

- **Pipeline facilities:**
 - Segment PL1: Installation of approximately 49.4 miles of 36-inch diameter pipeline loop next to ANR's existing Line 301 in Kendall, Kane, and McHenry counties.
 - Segment PL2: Installation of approximately 11.4 miles of 42-inch diameter pipeline loop next to ANR's existing Line 100 in Kendall County.
 - Associated, minor aboveground appurtenance facilities:
 - The installation of a new launcher/receiver (LR) at the existing Sandwich CS, along Segment PL-1 near Milepost (MP) 0.0, to be called LR-PL1-1.
 - The installation of a new MLV at the existing valve setting along Segment PL-1 near MP 14.2 to be called MLV-PL1-1.
 - The installation of a new MLV including permanent access road at a greenfield site along PL1 near MP 22.4 to be called MLV-PL1-2.
 - The installation of a new MLV at the existing valve setting along PL-1 near MP 36.2 to be called MLV-PL1-3.
 - The installation of a new LR at the existing Woodstock CS, along Segment PL-1 near MP 49.1, to be called LR-PL1-2.
 - The installation of a new LR at a greenfield site including permanent access road, along Segment PL-2 near MP 0.0, to be called LR-PL2-1.
 - The installation of a new LR at a greenfield site including permanent access road, along Segment PL-2 near MP 11.4, to be called LR-PL2-2.
- **Aboveground facilities:**
 - CS facilities:
 - Construction of the new greenfield Laraway CS in Will County.
 - Construction of the new greenfield Westfield CS in Bureau County.
 - Modifications at the existing Sandwich CS in Kendall County.
 - MS facilities:
 - Construction of the new greenfield Laraway MS within the Laraway CS footprint in Bureau County.
 - Construction of the new greenfield Westfield MS within the Westfield CS footprint in Bureau County.

The construction of Segments PL-3 and PL-4, the construction of one new CS, and the modification of three existing MSs will be located within Wisconsin. The following sections discuss only Project activities within Illinois.

Project construction activities will occur within the defined Construction Work Area (CWA). The CWA represents the total limit of potential ground disturbance for the Project.

3.0 AGRICULTURAL RESOURCES

3.1 AGRICULTURAL LAND

This Plan applies to all construction activities occurring within areas of agricultural use in Illinois. Agricultural use includes, but is not limited to planted and cultivated land, this includes:

- *Pasture/hay*: areas for livestock grazing or the production of seed or hay crops on a perennial cycle for greater than 20 percent of total vegetation.
- *Cultivated crops*: includes annual crops such as corn, soybeans, and vegetables; or perennially woody crops such as orchards and vineyards, all accounting for greater than 20 percent of total vegetation, including all land being actively tilled.

3.2 ORGANIC FARMS

ANR is aware of two organic farms along Segment PL-1, both in Kane County, Illinois: one between Mileposts (MPs) 18.2 to 18.7 and another between MPs 24.6 to 25.1.

ANR will work with the landowner and/or the landowner's certifying agent to identify site-specific construction practices that will minimize the potential for decertification as a result of construction activities. Minimization and mitigation measures will be implemented on organic farms, and/or farms with other certifications (e.g., pesticide-free, herbicide-free). ANR will adhere to the following measures during construction, as necessary:

- Identify the locations of these operations within the CWA. A list of these operations will be provided to the contractor.
- Install signage at the boundaries of organic or other certified farms within the CWA to alert construction crews to requirements on these properties.
- Consult with landowners of these operations prior to construction to reach agreement on appropriate and feasible methods required to avoid unintentional applications of prohibited chemicals or materials.
- Do not apply herbicides, pesticides, dust control, or other chemicals to organic or other certified farms that preclude the use of these chemicals.
- Clean construction equipment and materials, including construction mats, prior to entering the CWA within the organic farm. Prior to delivery to the site, EIs will inspect and document compliance in the Contractor Yard or other designated staging area.

- Use of drop cloths during welding and coating activities, as needed per the activity.
- Separation and appropriate storage of topsoil from subsoil.
- Install geotextile fabric, where required, under any gravel or stone used for construction access points or access roads that cross certification areas. Alternatively, use larger class material under top layer of gravel or stone to avoid use of fabric.
- Consult with the landowner prior to the application of seed to ensure seeds are compliant with their farm certification plan.

4.0 IMPACT MINIMIZATION AND MITIGATION MEASURES

ANR will implement the minimization and mitigation measures and practices as described in the following sections.

4.1 LANDOWNER COMMUNICATIONS

ANR will communicate with affected landowners of agricultural land to keep them informed of overall progress, explain mitigation actions, and learn of any additional issues noted by landowners. ANR will provide the anticipated construction schedule to landowners in advance of construction. Additional communications will also be completed prior to mobilization as the construction schedule is more refined, in order to provide landowners at least 30 days notice of mobilization. Prior to the mobilization, ANR will also provide the landowner with a number to contact ANR should the landowner observe unsatisfactory agricultural work. In the event there is a disagreement between landowner tenant with regard to a decision, ANR's obligation will be satisfied by securing an agreement with the landowner.

Prior to construction, ANR will coordinate with each affected agricultural landowner, as applicable, regarding their farm operation. This will include obtaining details on and locations of their current practices, equipment, and improvements used, including but not limited to crop production, access routes, conservation easements, conservation practices, above- and below-ground structures or obstructions (e.g., drain tile, irrigation systems, fencing, etc.), livestock, certified organic lands, manure spreading practices, or other farm practices and technology. Attempts will be made to schedule construction during periods when agricultural activities will be minimally affected to the extent possible, or the landowner will be compensated accordingly.

4.2 CROP LOSS AND FEED PAYMENTS

Crop loss will occur during the construction of the Project, which, depending on the timing of Crop loss will occur during the construction of the Project, which, depending on the timing of construction activities, may include one or two growing seasons. ANR will work with landowners to accept a mutually agreeable crop damage payment to account for crop losses during construction. The value of the crop(s) will be determined by the calculation sheet included within the easement. Crop compensation will be based on the market value at the time of the easement agreement and will be increased if crop prices increase at the time of construction but will not be decreased if crop prices decline at the time of construction.

During construction, dairy farm or livestock operations could be affected by the removal of feed supply within the construction area, resulting in the need to purchase feed off-farm for the animals. ANR will work with each landowner to address and mitigate their concerns and come to an agreement. ANR will compensate any impacted dairy farm or livestock operations for the increased costs associated with the purchase of forage resulting from the reduction of forage from within the Project's construction area. Other compensation measures could include ANR compensating for the cost of boarding an animal off-farm, such as for stabling horses.

4.3 CONSTRUCTION MEASURES

Potential impact on agricultural operations will be identified and appropriate construction impact minimization measures will be implemented. Site-specific practices will vary according to the activities of the farm operator, the type of agricultural operation, the susceptibility of site-specific

soils to compaction, the degree of construction occurring on the parcel, and the ability to avoid areas of potential concern.

4.3.1 Clearing

ANR will work with each landowner for the cutting of merchantable timber necessary for construction of the Project. ANR will consult with the landowner, and through mutual agreement, determine the disposition of trees prior to tree clearing unless otherwise restricted by local, state, or federal regulations. ANR shall allow the landowner the right to retain ownership of any felled timber that is of commercial or other value to the landowner. ANR shall compensate the landowner for timber that is removed from the property.

ANR will limit clearing of windbreaks to the extent possible without interfering with the safe construction and operation of the pipeline. At no point should felled tree stumps, mulch, or tree debris be used to backfill the trench, buried in the CWA, or mulched to stabilize any portion of the CWA. Timber may be cut and left along the outer edge of the CWA for the landowner's use (if requested), and appropriate space is available, or disposed of. Disposal methods for trees, brush, and stumps include chipping or removal from the CWA. Chipping or mulching will not occur in agricultural areas, unless approved by landowners.

4.3.2 Access

ANR and the affected landowners shall reach a mutually acceptable agreement on the location of any temporary access roads when needed, including entrance and exit locations, on the respective landowner's property to be used for access to or along the CWA throughout the construction phases of the Project. ANR will attempt to utilize existing farm roads for access to and from the CWA where possible.

In places where temporary access roads are constructed over agricultural land action will be taken to limit compaction, this includes but is not limited to using construction matting, temporarily stripping topsoil, or using geotechnical fabric and rock. However, wetlands located in agricultural lands will not be stripped of topsoil per wetland permit conditions, and construction matting will be used instead, as needed per site conditions.

If temporary roads are constructed on agricultural land and require gravel stabilization, geotextile construction fabric will be installed beneath the imported rock to enhance stability and create a clear separation between the rock and the subsoil. All temporary roads will be designed by ANR to avoid disrupting surface drainage and will be built in a way that minimizes soil erosion. No fill material may be placed in wetlands or streams without first obtaining the necessary approvals or permits from the appropriate local, state, and/or federal authorities. Once construction is complete, temporary roads may remain in place if mutually agreed upon by the landowner and ANR, unless restricted by applicable regulations. If the roads are to be removed, the CWAs where the roads were built will be returned to their original use and restored to preconstruction conditions.

