Original

CONSTRUCTION PLAN

Practice:	**Manure Storage Pond-313, Animal Trail/Walkway 575, Manure Transfer 634**				
Landowner:	**Ron Nerdrum**				
Address:	**W11442 Pine Rd. Stanley,WI 54768**				
Owner Phone:	**715-644-2132**	**County:**	**CLARK**		
Township:	**Thorp**	**T 29 N**	**R 4W**	**Section**	**20**
Field Office:	**Neillsville**	**Office Phone:**		**(715)-743-5103**	

DIGGERS HOTLINE

Call 3 work days before you dig

Toll Free
1-800-242-8511

TDD
1-800-542-2289

N

Not to scale

Notice to Landowners and Contractors Regarding Utilities

No representation is made by the USDA Natural Resources Conservation Service or the Clark County Land Conservation Department as the existence or nonexistence of underground hazards. Prior to the start of construction the owners of utilities must be notified of the pending construction. You will be liable for damages resulting from construction activities.
CALL DIGGERS HOTLINE!

Construction Drawings and Specifications Acceptance

I/we have reviewed and accept the attached plans. I/we agree to have this project constructed in accordance with these plans and specifications and to notify all affected utility companies.

Signed:	Ronald W Nerdrum	Date:	1/26/2012
Designed by:	[illegible]	Date:	1/26/2012
Checked by:		Date:	
Approved by:	Mary King / [illegible] - ATSW, HUAP	Date:	1/26/2012
Approved by:	Mary King - Per email/phone	Date:	
Job Approval Class:	IV, Manure Storage All, ATSW I, HUAP		

CONSTRUCTION INSPECTION PLAN
WASTE STORAGE FACILITY/MANURE TRANSFER
FOR RON NERDRUM

A. INSPECTORS

The primary field inspectors for this project will be staff from the Clark County LCD office and DATCP. Inspectors will include: Cody Overgard, Engineering Technician II and Patrick Schultz of the DATCP.Inspections will occur at least one every day that the project is under construction. Frequency of inspections will depend on the practice each day. Inspections will occur during the placement of rebar, pouring of concrete, installation of transfer lines, compaction of berms, and other key components.

B. GENERAL

Inspection Schedule

1.) Contractor must inform Technician two days in advance prior to starting project

2.) Technician must be given 24 hours notice prior to the final placement of rebar or concrete pour.

3.) Contractor must supply Technician with the name of the concrete supplier to ensure the product delivered meets Wis. Const. Spec. 4. Failure to provide proper supplier mix and/or location of plant may result is rejection of concrete at site based on the conditions listed in Wis. Const. Spec. 4.

4.) Any and all changes or modifications must be brought to the attention of the inspector prior to any changes or deviations from the original construction plan provided. Failure to receive proper clearance for modifications will result in an unsatisfactory project and may not be approved for use based on the severity of the deviation(s).

5.) Contractor must provide Technician with a copy of the DNR Stormwater Permit and a valid and current Digger's Hotline Ticket number prior to starting the project.

The work to be completed on this project shall consist of the following items, with the pertinent construction specifications indicated. All construction specifications can be referenced at the back of the Construction Plan.

1. Excavation	Wis. Const. Spec. 2
2. Earthfill	Wis. Const. Spec. 204
3. Mobilization and Demobilization	Wis. Const. Spec. 7
4. Critical Area Seeding	Seeding Sheet 710
5. Concrete	Wis. Const. Spec. 4
6. Plastic Pipe Conduits	Wis. Const. Spec. 15
10. Fencing	Wis. Const. Spec. 10

This project is designed according to 634, Waste Transfer This is a job class II for Pipe Size,, job class IV for Waste Storage Facility based on wall height, job class I, HUAP. The original plan and subsequent changes to the construction plan must be approved by Mary King, NRCS Engineer

This project will be installed to adhere to all design and implementation standards listed for the project and will be constructed to the best of my professional ability and knowledge. Job approval with be given by Mary King.

