Road Conditioning
Asphalt Crushing
Soil Stabilization

CLAUSSEN

Wirtgen WS 2500
Tractor towed Soil Stabilizer

- 360hp Fendt or Claas
- IVT transmission
- Width 2.5 m = 8.5 ft
- Depth 0.50 m = 20 inch
- Compact and mobile
- Made for tough terrain
- 50 km road speed
- Proven concept in Europe

What we can do?

1. Gravelroad Stabilization w. CaCL
2. Mix and re-blend gravel roads
3. Crush and pulverize asphalt
4. Cement/ Lime soil drying, modification or stabilization
5. Soil Stabilizing with liquid products

Cutting through asphalt and blend with base material

Mix and Re-blend Gravel Roads

Mix and re-blend Gravel Roads

- Blend and mix 4 – 6 inches of existing material to create a consistent blended product to original specifications and fractures
- Blend the existing material with additional material like new A or B gravel, RAP or other road materials that could be added to the surface before blending
- Finish project with grading, packing and possibly adding water to support packing process
- In most cases no additional road gravel needed
- Use the same process for conditioning the base and add a new lift of road gravel as finishing layer if base is not good enough
- Optional surface seal with calcium chloride, brine etc.

Gravelroad Conditioning with CaCl or Brine

Gravelroad Stabilization and Base Stabilization with Calciumchloride

- **Perfect blend of CaCl into the entire worked layer of 3 to 6 inches by injecting into the rotor chamber**
- **Increase load carrying capacity, strength and shear stability by 30%**
- **Reduce swelling, plasticity, water content and frost heaving**
- **Increase surface wear resistance**
- **Reduce potholes, rutting, boiling, and wash boarding which results in less bladeing**
- **Extended dust control with less frequent dust control application**
- **Base stabilization with CaCl doubles lifespan of a paved road**
- **Low to no impact on environment**
- **Municipalities own most of the required equipment to finish grade (Drum Roller, Grader, Water Trucks)**
- **= REDUCED MAINTENANCE AND COSTS**

Asphalt Crushing

Crush and Pulverize Asphalt

- **Break and pulverize existing asphalt based surface**
- **Use crushed material to improve the base and blend with base material**
- **Could add gravel to asphalt surface before crushing and blend in 1 pass**
- **Crush Tar and Chip, Hot-Mix Asphalt up to 6”, RAP or any combination**
- **Depending on the base condition new pavement could go over top or leave the finished road as is**
- **Cut out work strips for new installations of supply and septic systems within towns**

Asphalt Crushing

Asphalt Crushing

Lime/ Cement Stabilization

Three different Applications

1) ***Soil Drying***: use a low amount of lime or cement to dry out soil to make the soil accessible for vehicles
2) ***Soil Modification*****:** use a higher amount of lime or cement to create temporary roads or yards for construction or storage purposes
3) ***Soil Stabilization*****:** use of highest amount of Lime or Cement to create long term roads and yards for permanent use

Apply Lime and Cement with Streumaster SW 4 Spreaders

Lime/ Cement Application

- Bulk delivery of product in pneumatic tankers to job site
- 2 tractor mounted SW 4 spreaders cycle between filling and spreading
- Fully electronic controlled application
- Allows a production rate of 5000 m2/day

Incorporate Lime or Cement

Wirtgen WS 2500 Stabilizer

Typical Work Steps
Lime and Cement Applications

1. **Remove vegetation and organic material**
2. **Work soil to loosen it up and bring up foreign objects and bigger stones and remove those.**
3. **Apply lime and/ or cement to specs as dry or slurry**
4. **Blend soil and lime with stabilizer**
5. **Add water if necessary to OWC**
6. **Re-blend soil and lime again in second pass**
7. **Pack with pad foot roller**
8. **Grade to specs with grader**
9. **Finish with smooth drum roller**
10. **Let material cure for 48 hrs**
11. **Apply finish layer of gravel or pavement**

How does a Cement/ Lime stabilization work?

- ➔ No replacement of subgrade with course aggregated materials - use the existing material as subgrade
- ➔ Lime and clay particles initiate a pozzolanic reaction which is also called a cementatious reaction, during that process water is eliminated which causes the tight bond of particles, chemical reaction stays active as long as free Ca is available
- ➔ The process reduces water contents, plasticity and swelling, cracking and potholes and increases load bearing capacity and lifespan
- ➔ Finish top layer can be pavement or a layer of gravel
- ➔ Tremendous costs savings, the finish with gravel is ideal for lower traffic service roads, parking lots etc.
- ➔ Proven process for over 2000 years invented by the Romans (some of their roads are still in use today)
- ➔ Very common road building process in Europe

Soil Drying

Instantly dry out soil so that it can be driven on after periods of rain
Allows the access of wet job sites within a few hours!

Lime and Cement Modification

Apply a moderate amount of lime/ cement for short term stabilization like temporary service roads

Lime and Cement Stabilization

Windturbine Service Road for longterm use

Soil Stabilization

Lime stabilized base before adding gravel

Liquid Stabilizing Products

- **Add liquid products by injection into the mixing chamber to soil or gravel**
- **Efficient, precise and consistent blending of stabilizer product with road material**
- **Application to soil, gravel and asphalt based materials**
- **Fairly consistent experience with ENTAC, Calcium Chloride and Brine**
- **ICON, ROADPACKER PLUS and ESSOFLEX 250 are new products with limited experience**

Entac Application

- Work gravel roads or RAP 4-6 “ deep
- Spray Entac into the rotor chamber (1ga/sqm)
- Grade surface
- Pack with smooth drum roller or rubber tire roller
- Add Entac finishing coat

Claussen Farms
Custom Farming Inc.

- Family operated
- Grain Farming
- Contract Farming
- Servicing 200+ clients
- In road conditioning business since 2007
- Open to innovative ideas and technology

CLAUSSENFARMS.COM

Claussen Farms Custom Farming Inc.

76402 Airport Line
Brucefield, ON N0M 1J0
Sonke: 519 525 8329
Office: 519 233 3198
Fax: 519 233 3198
email: claussen@tcc.on.ca

CLAUSSEN

CLAUSSENFARMS.COM