At construction entrances, larger stone or gravel may be used as tracking control. Gravel will be placed atop geotextile fabric for effective removal of the gravel. With these measures, it is not anticipated that topsoil intermixing will occur at construction entrances.

4.3.3 Grading and Trenching

During construction, topsoil up to 12 inches in depth will be segregated and stored in such a manner that it shall not become intermixed with subsoil. Appropriate BMPs will be utilized to ensure that soil mixing of the segregated topsoil does not occur. Topsoil that will be or is expected to be stockpiled in areas where earth-disturbing work has temporarily ceased shall be protected from erosion and weed infestation by applying a stabilization measure such as temporary seeding per regulatory requirements.

Following the removal of topsoil, the subsoil will be removed from the trench. In some areas, only one layer of subsoil may be present in the trench, resulting in a two-lift soil handling method (i.e., topsoil as the first lift and the one layer of subsoil as the second lift). However, in some areas, two layers of subsoil may be present in the trench, resulting in a three-lift soil handling method (i.e., topsoil as the first lift, the upper subsoil layer as the second lift, and the lower subsoil layer as the third lift). With either soil handling method, subsoil material that is removed from the trench will be placed parallel to the pipeline trench that is separated from the topsoil spoils and separated by the different subsoil layers (when the three-lift method is applied).

Prior to the start of construction, ANR will prepare a list of locations of agricultural soils that are a candidate for the three-lift soil handling method. ANR will create this list utilizing the Three Lift Soil Handling Decision Key, provided as **Attachment B**, and will provide the list of candidate soils locations to the EI and Contractor prior to construction. Conducting this evaluation will assist with preconstruction planning to ensure adequate CWA is made available for necessary spoil storage. ANR will implement the three-lift method when determined to be required per site specific conditions and landowner requests.

Where evidence that weed growth on stockpiled topsoil could present a problem to adjacent cultivated fields is observed, herbicide may be necessary prior to topsoil replacement. ANR will obtain permission from landowners prior to the use of herbicides. If ANR is permitted to spray the topsoil pile with herbicide, the landowner will be consulted in regard to the choice of herbicide to be used, taking into account their preference for cover crop and plans for the next year's crop. If any herbicide spraying is completed, it will be done by a state-licensed applicator.

Unless otherwise arranged with or agreed to by a landowner, the trench shall be backfilled in an order and manner that corresponds to the original profile; that is, subsoil (lower layer first followed by upper layer when the three-lift method is applied), followed by the segregated topsoil. When backfilling the trench, respective soil material (subsoil layer[s] and topsoil) shall be returned to the trench such that it matches that of the adjacent, original, soil profile.

On agricultural land where the materials excavated during trenching are insufficient to meet backfill requirements, no soil from adjacent agricultural land outside of the CWA shall be used as either backfill or surface cover material. Under no circumstances will any topsoil materials sourced from the CWA be used for pipe padding material or trench backfill below the topsoil horizon. In situations where imported soil materials are employed for backfill on agricultural lands, such material shall be of similar soil type, texture, and quality to the existing soils on site. Imported soils should be free from noxious weeds and other pests to the extent possible.

4.3.4 Crowning

Trench crowning up to 12 inches shall occur during backfilling operations to allow for trench settling. Due to the increased elevation of the crown compared to the rest of the CWA, surface drainage across the trench may be hindered until the crown has settled completely, anticipated after one freeze/thaw cycle; however, surface drainage should not be permanently blocked or hindered in any way. Adding additional soil to the crown over the trench in excess of that required for settlement will not be permitted. Temporary BMPs will be installed to manage any erosional issues caused by crowning.

In areas where minor trench settling occurs after topsoil spreading, land leveling or imported topsoil may be used to fill each depression, except in wetland areas. Subsoil is not rooting material and should never be spread over the CWA. Any excess subsoil that exceeds the level of the adjacent soil profile after backfilling shall be hauled off the CWA and disposed of properly.

The purpose of soil restoration is to ensure that soil strata are replaced in the proper order, de-compacted, and that rock content of at least the top 12 inches of soil is not increased. Excess subsoil and rock will be hauled off-site or left on site, if preferred by the landowner. ANR will discuss rock and excess soil disposal with the landowner and obtain their permission for it to be left on their property. If left on their property, ANR will consult with the landowner to determine acceptable disposal location(s) on the property. Heavy equipment will not be allowed to cross those agricultural areas that have been de-compacted and restored.

4.3.5 Dewatering

Groundwater or stormwater runoff may accumulate in the trench during construction activities. If trench dewatering is necessary to complete the installation of the pipe, the Contractor will pump the discharge through a sediment filter bag or a straw bale dewatering structure in such a manner that prevents the flow of heavily silt laden water into wetlands or waterbodies. The contractor and/or EI will identify dewatering discharge areas that minimize impacts to sensitive resources, including agricultural land.

The Contractor will use a floating suction hose, or other similar measures, to elevate the intake from the bottom of the trench and reduce the potential for capturing heavy sediment-laden trench water to be discharged. The Contractor will direct water to well-vegetated upland areas when available, and discharge at a rate to promote filtering and infiltration into the ground. The EI will work with the Contractor to select suitable dewatering operation discharge sites that minimize runoff into waterbodies or wetlands. The Contractor may use multiple filtering mechanisms (e.g., geotextile bag within a straw bale dewatering structure), where necessary to achieve appropriate discharge water treatment.

Dewatering operations will be monitored to ensure that discharge rates and sediment loads do not exceed the capacity of the dewatering device. Dewatering activities will not deposit gravel, sediment, or other debris into fields, pastures, wetlands, waterways, or sensitive resources. Where conditions necessitate dewatering outside of the CWA, landowner concurrence will be attained.

4.3.6 Decompaction

Decompaction of the subsoil will only be done when the subsoil condition is friable/tillable in approximately the top 18 inches of the subsoil profile, using the Atterberg Field Test as guidance, provided as **Attachment C**. The EI may recommend to ANR specific locations for the decompaction of the subsoil in locations where soils appear to be either predominantly wet or in low lying areas where water ponding has occurred due to the “trench effect” as a result of topsoil removal. In these cases, ANR may consult with the landowner to determine the appropriate decompaction needs.

Equipment that can be used for soil decompaction may include a v-ripper, chisel plow, paraplow, or equivalent. Typical spacing of the shanks varies with equipment but is typically in the 8- to 24-inch range. The normal depth of tillage is approximately 18 inches. The type of equipment used and the depth of rip may be adjusted as appropriate for different soil types or for a deeply and severely compacted area.

Subsoil compaction will normally be alleviated with three passes of the decompaction equipment. Multiple passes refers to the implement passing over the same soil band; that is, three passes of a 10-foot-wide implement will treat a 10-foot-wide band of soil, not a 30-foot-wide band. Passes will be made in multiple directions. This can be achieved in the narrow areas by having the implement weave back and forth across the area being ripped.

The segregated topsoil will be replaced and should be uniform across the CWA width. Rubber-tired motor graders may be used to spread and level topsoil to address unevenness in the field. In areas where minimal tillage, no-till, or level-land farming practices are employed, a tracked machine will be required to establish final grades.

Decompaction through the topsoil may be necessary if the subsoil and/or topsoil are compacted during topsoil replacement activities. A penetrometer will be used to determine if additional decompaction is necessary through the topsoil. Replacing the topsoil or de-compacting through the topsoil may free some rocks and bring them to the surface. The size, density, and distribution of rock remaining on the construction area should be the same as adjacent areas not disturbed by construction. Excessive amounts of rock and oversized stone material shall be determined by a visual inspection of the CWA. Results shall be compared to portions of the same field located immediately adjacent the CWA. Included in the determination of relative rock and large stone content is the CWA's condition subsequent to tillage and the relative concentration of such materials within the CWA as compared to off the CWA.

If previous decompaction efforts create an uneven surface prior to topsoil replacement, the subgrade may be leveled utilizing low ground pressure equipment to ensure topsoil is spread uniformly over the CWA.

4.3.7 Final Grade

Agricultural land impacted by the Project will be restored to preconstruction conditions and left in a condition that will facilitate future agricultural use, provide for proper drainage, and prevent erosion. Ruts will be repaired, or compensation will be provided as an alternative if the landowner desires. Damage to existing agricultural facilities, such as diversion terraces, grassed waterways, swales, outlet ditches, water and sediment control basins, vegetated filter strips, ditches, roads, and other features of the land, will be restored to pre-construction conditions.

4.3.8 Clean Up

Once restored, construction areas should not be traversed by unnecessary equipment traffic. All construction related debris, including waste generated by the construction crews, will be removed from the landowner's property and disposed of appropriately. Final cleanup includes installation of permanent erosion control measures, if necessary, and disposal of construction debris and will be completed as soon as practicably possible (weather permitting). If final cleanup is delayed, temporary erosion controls will be installed as necessary.