The presence or absence of any below ground utilities must be documented in written form by the contractor prior to construction.

C. PRECONSTRUCTION CONFERENCE

A preconstruction conference may be held prior to providing any layout assistance. During the conference the construction plans, construction specifications, layout, required materials, required inspection, installation requirements, safety precautions, utilities, and any information needing clarification by the technical agencies will be discussed.

D. MATERIALS REQUIREMENTS

- Area under tank shall be inspected to ensure proper placement of fill material and removal of all organic materials.
- Document that the earth fill materials are free from organics and are compacted properly.
- Document the final elevations of all excavated tank/tile areas.
- Document the final elevations of the constructed practice.
- Document the type, thickness, and quantities of the pipes to be used.
- Document the topsoil thickness and the proper seeding of disturbed areas.
- Document concrete requirements are met (mix design, rebar grade, curing compound, etc.)

E. GENERAL INSPECTION

1. EXCAVATION

   a) Check lines and grades as they are constructed and document that the system is installed as planned.
   b) Make sure that oversized rock, and other undesirable materials are removed.
   c) See that adequate drainage is provided so that surface water does not enter pit.
   d) Take safety precautions when working around the trench for the pipe.
   e) Ensure that topsoil is stripped and temporary staked.
   f) Photo of bottom of clean abandoned manure storage

2. EARTHFILL

   a) Make certain that all organic matter is removed from areas receiving fill prior to placement.
   b) Inspect and document the adequacy of earth fill materials and compaction of the berm.
   c) Make sure that the thickness of the loose lift is within limits.
   d) Determine need for wetting, drying, or mixing of fill material to satisfy moisture requirements.
   e) Check lines and grades as they are constructed and document that the system is installed as planned.
   f) Photo of 6" lifts in berm construction of old and new storages.

3. TRANSFER PIPE

a) Determine that the specified size, thickness and quality of all pipe sections and fittings have been delivered.
b) See that trench excavations conform to lines and grades specified.
c) Check that each section of pipe is prepared, placed, joined, sealed, and supported as specified.
d) Take extra care to ensure that the trench through pond side is compacted properly and with good material for at a distance of ten feet from the inside face of the storage.
e) Determine that the quality of the backfill material is adequate.
f) Confirm proper cover is achieved with respect to freezing. Insulation may be needed if cover depth is less than 4'.

4. CONCRETE

a) Make sure of location prior to placement
b) Make sure that concrete meets Spec 4.
c) Make sure proper curing compound is applied to concrete in a timely manner.
d) Make sure rebar spacing is correct and of proper size.
e) Make sure concrete is protected during freezing.
f) Ensure ties for tank are break back and sealed with epoxy.
g) Make sure White Curing Compound ASTM 309-C Type II is used for flatwork and tank.

5. VEGETATION

a) Check that the placement of topsoil is adequate for a viable seedbed.
b) Verify that the proper species and quantities of seed are applied.
c) Check that the seed is planted at the proper time of the year and that mulch is applied.
d) Verify that proper erosion control practices are installed
e) The soils for seed base must be verified to ensure soils do not require the addition of lime or other fertilizer.

F. CONSTRUCTION APPROVAL

Construction approval will be provided by Mary King. Any changes must be approved by Mary King prior to construction in writing and documented fully.

Emergency Action Plan-Ron Nerdrum

In the event that the landowner's manure storage is above the MOL (El. 105.3) the following will occur.

1.) Landowner will pump and remove manure and haul onto fields approved for hauling during that particular time of year. This is based on NMP planning.

2.) Landowner will develop long range action plan to remedy the situation.

3.) Landowner will not agitate pit to prevent a discharge.

In the event that the landowner's manure storage is overflowing (El. 107.0) the following will occur.

1.) Landowner will call Wisconsin DNR Hotline to report the discharge immediately.

2.) Landowner will contact Clark County Land Conservation Dept. immediately.

