LORAM™

Ditching Solutions

Drainage Management Services

Manage effective drainage. Promote foundational strength.

Consequences of Improper Drainage

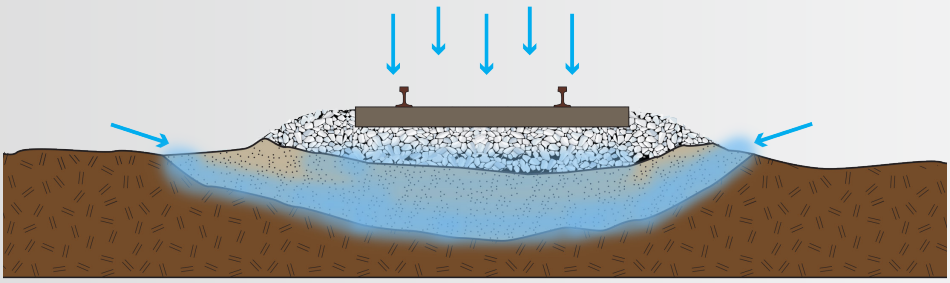
It is sometimes difficult to measure and see the damage from poor drainage maintenance. A seemingly dry right-of-way may not convey the problem. Unseen water trapped below the surface often goes undetected. Fouled ballast itself is often difficult to see and detect as a problem. Poor drainage can cause many issues, including, but not limited to the following:

- Reducing the useful life of wood ties as standing water increases the rate of decay
- Increasing the frequency of surfacing required by potentially a factor of ten due to deteriorating track profile
- Accelerating the need for track alignment
- Increasing the risk of track buckling due to a decrease in lateral stiffness in wet ballast conditions
- Increasing slow orders after tamping and other track disturbances
- Increasing need for herbicide applications due to plant growth in ditches and shoulders.

If left untreated, these conditions may lead to slow orders which impact network velocity as well as bigger more expensive maintenance issues. Without a proper path for water to drain out and away from the subgrade, water is retained in the track structure and can cause a plethora of issues. One of the most effective ways to promote water flow out of and away from the track structure is by engineering ditches. A properly engineered ditch can provide the following benefits:

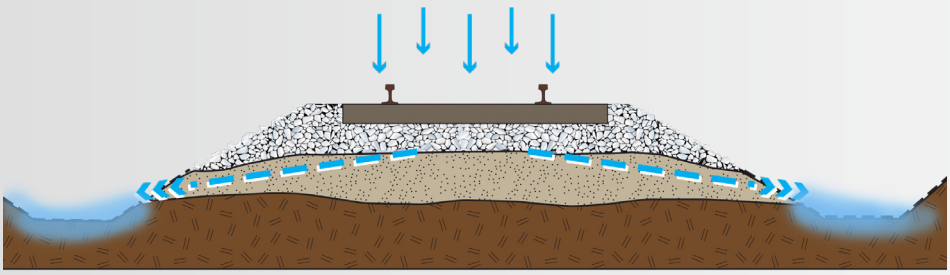
- Intercept and drain water from the track structure
- Lower the water table to allow more effective drainage from subgrade
- Extend the effective duration of ballast cleaning cycles by allowing free-flow from the ballast section.

By creating and maintaining proper drainage ditches, railroads can extend track life with free-flowing drainage, extend component life, extend undercutting and ballast cleaning cycles, reduce spot maintenance, and improve track stability.



Poor drainage conditions trap precipitation and ground water creating numerous, often unseen, maintenance challenges and damage to rail structures.

Trapped water revealed after ditch is cut.



Engineered ditches promote the flow of water out of the track structure and away from the subgrade, creating proper drainage that reduces maintenance and extends useful life of the track substructure.

Finished ditch directs water away from track structure where it can drain and evaporate.

Loram Ditching Solutions improve track stability, reduce maintenance costs, and extend useful life.

Every ditching project is different and may require a different solution based on the length of track being worked on, the unique features of that territory, and the overall production goals of the project. Loram offers a full suite of products to create and maintain ditches to keep water flowing away from the ballast section of the track. For smaller ditching tasks, and work around near track obstructions, the Self-Powered Slot (SPS) is the ideal solution. For high performance out of face ditching the Badger Ditcher is the product of choice. For projects requiring high speed excavation and work around obstacles the Ditcher Max can meet all ditching needs.

Loram SPS® Self-Powered Slot

Loram Badger Ditcher

Loram DC Max Ditcher

Self-Powered Slot (SPS®)
The SPS is capable removing, and placing, almost any type of material within the reach of the excavator. The SPS can excavate to create/clean ditches at up to 250 tons of material per hour and work around, or remove, any obstacles that may be present to create a clean ditch line. Up to 550 tons of excavated material can be stored on the consist for offload at an appropriate location.

Badger Ditcher (DC)
The Badger Ditcher is the highest performance machine in the market for creating consistent ditches along track. The Badger Ditcher can excavate up to 1,000 tons of material per hour and discharge excavated material up to 35 feet from track centerline. The ditcher is ideal for cutting new ditches, terracing slopes, and cleaning eroded material out of existing ditches.

Ditcher Max (DC Max)
The DC Max combines the excavating speed of the Ditcher with the flexibility of a SPS for a premium ditching solution. Utilizing a DC Max the excavator can remove obstructions from the planned work location for the Ditcher so consistent and smooth graded cuts can be made regardless of the starting condition of the work area. While excavating, the ditcher can discharge material up to 35 feet from track centerline or into the gondola cars that are in consist. Up to 225 tons of excavated material can be stored on the consist for offload at an appropriate location.

Loram Ditching Product Comparison

Product	Excavation Rate (tons/hr)	Max Reach (ft)	Max Depth from TOR (ft)	Discharge Distance (ft)	Material Carrying Capacity (tons)
SPS	250	25	20	25	550
DC	1,000	22	6	35	0
DC Max	1,000	25	20	35	225

Leading the digital transformation of railway maintenance

LORAM RAIL TECHNOLOGIES, SERVICES AND SOLUTIONS

RAIL GRINDING

BALLAST MAINTENANCE

MATERIAL HANDLING

BALLAST TECHNOLOGIES

INSPECTION SERVICES

FRICTION MANAGEMENT

MONITORING & ENGINEERING

LORAM™

Loram Maintenance of Way
loram.com | 1-800-328-1466
sales@loram.com | 763-478-6014
3900 Arrowhead Drive | Hamel, MN 55340 USA

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001: 2015