4.3.9 Revegetation and Seeding

Seeding will not be completed in cultivated croplands unless requested by the landowner. In the event ANR completes the seeding activity, the application will be completed in accordance with FERC Plan and Procedures and applicable permits and approvals. Seeding will occur following final cleanup, weather permitting.

4.3.10 Wet Conditions

Except as provided below or as otherwise expressly permitted by the landowner, construction activities are not allowed on agricultural land when wet conditions exist and normal farming operations, such as plowing, discing, planting, or harvesting, cannot take place due to the increased risks for erosion, rutting, and compaction. Wet conditions are to be determined at the time the planned construction activity is to take place on a field-by-field basis and not for the Project as a whole. In the event topsoil is stripped, work may continue during wet conditions. The following are activities that may occur in wet conditions:

- Construction activities may occur on existing stabilized surfaces that are not at risk for rutting or compaction (e.g., rocked, paved surface or where topsoil has been removed) at the discretion of ANR.
- Construction activities on unprepared surfaces will be done only when work will not result in rutting, erosion, or compaction. If low ground pressure equipment or weight dispersion material such as construction mats are used, they must also not cause rutting, erosion, or compaction. Determination as to the acceptable work activities and the potential impacts on the agricultural land will be made in consultation with the Environmental Inspector (EI).
- The EI has the authority to stop work on any and all spreads experiencing wet conditions.

4.3.11 Winter Conditions

If work is conducted during winter conditions, ANR will follow the practices and procedures outlined in the Winter Construction Plan included as Attachment D.

4.4 AGRICULTURAL PRACTICES AND IMPROVEMENTS

Existing agricultural facilities, such as diversion terraces, grassed or lined waterways, outlet ditches, water and sediment control basins, and vegetated filter strips, damaged due to construction activities will be restored to preconstruction conditions. Photographs and elevation

surveys will be taken as necessary prior to construction activities at the site to ensure final restoration is satisfactory.

4.4.1 Livestock, Fencing, and Cattle Passes

Prior to construction, ANR will consult with landowners to identify any livestock operations and grazing areas that could be affected by construction, and implement measures to minimize these impacts.

Prior to construction, ANR will work with landowners to determine if fences may be in the way of access for construction equipment. If necessary, existing fences may be removed and temporary fencing will be installed, in consultation with the landowner.

Where temporary fencing is used, ANR's contractors will be responsible for closing any necessary gates they open throughout the workday. If livestock enter the CWA, the landowner will be notified. ANR, their EIs, and their contractors will work with the landowner to remove the animal.

Existing fence crossings removed due to construction activities will be repaired. Following construction, any temporary gates and fences installed for use by construction crews will be removed, unless the landowner approves otherwise. Permanent fences will be restored per consultation with landowners.

4.4.2 Manure Management (Biosecurity)

Biosecurity refers to the implementation of measures to protect a farm operation from the introduction and spread of disease and pests. Manure may be present in pasture areas and/or spread in cultivated fields. Prior to construction, ANR will work with landowners to identify pastureland and cultivated fields that utilize manure fertilization. ANR may implement the following measures during construction:

- Negotiate with the farmland owner/operators to avoid the spreading manure over all areas within the proposed construction area prior to construction.
- Attempt to identify the locations of these operations where livestock and/or manure may be present within the CWA before work starts so arrangements can be made for them to be moved. Landowners will be compensated as needed if accommodations need to be made to relocate the livestock.
- If manure is encountered the contractor should remove as much manure as possible from construction equipment and materials, including construction mats, after leaving an area with manure present, before entering another property or wetlands or waterbodies.
- Construction staff should avoid contacting manure by utilizing the proper personal protective equipment and other hygiene methods.

4.4.3 Irrigation Systems

If the CWA intersects an operational (or soon to be operational) irrigation system, ANR and the landowner will establish a mutually acceptable amount of time that the affected irrigation systems

may be taken out of service during construction. If, as a result of pipeline construction activities, an irrigation system interruption results in crop damages, either on the CWA or off the CWA within the irrigation system's range, ANR shall reasonably compensate the landowner for all such crop damages. If practical, temporary measures may be implemented to allow an irrigation system to continue to operate across land on which the pipeline is also being constructed, so long as the irrigation system does not create drainage, erosion, or pollutant discharge issues in or across the CWA. Any damage to an irrigation system caused by construction will be repaired as soon as reasonably possible, or compensation provided.

If the Project were to result in the need for reconfiguration of the system and/or equipment (e.g., the need for permanent relocation, disruption of a well, disruption of the connection from a well to the center pivot), ANR will work with the landowner to provide reasonable compensation.

4.4.4 Drain Tile

Prior to construction, ANR will request details of the location of drain tiles from each landowner. ANR shall record the GPS location of all identified drain tile lines, including those identified by the landowner and those identified or damaged and repaired during construction or other phases of the Project. ANR shall also mark the physical locations of the identified drain tile lines with stakes or flags prior to construction to alert construction crews of their presence. Markers identifying drain tile locations are to remain in place until restoration is complete or the tile lines are repaired.

If a drain tile is damaged or severed during construction, it will be repaired to ensure it functions properly at the point of repair and maintains long-term usability. Temporary repairs using solid tubing may be installed to allow for continued drainage during construction, or a permanent repair may be made immediately.

Prior to backfilling, the drain tile will be temporarily or permanently repaired, as the backfill schedule allows. Permanent repair will occur as soon as possible, based weather, soil conditions, and drain tile contractor availability permitting. Typical figures depicting drain-tile repair are also provided as **Attachment C**.

If water is flowing through damaged tile line, ANR shall use best efforts to immediately temporarily repair the damage tile until such time that permanent repairs can be made by a local, licensed, contractor. If the damaged drain tile-lines are dry and water is not flowing, temporary repairs are not required, if the permanent repairs can be made within 30 days of the time damage occurred or before the next forecasted rain event, whichever is sooner. These exposed tile lines shall be screened or otherwise protected to prevent the entry of foreign materials, small mammals, etc. into the tile lines until permanent repairs are made.

All permanent drain-tile line repairs will be made within 30 days of the pipeline being laid in the trench on the landowner's property, weather, soil conditions, and drain tile contractor availability permitting. ANR shall notify the landowner in writing if permanent repairs to drain-tiles are expected to deviate from the 30 days. Alternatively, ANR may compensate the landowner to complete the permanent repair themselves or with their preferred drain-tile contractor.

Before completing permanent drain-tile repairs, all tile lines shall be probed or examined by other suitable means on both sides of the trench for their entire length within any work areas to check for tile that might have been damaged by vehicular traffic or construction equipment. If tile lines

are found to be damaged, they will be repaired so they operate as well after construction as before the construction began.

Following completion of the Project, ANR shall be responsible for correcting all drain-tile line repairs that fail due to pipeline construction, provided those repairs were made by ANR. ANR will not be responsible for tile line repairs that ANR pays the landowner to perform.

If there is a concern for damages to the drain tile as a result of equipment and vehicle traffic along temporary access roads, weight dispersion equipment and/or material such as mats should be used.

5.0 INSPECTION

To support on-site inspection and monitoring of agricultural areas, ANR will assign one or more Environmental Inspectors (EIs) to the Project. These individuals will work closely with ANR's Construction Manager to address any issues that arise during construction.

EIs will be qualified professionals with expertise in both biological and agricultural resources. Their knowledge of agronomy and soil conservation will enable them to serve in a dual role, also acting as agricultural inspectors throughout the duration of the Project.

The EI will be thoroughly familiar with the following:

- This Plan;
- All other ANR and Project Plans and Procedures;
- Pipeline construction sequences and processes;
- Midwest soils agricultural operations and activities;
- Midwest drain-tile operations;
- Effects of construction on agricultural soils as they relate to crop yields
- BMPs for erosion and sediment control; and
- Erosion control permits obtained for the Project.

The EI shall also possess the following:

- Good oral and written communication skills, and the ability to work closely with ANR construction management and Project contractor(s); and
- At least 2 years of experience in an agricultural setting, working in some aspect of production agriculture or farm operations.

6.0 MONITORING

ANR shall be responsible for monitoring the Project from mobilization through final stabilization and restoration. During construction and restoration, the EI's role is to monitor the implementation of this Plan to avoid negative impacts on agricultural lands by advising the Construction Manager or appropriate ANR representative, in the event unsatisfactory construction methods are being used. The EI will have access to all work areas in agricultural lands, and will travel between various construction activities in agricultural lands and spot-check construction operations. If the EI discovers actions that do not appear to meet the Plan requirements, they will advise the contractor to make corrective actions, and may stop work at that location if necessary and will immediately contact the Construction Manager to remediate the site-specific restoration action, if needed.