3.) Landowner will try to prevent overflow from reaching critical areas such as: wells, wetlands, streams, waterways, property lines, or road ditches. This can be done using straw or hay bales to block flow. Earthen berms may also be constructed in addition to some tillage methods.

4.) Landowner must remove some volume to ensure overtopping does not continue.

5.) Landowner should contact local farmers with storages to inquire about additions to their facility in an emergency situation.

6.) Landowner will list reasons for the overflow and work to correct the issue in a timely manner.

7.) Should a transfer line/pump break or malfunction the above shall be followed as well.

Landowner Signature _____ Date _____

Technician's Signature_____ Date _____

Construction Quality Assurance Plan

1. No practice should be started that cannot be finished by November 1st.

2. All cost-shared practices will be surveyed, designed, constructed, and certified complete in accordance with the Natural Resources Conservation Service Field Office Technical Guide standards and specifications.

3. The LCD staff will inspect construction of all Land and Water Resource Management Program cost-shared practices. The job inspector will reject any materials and supplies that do not meet the standards or specification as stated in the Field Office Technical Guide.

4. It is the responsibility of the contractor to verify that materials and supplies used for installation of a cost shared practice meets Technical Guide standards and specifications. The contractor must provide sales slips, batch slips, invoices, specification tags, etc., that clearly show that the materials and supplies meet the Field Office Technical Guide standards and specifications.

5. Initial practice layout and staking of elevations will be done by LCD staff prior to the start of construction. Any further checking of practice layout or elevations will be performed by the contractor during construction. The accuracy of final grades prior to pouring concrete, setting pipe, etc., is the responsibility of the contractor. The LCD may perform further construction checks if necessary to determine adherence with the approved design plan.

6. Notification, location, and protection of public utilities such as buried phone lines and gas lines are the responsibility of the landowner. The landowner shall clearly mark the location of such utilities prior to the start of construction. The contractor is responsible for knowing the location of any utilities marked by the landowner and should take precautions when working near them.

7. Project will not be considered complete until all seeding, fertilizing and mulching is done.

ADDITIONAL CONSIDERATIONS:

- Cattle must be removed from the construction site during stake out and construction.
- The landowner shall remove all fences before construction begins.
- The landowner shall remove manure piles from the work area before construction begins.
- The landowner shall provide areas to obtain material for fill and top-dressing.

_____ Landonwer signature _____ Date

Operation and Maintenance Plan
Waste Storage Facility

Cooperator: _____ Date: _____

By: _____ Title: _____

Project Location: _____

I agree to the following for the next 15 years.

The facility is sized for:

Storage Duration:	213 Days
Animals:	
Lactating Cows:	32
Dry Cows:	_____
Young Stock:	10
Total Animal Units:	_____ A.U.s
Milkhouse Wastewater:	160 Gallons/Day
Barnyard/Feedlot:	0 Square Feet

1. Inspect the facility periodically.

   A thorough inspection of concrete, clay or geosynthetic liners, and concrete sumps, pits, walls, ramps, slats, and floors often for separations and/or cracks which would indicate potential failure should be made each time the pond is emptied. Repairs should be made immediately.

2. Pipes, pumps, manure pumps, valves, gates, etc., should be inspected periodically (minimum of twice a year) to make sure they are functional, structurally sound, and not cracked, broken, and/or a safety hazard to the operator or livestock. Repair as needed.

3. Cut and remove weeds, shrubs, and trees from earthen structures. Control rodents. Mow the embankments a minimum of twice a year. Good vegetative cover should be maintained on earth embankments. If the vegetative cover is damaged, embankments should be re-vegetated as soon as possible. Keep machinery away from steep side slopes. Keep equipment operators informed of all potential hazards.

4. Maintain necessary safety features including proper fencing, warning signs, stop blocks, guard rails, covers, and similar items to provide warning and/or prevent unauthorized human or livestock entry.