EI's shall conduct inspections per the FERC Plan and Procedures, this includes inspecting and ensuring the maintenance of temporary erosion control measures at least:

- a. on a daily basis in areas of active construction or equipment operation;
- b. on a weekly basis in areas with no construction or equipment operation; and
- c. within 24 hours of each 0.5 inch of rainfall;

These inspections will be completed until restoration is complete. General site conditions to be monitored during this period include but are not limited to topsoil thickness, relative content of rock and large stones, trench settling, crop condition, surface and subsurface drainage (observation of sinkholes or tile effluent), erosion, and repair of severed fences.

Following construction, ANR shall conduct bi-annual inspections for up to three years or until final stabilization and restoration are achieved. ANR shall maintain an EI on at least a part-time basis through this period. During this phase, the EI shall identify any remaining impacts associated with the pipeline construction that need to be addressed to return the CWA to preconstruction conditions and achieve final stabilization and restoration. Areas exhibiting significant crop growth differences on the CWA compared to that immediately off-CWA will be logged. Any problems or concerns shall be identified through monitoring of all areas along the CWA via onsite and/or drone inspections and through information received from respective landowners.

After completion of the monitoring phase, ANR shall continue to respond to the reasonable requests of the landowner to correct project related impacts on the agricultural resources.

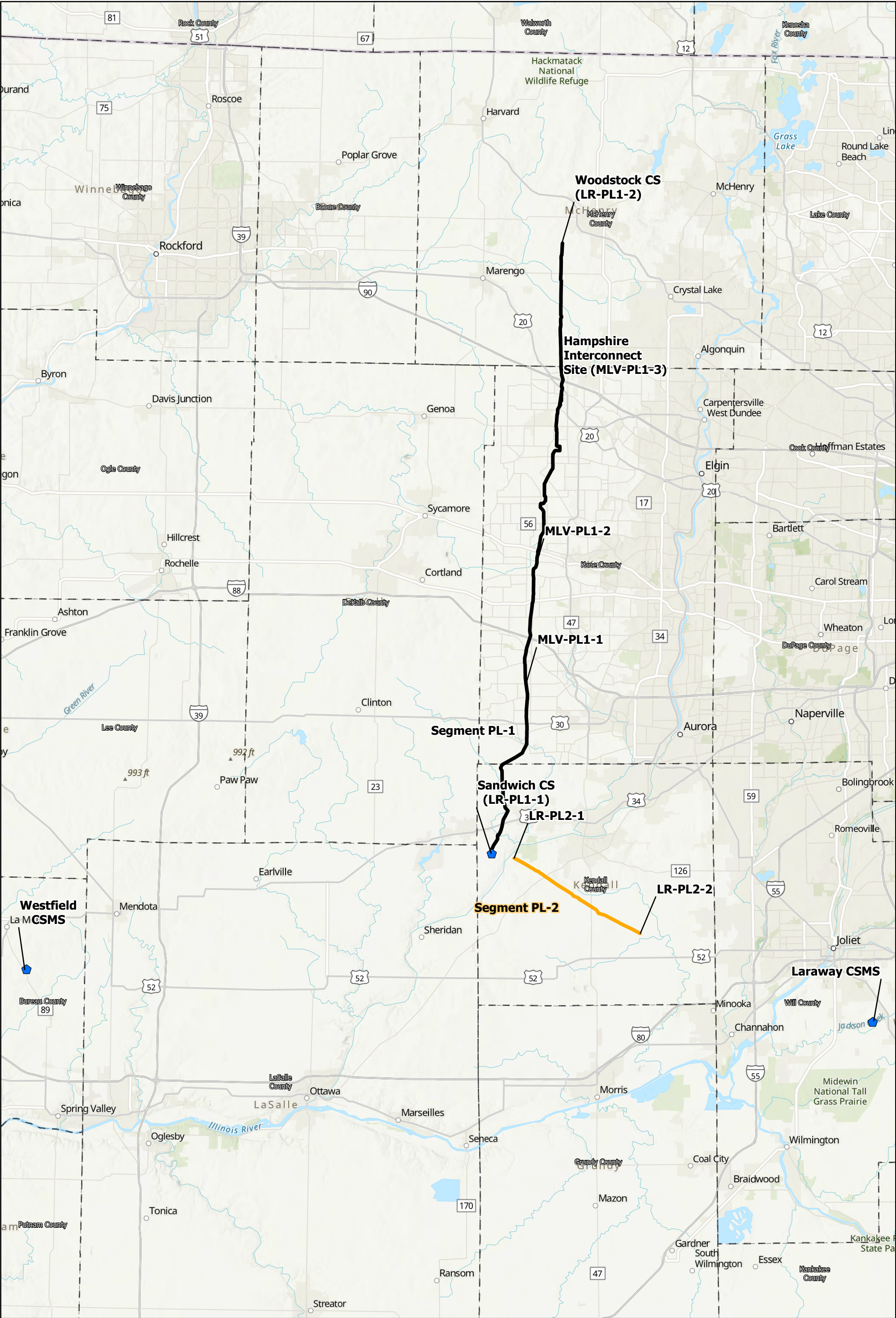
6.1 MONITORING DURING OPERATION

Maintenance of TC Energy's ROWs is an ongoing process, which is governed by TC Energy Policy, certificate and permit conditions, as well as landowner agreements. ROWs are generally maintained by mowing or other mechanical means. On FERC-certificated pipelines, vegetation maintenance or clearing in upland areas within the full width of the permanent easement will not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually in an herbaceous state. TC will also monitor the easement for signs or subsidence.

After final restoration is complete and while the pipeline is in operation ANR shall patrol the pipeline per regulatory requirements to detect erosion of the top cover. Whenever the loss of

cover due to erosion creates a safety issue or whenever the amount of top cover is less than the preconstruction depth, ANR shall take corrective action.

Attachment A
Project Map



048 Miles

1 inch = 6.5 miles

merjent

For Environmental Review Purposes Only

N

W

E

S

Project Overview

Heartland Project

ANR Pipeline Company

Illinois

Facility Location

Segment PL-1

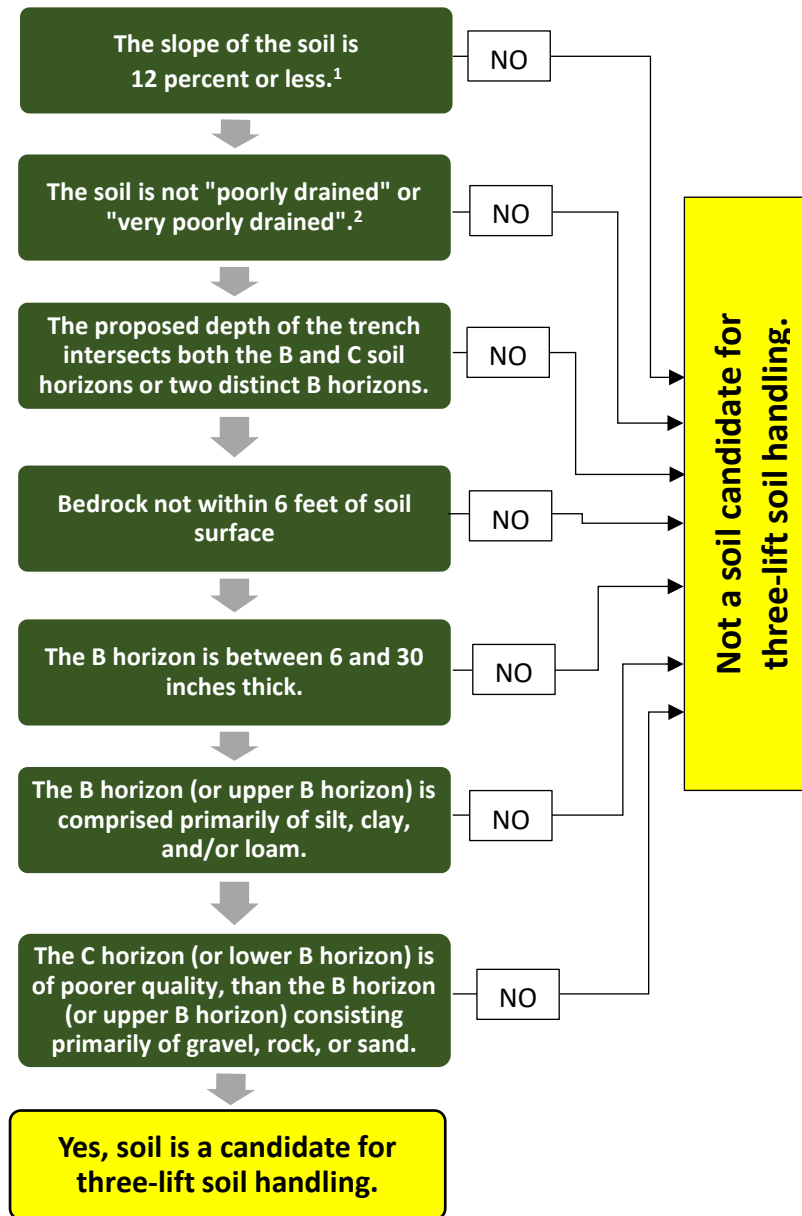
Segment PL-2

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Attachment B

Three Lift Soil Handling Decision Key

This key is applicable to soil profiles with distinct B and C horizons or alternatively to soil profiles with distinct upper and lower B horizons.