5. Handling Manure

   Do not allow human entry into any enclosed structure without safety equipment including ladders and breathing apparatus. The American Society Agricultural and Biological Engineers (ASABE) standard EP-470 states:

   "Do not enter an under-floor (underground) covered storage or pumping station without using the proper respirator equipment. In addition, these safety practices are needed: (a) Shut off any manure pumps, (b) ventilate storage or pumping station at the maximum rate, (c) test the storage or station air for O_2 level and toxic gas levels, (d) attach a safety harness and

rope to the working person with at least one person standing by to help with a mechanical retrieval device, and (e) have on hand an extra set of proper respirator equipment for the person standing by."

A. Hopper/Tank
   1) Avoid scraping dry or frozen manure into hopper.
   2) Use only minimal amounts of bedding when pumps are used.
   3) Maintain all lids, grates, and shields on openings to underground structures.

B. Storage
   1) Begin filling facility early enough in fall to cover inlet pipe opening to avoid freezing.
   2) Maintain the depth gauge that visually shows the following elevations
      a. Temporary Benchmark description (TBM) Top of silo footing
      b. TBM elevation 100.0
      c. Maximum operating level (MOL) 105.3
      d. Top of freeboard volume 106.3
   3) Begin emptying or drawdown according to the schedule in the CNMP or sooner if the contents of the storage facility reach the maximum operating level (MOL)
      MOL description:4in concrete bump in ramp.

C. Emptying
   1) Immediately remove all foreign debris within the structure that may cause damage to pumps or agitators.
   2) Agitate properly according to pump manufacturer's instructions.
   3) Minimize odors by not mixing and spreading on humid days or upwind from nearby neighbors.
   4) Periodically remove solid accumulation on bottom of pit.

D. Waste Utilization
   1) Manure application must comply with state laws or local ordinances, and the nutrient management plan.

6. Inspect the outlet of any artificial drainage system installed to lower a perched seasonal high water table adjacent to the waste storage facility. The inspections should occur at least twice a year: once during the high water table season to ensure that water is flowing indicating the system is operation [not blocked] and once during the dry season to ensure there is no direct leakage from the storage facility into the drainage system that may be indicated by high flow rate, turbidity, discoloration, odors or other unusual characteristics of the flow. Immediately investigate any indication of blockage or leakage and consult a qualified individual for any corrective needed.

7. Additional Recommendations:

Cooperator's signature: _____ Date: _____

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: _____ Date: _____

Operation and Maintenance Plan
Manure Transfer

Cooperator: _____ Date: _____

By: _____ Title: _____

Project Location: _____

I agree to the following for the next 15 years.

1. Maintain all pumps, agitators, pipes, valves, electrical and mechanical equipment in good operating condition following the manufacturer's recommendations.
2. Make certain that all electrical equipment is properly grounded and wiring is in good working condition.
3. Maintain all safety shields on pumps, motors, electrical or mechanical equipment.
4. All fencing, railings, grates and/or warning signs shall be maintained to prevent unauthorized human or livestock entry.
5. Reception pits or hoppers should not be entered because they may contain noxious gases. When it becomes necessary for someone to enter one for repairs, follow ASABE Standard 470.
6. Immediately repair any vandalism, vehicular or livestock damage to the system.
7. Repair spalls, cracks and weathered areas in concrete surfaces.
8. Repair or replace rusted or damaged metal. Protect with paint.
9. Operate system in a manner that minimizes odor and air drift.
10. Additional Recommendations:

Cooperator's signature: _____ Date: _____

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: _____ Date: _____

Operation and Maintenance Plan
Animal Trails and Walkways

Cooperator: _____ Date: _____

By: _____ Title: _____

Project Location: _____

I agree to the following for the next 15 years.