1. Soils with a slope greater than 12 percent are Class IV soils, likely to be eroded with shallow topsoil, and marginally suited for crop production. As such, they are unlikely to meet the criteria for soils that would benefit from three-lift soil handling.

2. Poorly drained soils tend to be too wet to use three-lift soil handling successfully. They are also likely to be deep soils.

Attachment C
Atterberg Field Test

Atterberg Field Test

Purpose: To determine when soil is suitable for tillage operations.

Process: The Agricultural Inspector will determine the soil's consistency using the following:

1. Pull a sample soil plug at the maximum depth to be tilled, or from within the topsoil pile.
2. Roll a portion of the sample between the palms of the hands to form a wire with a diameter of one-eighth inch.
3. The soil consistency is:
 - a. Tillable if the soil wire breaks into segments not exceeding $\frac{3}{8}$ of an inch in length.
 - b. Plastic (not tillable) if the segments are longer than $\frac{3}{8}$ of an inch before breaking.
4. This procedure is to be used prior to decompacting the subsoil; on the topsoil pile prior to stripping and stockpiling; on the topsoil prior to replacement; and prior to decompacting through the topsoil.
5. One determination of soil consistency is adequate until the next rain event.

Attachment D
Winter Construction Plan



ANR PIPELINE COMPANY

Heartland Project

Winter Construction Plan

Prepared by:



February 2025

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ACRONYMS AND ABBREVIATIONS

ANR	ANR Pipeline Company
BMP	best management practice
CS	compressor station
CWA	construction work area
EI	environmental inspector
FERC	Federal Energy Regulatory Commission
FERC Plan	FERC Upland Erosion Control, Revegetation, and Maintenance Plan
FERC Procedures	FERC Wetland and Waterbody Construction Mitigation Procedures
HDD	horizontal directional drill
MS	meter station
PL	pipeline
Plan	Winter Construction Plan
Project	Heartland Project
TCSB	temporary clear span bridge

1.0 INTRODUCTION

ANR Pipeline Company (ANR) is seeking a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) under Sections 7(b) and 7(c) of the Natural Gas Act, as amended, for its Heartland Project (Project). ANR is proposing to loop or replace existing pipeline at four distinct locations with 70.4 miles of new pipeline, construct or install new compressor units at four compressor stations (CS), construct and/or modify five meter stations (MS), and construct and/or modify other minor appurtenant facilities in Illinois and Wisconsin.

Site Names

- Wisconsin Loop Line 3-301 (Segment PL-1)
- Southwest Loop Line 2-100 (Segment PL-2)
- Segment PL-3
- Two River Lateral Loop 2-380 (Segment PL-4)
- Work at the following four CSs:
 - Laraway CS
 - Westfield CS
 - Sandwich CS
 - Pulaski CS
- Work at the following five MSs:
 - Laraway MS (within footprint of the Laraway CS)
 - Westfield MS (within footprint of the Westfield CS)
 - Menasha MS
 - Rochester MS
 - Sheboygan Falls MS
- Work at other minor appurtenant facilities, such as mainline valves and pig launchers/receivers.

In addition to the facilities described above, ANR will also utilize several pipe/contractor yards to support construction activities.

1.1 PLAN DESCRIPTION

This Winter Construction Plan (Plan) provides specialized work procedures to be implemented by ANR Pipeline Company (ANR) for the Heartland Project (Project) during frozen wintertime conditions.

Project construction is expected to commence in the second half of 2026, with a target in-service date of November 1, 2027. ANR anticipates active construction will occur over a 9- to 12-month period for pipeline segments and a 15-month construction period for compressor station (CS) and meter station (MS) facilities. For pipeline construction it is anticipated that work would begin in the summer or fall and continue until consistently frozen ground conditions occur, then be suspended until the ground thaws again. Work that may occur during winter months includes construction of the CS and MS facilities and tree felling associated with the pipeline segments.

This Plan shall be implemented in areas where winter is occurring for the Project. Wintertime conditions may include fluctuations of frozen soils, snow and ice, and freezing temperatures. ANR's onsite Environmental Inspector (EI) will review site conditions and historical

trending regional conditions to determine when wintertime weather conditions prevail, and implementation of this Plan is required.

2.0 SNOW REMOVAL

Snow that is removed to maintain suitable working conditions will be limited to the construction work area (CWA) and construction entrances. During wintertime months of active construction, certain portions of the CWA may need to be kept clear of snow to provide safe and efficient working conditions. Snow removal equipment will be contained to the approved CWA and will be stored outside of wetlands when not in use. Private access roads will be maintained in accordance with applicable permit requirements and landowner agreements. ANR will not be responsible for snow plowing or removal on publicly maintained roads.

Measurable snow may be plowed or blown from the CWA using suitable snow-clearing equipment, contingent on ANR obtaining proper landowner consent. In wetlands and other environmentally sensitive areas, the snow will be removed at grade to make the CWA passable. Snow removal may result in minor, incidental surficial scraping of the top layer vegetation. Following snow removal, construction mats may be placed in wetlands to reduce the risk for soil compaction, soil rutting, and the mixing of topsoil with subsoil.

Large accumulations of snow intermixed with excavated spoil piles will be removed to the extent practicable prior to backfilling. Generally, snow will be allowed to melt in place during the spring thaw. Erosion and sediment control best management practices (BMP) will be installed and maintained if appropriate at snow stockpile areas to minimize offsite erosion during snowmelt in accordance with permits and approvals issued for the Project.

3.0 GENERAL MITIGATION MEASURES

3.1 ENVIRONMENTALLY SENSITIVE AREAS

During winter weather conditions, the Contractor and EI will maintain permanent and temporary protective measures (e.g., flagging, fencing, barriers) to designate environmentally sensitive areas. Environmentally sensitive areas may include designated areas such as cultural resource sites, protected species habitat, wetlands, or waterbodies. The EI will confirm these measures have been installed correctly and perform routine inspections as well as inspections prior to and following inclement weather events.

3.2 WET WEATHER SHUTDOWN

Wet weather conditions may be present during the winter construction season as temperatures and precipitation fluctuate. The transitional periods between fall and winter and winter and spring are often characterized by saturated or inundated soils that are susceptible to rutting and soil mixing. Damage to temporary erosion controls may also occur during wet weather conditions. The EI and labor crew will monitor soil conditions and erosion controls. Construction activities will be temporarily suspended if there is potential for significant soil mixing or other damages related to wet weather conditions.

Temporary suspension of activities would be warranted if conditions have a high potential in certain locations to result in soil mixing and/or result in substantial sedimentation or erosion. Construction activities may occur on existing stabilized surfaces that are not at risk for soil compaction, soil rutting, and soil mixing at the discretion of ANR during wet conditions.

The EI in coordination with ANR construction management will have the authority to stop work on spreads experiencing wet conditions, pursuant to protocols to be agreed to in advance of construction by ANR and the EI. In the event topsoil is stripped and rutting does not risk mixing soil horizons that need to be segregated (e.g., topsoil) and work would not result in substantial sedimentation or erosion, work may continue during wet conditions.

3.3 SEDIMENT AND EROSION CONTROL MEASURES

Temporary sediment and erosion control measures will be implemented in accordance with the Federal Energy Regulatory Commission's (FERC) *Upland Erosion Control, Revegetation, and Maintenance Plan* (FERC Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (FERC Procedures) and permit conditions. Winter weather conditions may prevent installation and use of certain erosion and sediment control BMPs. In situations where snow and/or frozen conditions prevent the use of standard BMPs, alternative BMPs may be implemented to mitigate erosion and sediment migration. For example, compost filter socks or erosion control blankets may be installed on bare frozen ground or snow less than 2 inches deep.

Installed BMPs will be inspected by the EI daily in active construction areas, weekly in areas with no active construction, and all areas within 24 hours of a rain or snowmelt event. Additional BMPs may need to be installed for brief periods of thaw or warmer temperatures if they occur during winter months. The EI will review weather forecasts to anticipate if any brief periods of thawing or snow melt could occur during the winter.

4.0 UPLANDS

In non-frozen conditions, construction activities will be conducted in accordance with the FERC Plan and Procedures and applicable permit requirements. The following alternative methods will be implemented in frozen soil conditions.

Topsoil will be stripped according to the FERC Plan and Procedures, permit conditions, and other construction plans and agreements. Alternatively, ANR may strip topsoil in frozen conditions by ripping with a grader or heavy disc or by using a pavement excavator to pulverize the topsoil and allow for conventional removal. The method of topsoil stripping will be based on site-specific conditions, including depth and extent of frost penetration into the soil, and methods selected will be based on identifying appropriate methods of topsoil removal. The method selected will be the best available for retaining soil and root structure within the excavated topsoil to the extent practicable given the soil conditions. Subsoil excavated from the trench line will be stockpiled separately from the topsoil in the area adjacent to the trench.

Trenching, lowering-in, and backfill operations will be scheduled to minimize the exposure time of excavated spoil material to freezing conditions and to reduce the potential for snow accumulation in the trench. The pipe will be strung, bent, and welded prior to excavation of the trench. Any appreciable accumulations of snow in the trench (generally greater than 6 inches in depth) will be removed prior to installation of the pipeline. Backfilling will occur as soon as practicable after the pipeline is installed in the trench.

In upland areas, the trench will be backfilled with subsoil as described below, and if frozen topsoil cannot effectively be replaced without leaving large voids or an excessively rough soil surface, the frozen topsoil will be stockpiled over the winter for replacement during the following spring or summer.

Stockpiled subsoil will develop a layer of frost penetration, the thickness of which will be dependent on water content, temperature, wind, and snow cover conditions. Prior to backfilling, frozen material will be skimmed off the top of the subsoil pile to provide access to underlying, unfrozen subsoil for backfilling. The unfrozen subsoil material will be backfilled over the pipeline first, followed by the frozen subsoil material. If frozen subsoil exhibits lumps or sharp edges that could damage the coating on the pipeline, ANR construction management in coordination with the Contractor will determine appropriate backfill measures to be implemented. Such measures may include the use of mechanical shakers or grinders to break up frozen subsoil prior to backfilling or, in extreme cases, the use of sand padding around the pipe. If sand padding is used, it will be obtained from an upland or commercial source and used in upland areas only. Sand padding will not be used to backfill within wetlands or waterbodies.

Where topsoil is stockpiled over winter, ANR will stabilize the pile using mulch or other suitable stabilization methods to prevent loss of topsoil during the winter and throughout the spring melt. All mulch will conform to standards set in the FERC Plan and Procedures and applicable permits. Where final grading and restoration cannot be completed due to frozen conditions, the CWA will be left in a roughened condition or equivalent erosion control measures will be employed to reduce the potential for erosion during the spring melt. In upland areas, a slight subsoil crown may be left over the pipeline to account for settling as backfilled soils thaw. If a crown is left over the pipeline, breaks will be installed to allow water to drain across the CWA during the spring melt.

Cleanup activities will be performed once the ground is fully thawed in the spring or summer and the topsoil (and subsoil, if applicable) stockpiled over winter has dried sufficiently to allow it to be worked without causing excessive compaction and/or rutting. The schedule for final cleanup will be determined by ANR based on ground conditions. Cleanup and restoration activities (e.g., final grading, topsoil replacement, and re-seeding) will be conducted in accordance with the FERC Plan and Procedures and applicable permits and approvals.

The potential for soil compaction is minimal under frozen soil conditions; however, ANR will implement measures identified in the FERC Plan and Procedures and applicable permit conditions, where necessary, during final cleanup and restoration activities.

Upland restoration within the CWA may be delayed due to winter weather conditions. If permanent restoration is postponed until after spring thaw, ANR will leave exposed subsoil in a roughened condition to slow the flow of surface water runoff. All excavated areas will be backfilled or protected with safety fencing. ANR will apply mulch or install soil tackifiers to disturbed areas. If seeding occurs, ANR may use higher seeding rates and cold weather and/or dormant seed mixes.

5.0 WATERWAY AND WATERBODY IMPACTS

The following sections include details of waterways and waterbodies located within the Project and the anticipated crossings and impacts to these resources for Project construction. Waterway and waterbody crossings will be completed in accordance with local, state, and federal permits and follow the measures described in ANR's construction plans.

5.1 DREDGING

ANR proposes to use the open-cut trench installation method across waterways and waterbodies (referred to as dredging) for installation of the new and replacement pipe. For

waterbodies and waterways with perceptible flow, this will be accomplished via dam-and-pump or flume crossing methods.

The dam-and-pump crossing method involves installation of temporary dams upstream and downstream of the proposed waterbody crossing location. ANR will typically use sandbags and plastic sheeting to construct temporary dams. Following dam installation, ANR will use appropriately sized pumps to dewater the upstream impoundment and transport the stream flow around the CWA and trench to the downstream side of the work area. Intake screens will be installed at the pump inlets to prevent entrapment of aquatic life, and energy dissipating devices will be installed at the pump discharge point to minimize erosion and streambed scour. Trench excavation and pipeline installation will then commence through the dewatered portion of the waterbody channel. Following completion of pipeline installation, backfill of the trench, and restoration of waterbody banks, ANR will remove the temporary dams and restore flow through the CWA. This method is appropriate for those waterbody crossings where pumps can adequately transfer the stream flow volume around the work area and there are no concerns about the temporary passage of sensitive species.

The flume crossing method consists of temporarily directing the flow of water through one or more flume pipes over the area to be excavated. This method allows excavation of the pipe trench to occur completely underneath the flume pipes without disruption of water flow in the stream. Stream flow will be diverted through the flumes by constructing two bulkheads, using sandbags or plastic dams. Following completion of pipeline installation, backfill of the trench, and restoration of waterbody banks, ANR will remove the bulkheads and flume pipes. This crossing method generally minimizes the duration of downstream turbidity by allowing excavation of the pipeline trench under relatively dry conditions.

Following completion of pipeline installation, excavated bed material will be replaced in its original stratum and elevation upon backfilling, and the bed restored to pre-existing conditions. Larger rocks or boulders moved prior to construction will be replaced in the stream channel within the construction area following backfill of the trench. The banks will be restored to pre-existing conditions and will be stabilized with seed and erosion control blankets. Final grading, seeding, and bank stabilization will be completed no later than 24 hours after backfilling the in-stream trench, weather and soil conditions permitting. Additional details can be found in the Wetland and Waterway Restoration Plan developed for the Project. Following backfill and restoration, the bypass system will be removed and flow through the waterway channel will be restored.

5.2 TRENCHLESS CROSSINGS

In the event trenchless crossing methods, such as horizontal directional drill (HDD) or conventional bore, are used for pipe installation at waterbodies, impacts to waterways and waterbodies are not anticipated. ANR has prepared and will implement a Project-specific HDD Inadvertent Returns and Contingency Plan that describes the procedures to follow in the event of an inadvertent return.

5.3 DRIVING ON THE BED

ANR proposes to complete a one-pass-access through select waterways (referred to as driving on the bed) to facilitate clearing activities. The crossings will be completed during low or no-flow conditions.

5.4 ACCESS ACROSS WATERWAYS AND WATERBODIES

ANR will install temporary bridges to facilitate construction access across waterways and waterbodies. Flume supports are not proposed for the Project. In Wisconsin, all temporary bridges will be clear-span, spanning from bank to bank, with no center-support pilings in the channel. These temporary clear span bridges (TCSBs) will typically consist of a construction mat placed across the feature above the ordinary high-water mark. Wide crossings may require a metal bridge with wood or manufactured decking attached (e.g., use of a railcar, semitrailer, mobile home frame). TCSBs will be placed from the waterbody banks and equipment will not need to work in the waterbody channel to install or remove the TCSBs.

In Illinois, equipment crossings may consist of prefabricated construction mats, rail flat cars, flexi-float or other temporary bridges (prefabricated bridges), or flume installations. At equipment bridge locations, care will be taken to minimize disturbance of the bank and bottom. Typically, equipment crossings are installed during clearing and grading operations and removed after final cleanup and restoration activities.

Bridges will be removed after final cleanup and restoration activities have been conducted. Appropriate sediment and erosion control devices will be installed along the sides and bottom of the bridges, as necessary, to prevent sediment from entering the channel during use. The bridges will be inspected on a regular basis and anchored to prevent movement. Upon bridge removal, waterway and waterbody banks will be restored to pre-existing conditions.

One permanent culvert installation is proposed at the Pulaski CS. All in-stream work will occur during no or low flow conditions to minimize erosion and downstream impacts, and stream diversion techniques such as dam and pump will be used to prevent downstream sediment transport. Culvert design will be certified by an engineer registered in the state of Wisconsin, and culvert sizing will be designed to allow passage of 100-year storm stream flows and align with the natural stream channel. The culvert will be appropriately embedded within the stream channel, and the bed of the culvert shall mimic the upstream and downstream natural streambed.

6.0 WETLANDS

Construction in fall and winter months generally helps to minimize impacts to wetlands because construction will occur outside of the wet (spring and summer) seasons. In winter conditions, frozen soils will provide stability for construction equipment working in the CWA and help prevent sloughing of the pipe trench that could occur in the spring and summer seasons due to saturated conditions. Erosion and sediment control BMPs will be extended across the CWA on the approaches to wetlands prior to the spring runoff; these may consist of silt fence, hay bales, drivable berms, or other equally protective measures.