1. Inspect annually and after significant storm events. Maintain the surface in a good condition, which includes periodic grading or repair of the surface and resurface with new material as needed.
2. Prevent ponding by grading to remove depressions and allowing surface water to drain off the travel area of the trail or walkway. Fill low areas and re-grade, as needed, to maintain trail cross section.
3. Limit livestock usage to periods that minimize damage.
4. If fences are installed, they shall be maintained to contain livestock on travel lane. If portable fence is used, be sure to take proper winterization steps.
5. Eradicate or otherwise remove all burrowing animals. Immediately repair any damage caused by their activity.
6. Remove debris from bridge and culvert openings to prevent blockage of stream crossings.
7. Immediately repair any damage to any earth or gravel fills, culverts, diversion, water-bars, or other appurtenances.
8. Remove manure or organic accumulation and re-grade the surface at least twice per year.
9. Periodically mow vegetation adjacent to walkway to prevent establishment of woody vegetation. Reseed areas where vegetation has been damaged or destroyed.
10. Additional Recommendations:

Cooperator's signature: _____ Date: _____

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: _____ Date: _____

Top of Pit ---	El.107.0
Bottom of Pit --	El.97.0
Top Dimensions --	80'x50'
Bottom Dimensions-	80'x50'
Pit Depth ---	10.0'
Berm Width ---	Varies
Designed Capacity -	24,440 cu.ft.
Designed Storage --	213 days
Outside Slopes ---	1:1-3:1

50' x 80' x 10' Vertical Wall Concrete Manure Pit w/ramp. Capacity to MOL 224,115 gal.

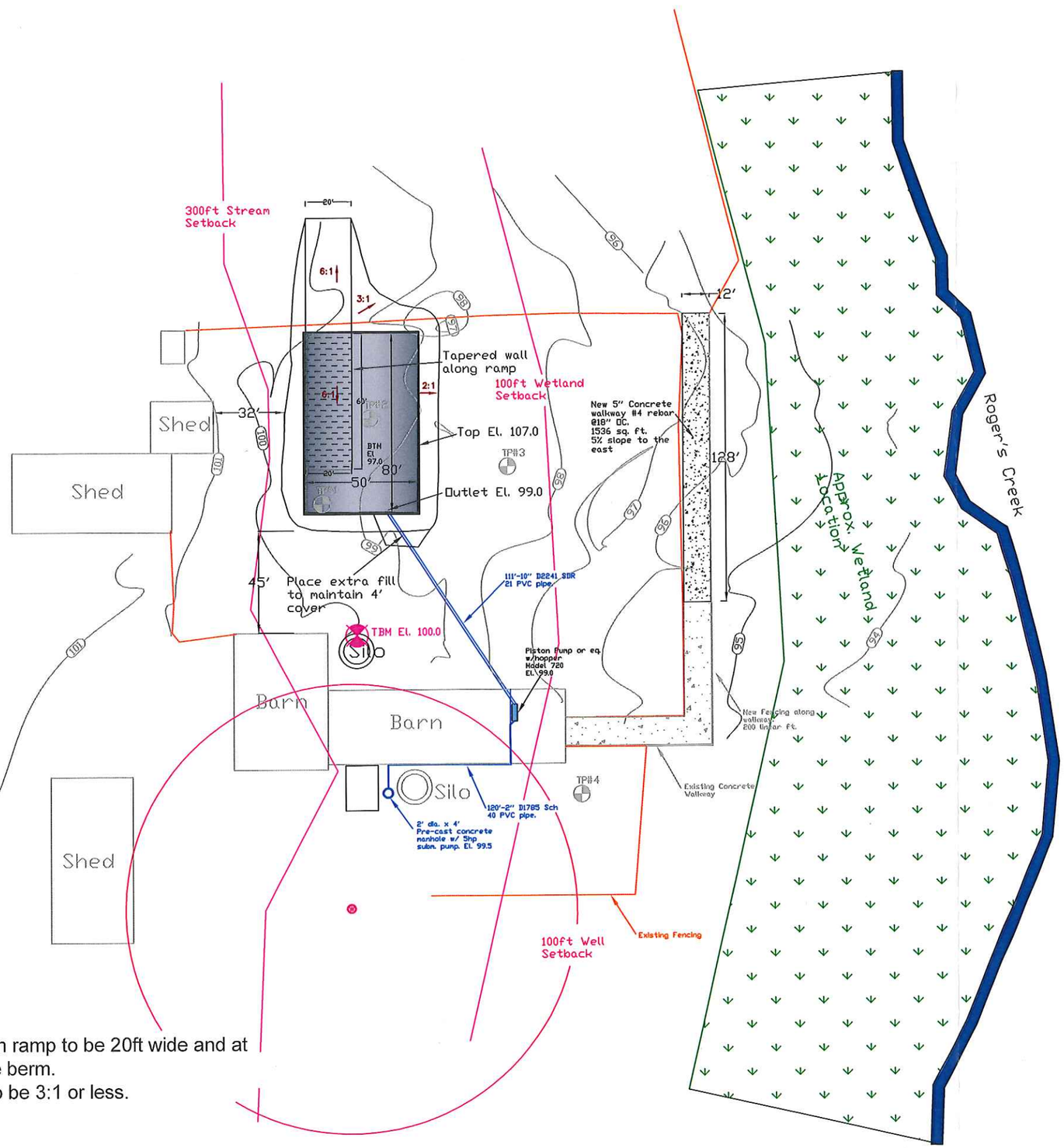
The concrete storage wall will consist of a 10' T-wall design.

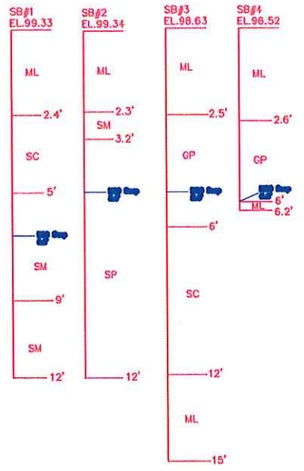
A county variance will be required due to the 300' stream setback prior to the start of construction.

Concrete floor of waste storage facility shal be 8" thick with #4 rebar 18" OC

O&M will address the cleaning of the animal trail and walkway.

TBM 1= Located on the silo footing EL. 100.0





GRAPHIC SCALE

40 0 20 40

(IN FEET)

1 inch = 40 ft.

Seeding will occur within 2 days after constuction is complete

LEGEND

- Temporary Bench Mark
- Soil Test Pit
- Center Line
- Property Line
- Setback Line
- Fence, existing
- Fence, to be installed
- Fence, to be removed
- Concrete, existing
- Concrete, to be installed
- Finished Grade Line
- Contour Line
- Well
- Station Pt.
- Tile Line
- Power Pole
- Giddings Soil Boring

Construct earthen ramp to be 20ft wide and at 6:1 away from the berm.
Side slopes are to be 3:1 or less.