Summer construction of large diameter pipelines in saturated/standing water wetlands with unconsolidated soils can be difficult and potentially result in greater wetland disturbance, including wider trench widths and extensive rutting/surface disturbance. Constructing across these types of wetlands in the winter can result in fewer impacts. Winter wetland construction is not a common practice in most parts of the United States; however, winter construction is used in northern areas of the United States when site conditions make this the preferred technique for the installation of pipelines in expansive, unconsolidated wetland areas. Heavy construction equipment use and travel within the CWA, which may not be possible in summer conditions due to saturated, unstable soil conditions, can be accomplished in the winter by establishing temporary winter frost/ice roads. These frost/ice roads help provide a safe, stable work surface

for pipeline construction, while helping protect underlying vegetation and upper layers of wetland surfaces from disturbance potentially created during summer construction.

6.1 WETLAND CONSTRUCTION

ANR will use trenchless methods and open-cut trenching methods for wetland crossings. Wetland crossings will be completed in accordance with the measures described in ANR's construction plans and in accordance with federal, state, and local permits.

Wetland crossings will occur in the same manner during winter and non-winter seasons. ANR will minimize the extent and duration of Project-related disturbance on wetlands. Wetland markings will be maintained throughout the winter season. Construction equipment working in wetlands will be limited to that essential for clearing, excavating the trench, removing the existing pipe (abandonment only), fabricating and installing the new pipe, backfilling the trench, and restoration. Equipment will work from construction mats, when needed per site conditions, to reduce the risk for soil compaction, soil rutting, and the mixing of topsoil with subsoil.

If the ground of wetlands is stable and/or frozen, the wetland(s) may be crossed without matting under the discretion of the EI. Ground disturbance will be limited to the areas of excavation for pipe installation. Temporary stabilization, backfilling, and permanent restoration will be completed as soon as practicable and take the least number of days possible. The EI will evaluate site conditions and determine if wetland crossing activities must be delayed due to winter conditions.

Crossing of wetlands will occur in the same manner during winter and non-winter seasons. ANR will minimize the extent and duration of Project-related disturbance on wetlands. Impact minimization and restoration measures have been developed pursuant to requirements of the state and federal wetland and waterbody permit requirements. Throughout the construction process, ANR will follow the FERC Plan and Procedures, construction typical drawings, the Project's Stormwater Pollution Prevention Plan, and stormwater construction permit conditions to avoid or minimize impacts on water quality. Preconstruction grade and vegetative cover will be restored as soon as feasible following construction activities. Post-construction wetland and waterbody restoration will be monitored until preconstruction conditions are restored.

7.0 WETLAND AND WATERWAY RESTORATION

ANR has prepared a Wetland and Waterway Restoration Plan in coordination with applicable agencies. Preconstruction grade and vegetative cover will be restored as soon as feasible following construction activities.

Depending on site conditions, some measures identified in the Wetland and Waterway Restoration Plan may not be feasible during winter conditions. In these cases, ANR will temporarily stabilize all exposed areas, including spoil piles, until site conditions are such that restoration measures can be fully implemented.

If final grading can be completed during winter conditions, ANR will seed the exposed soils of wetlands and waterway banks using dormant/winter seed mixes and seeding procedures described below. Additional final grading may be performed once soils have thawed and conditions allow. BMPs will be maintained until permanent cover has been established.

8.0 CONSTRUCTION DEWATERING

8.1 TRENCH DEWATERING

Trench dewatering in both non-frozen and frozen conditions will be conducted in accordance with applicable dewatering permits. Under frozen conditions, dewatering structures may need to be larger and located further away from the construction area to avoid trench water moving back into the CWA due to low infiltration rates.

8.2 HYDROSTATIC TESTING

ANR will obtain appropriate permits and authorizations prior to discharging hydrostatic test water. ANR will adhere to all permit conditions. Depending on water availability and permit conditions, test water may be drawn from local sources such as waterways, waterbodies, or public water supplies. If test water is sourced locally during winter conditions, ANR will closely monitor test water withdrawal and discharge to minimize impacts to resource quality and waterway flow. Frozen conditions may prevent withdrawal of test water from local sources. If conditions are not favorable for local water withdrawal and/or discharge, ANR may supplementally acquire test water from a municipal source.

9.0 SPRING THAW CONDITIONS

If changes in the Project schedule or ground conditions require construction activities in early spring, the following measures, in accordance with the FERC Plan and Procedures and other applicable permitting requirements, will be implemented to prevent soil mixing, rutting, and compaction:

- The Contractor will work only in well-drained, dry sites and/or frozen areas until conditions improve.
- The Contractor will use equipment best suited to existing ground conditions (e.g., low ground pressure equipment).
- The Contractor will install mats along the travel lane in wetlands where there is potential for rutting to occur to prevent mixing of topsoil and subsoil.
- The Contractor may use frost driving measures, such as snow packing, to increase the load bearing capacity of the ground where necessary to remove equipment from the CWA, but not as a condition to allow construction to continue. The frost driving measures may be implemented in the early morning or evening to take advantage of colder temperatures.
- When ground conditions begin to thaw and only allow for frozen soil conditions early and late in the day, to the extent practicable construction activities will be postponed until evening or early morning to prevent rutting thawing soils.
- If muddy conditions are severe and rutting occurs, work will be suspended until conditions improve. A “rut” is considered a depression that results in topsoil and subsoil mixing. In the event soil mixing is observed from rutting, ANR will stop work and install construction matting or wait until soils dry and allow for work to proceed without rutting.

- In the CWA within wetlands (including cultivated wetlands), construction equipment will work from construction mats to reduce the risk for soil compaction, soil rutting, and the mixing of topsoil with subsoil.
- Work suspension and initiating work again will be coordinated with the Wisconsin Department of Natural Resources' third-party monitor.

10.0 FINAL CLEANUP AND RESTORATION

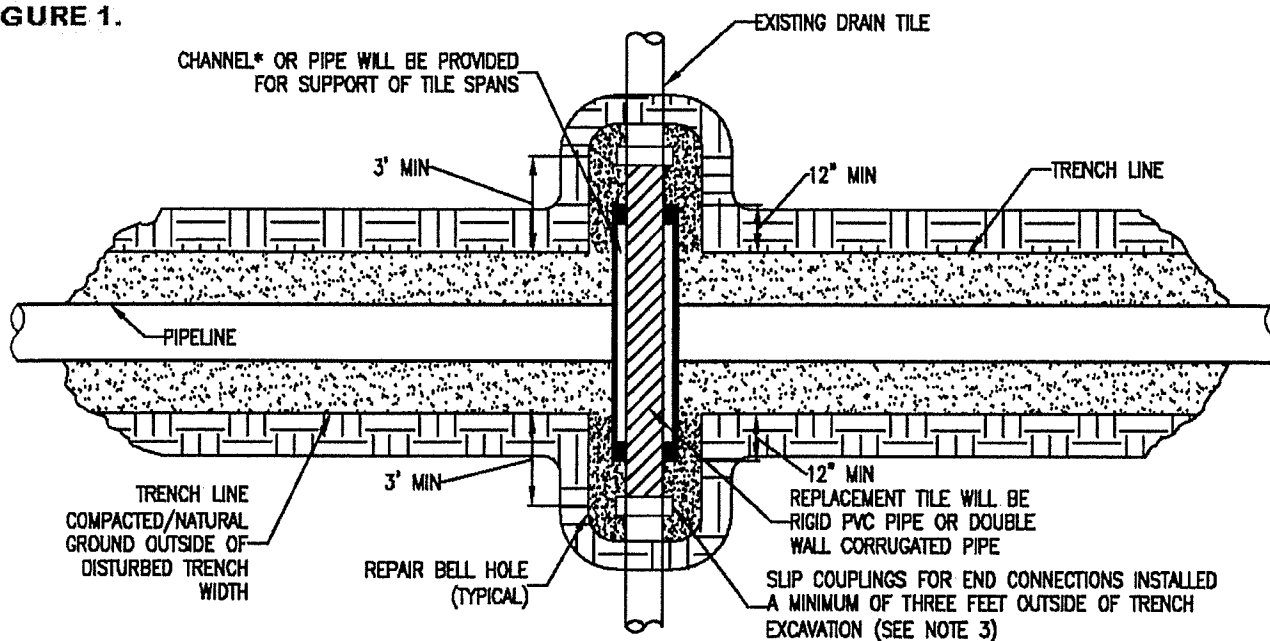
In frozen conditions, final cleanup and restoration (including weed treatments where required, final grading, and seeding) will be deferred to the spring and summer. These activities will be conducted in accordance with the FERC Plan and Procedures and permit approvals.

Special measures will be implemented during final cleanup and restoration if subsidence is identified along the trench line. In areas where topsoil is stockpiled over the winter, the CWA will be re-graded prior to topsoil replacement. Additional subsoil will be placed over the trench line during grading to restore preconstruction contours to the extent practicable. If subsidence has occurred in areas where topsoil is replaced prior to the end of active construction (e.g., in wetlands or in areas where construction occurred during non-frozen conditions), the topsoil will be removed, and the CWA regraded as described above to restore preconstruction contours to the extent practicable.