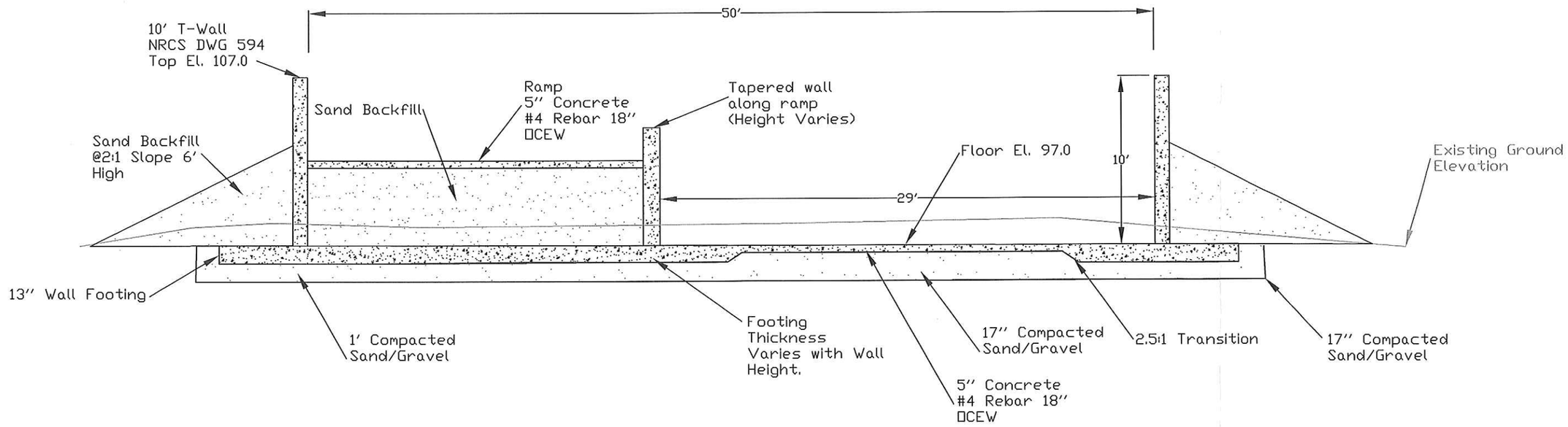
WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date	Approved By	Date
Designed 4D		Title	
Drawn		Title	
Checked		Sheet No. ___ of ___	Drawing No.

Nerdrum 43 of 65

Cross Section A–A'



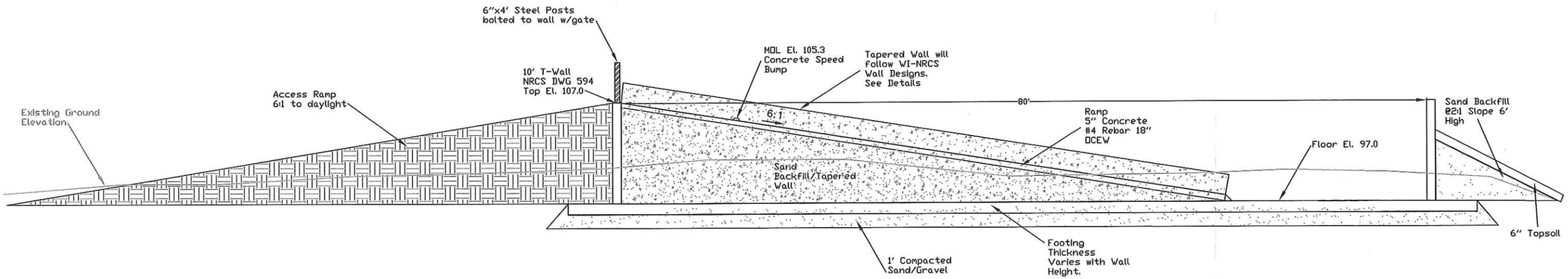
Concrete 4,000 psi for walls
Concrete 4,000 psi for flatwork

WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date	Approved By	Date
Designed CAW		Title	
Drawn		Title	
Checked		Sheet No. ___ of ___	Drawing No.

Cross Section B–B'



Concrete 4,000 psi for walls
Concrete 4,000 psi for flatwork

WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date	Approved By	Date
Designed CMD		Title	
Drawn		Title	
Checked		Sheet No. ___ of ___	Drawing No.

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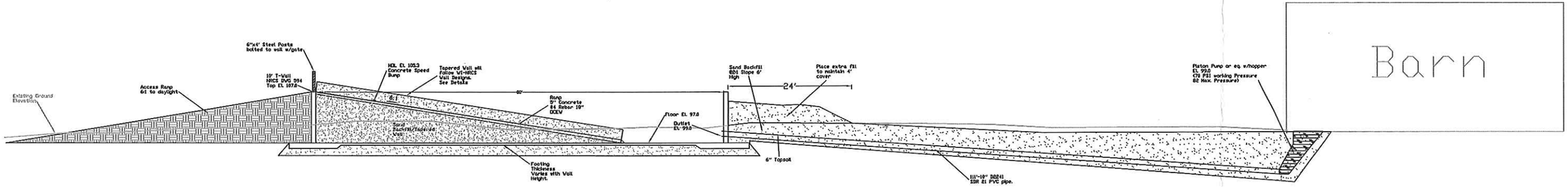
Cross Section C–C'