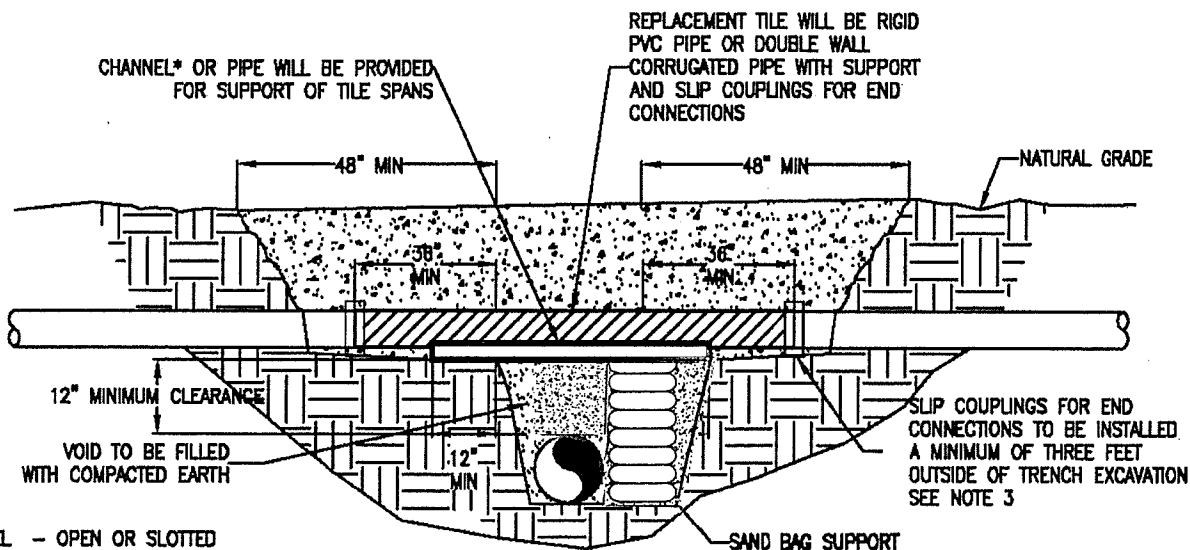
Attachment E

Drain Tile Repair Typical Figures

FIGURE 1.



PLAN
N.T.S.



CROSS SECTION
N.T.S.

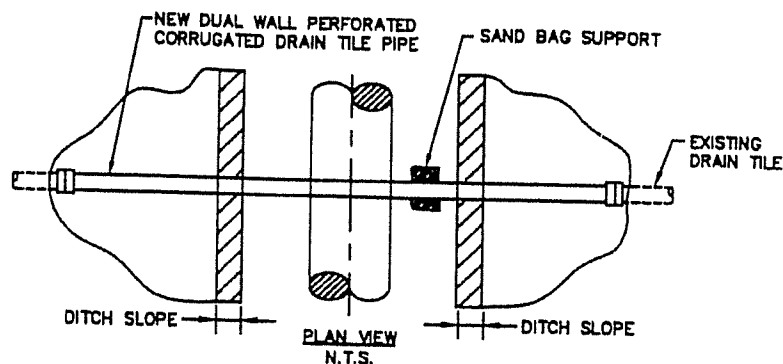
*CHANNEL - OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE TO SUPPORT DRAIN TILE.

NOTE:

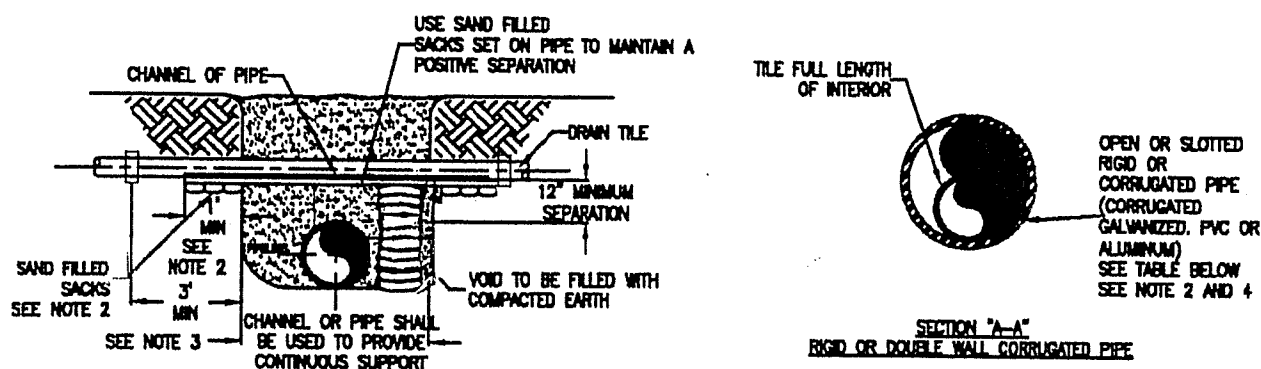
1. IMMEDIATELY REPAIR TILE IF WATER IS FLOWING THROUGH TILE AT TIME OF TRENCHING. IF NO WATER IS FLOWING AND TEMPORARY REPAIR IS DELAYED, OR NOT MADE BY THE END OF THE WORK DAY, A SCREEN OR APPROPRIATE 'NIGHT CAP' SHALL BE PLACED ON OPEN ENDS OF TILE TO PREVENT ENTRAPMENT OF ANIMALS ETC.
2. CHANNEL OR PIPE (OPEN OR SLOTTED) MADE OF CORRUGATED GALVANIZED PIPE, PVC OR ALUMINUM WILL BE USED FOR SUPPORT OF DRAIN TILE SPANS.
3. INDUSTRY STANDARDS SHALL BE FOLLOWED TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES.

TEMPORARY DRAIN TILE REPAIR

FIGURE 2.



PLAN VIEW



END VIEWS

MINIMUM SUPPORT TABLE			
TILE SIZE	CHANNEL SIZE	PIPE SIZE	
3"	4" @ 5.4	#11	4" STD. WT.
4"-5"	5" @ 8.7	#11	8" STD. WT.
8"-9"	7" @ 9.8	#11	9"-10" STD. WT.
10"	10" @ 15.3	#11	12" STD. WT.

NOTE:

1. TILE REPAIR AND REPLACEMENT SHALL MAINTAIN ORIGINAL ALIGNMENT GRADIENT AND WATER FLOW TO THE GREATEST EXTENT POSSIBLE. IF THE TILE NEEDS TO BE RELOCATED, THE INSTALLATION ANGLE MAY VARY DUE TO SITE SPECIFIC CONDITIONS AND LANDOWNER RECOMMENDATIONS.
2. 1'-0" MINIMUM LENGTH OF CHANNEL OR RIGID PIPE (OPEN OR SLOTTED CORRUGATED GALVANIZED, PVC OR ALUMINUM CRADLE) SHALL BE SUPPORTED BY UNDISTURBED SOIL, OR IF CROSSING IS NOT AT RIGHT ANGLES TO PIPELINE, EQUIVALENT LENGTH PERPENDICULAR TO TRENCH. SHIM WITH SAND BAGS TO UNDISTURBED SOIL FOR SUPPORT AND DRAINAGE GRADIENT MAINTENANCE (TYPICAL BOTH SIDES).
3. DRAIN TILES WILL BE PERMANENTLY CONNECTED TO EXISTING DRAIN TILES A MINIMUM OF THREE FEET OUTSIDE OF EXCAVATED TRENCH LINE USING INDUSTRY STANDARDS TO ENSURE PROPER SEAL OF REPAIRED DRAIN TILES INCLUDING SLIP COUPLINGS.
4. DIAMETER OF RIGID PIPE SHALL BE OF ADEQUATE SIZE TO ALLOW FOR THE INSTALLATION OF THE TILE FOR THE FULL LENGTH OF THE RIGID PIPE.
5. OTHER METHODS OF SUPPORTING DRAIN TILE MAY BE USED IF ALTERNATE PROPOSED IS EQUIVALENT IN STRENGTH TO THE CHANNEL/PIPE SECTIONS SHOWN AND IF APPROVED BY COMPANY REPRESENTATIVES AND LANDOWNER IN ADVANCE. SITE SPECIFIC ALTERNATE SUPPORT SYSTEM TO BE DEVELOPED BY COMPANY REPRESENTATIVES AND FURNISHED TO CONTRACTOR FOR SPANS IN EXCESS OF 20', TILE GREATER THEN 10" DIAMETER, AND FOR "HEADER" SYSTEMS.
6. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.
7. PRIOR TO REPAIRING TILE, CONTRACTOR SHALL PROBE LATERALLY INTO THE EXISTING TILE TO FULL WIDTH OF THE RIGHTS OF WAY TO DETERMINE IF ADDITIONAL DAMAGE HAS OCCURRED. ALL DAMAGED/DISTURBED TILE SHALL BE REPAIRED AS NEAR AS PRACTICABLE TO ITS ORIGINAL OR BETTER CONDITION.

PERMANENT DRAIN TILE REPAIR