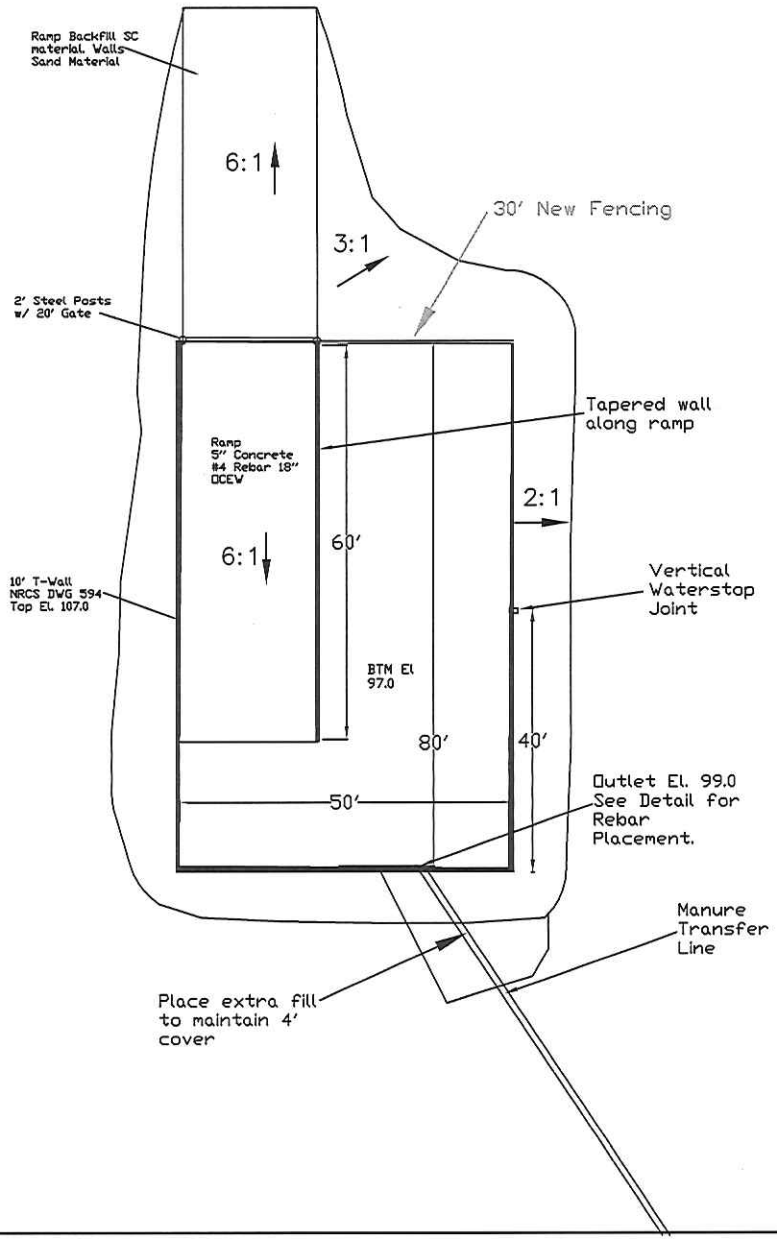


Concrete 4,000 psi for walls
Concrete 4,000 psi for flatwork

WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date	Approved By	Date
Designed CAO		Title	
Drawn		Title	
Checked		Sheet No. ___ of ___	Drawing No.



WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date	Approved By	Date
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Checked		Sheet No. ___ of ___	Drawing No.

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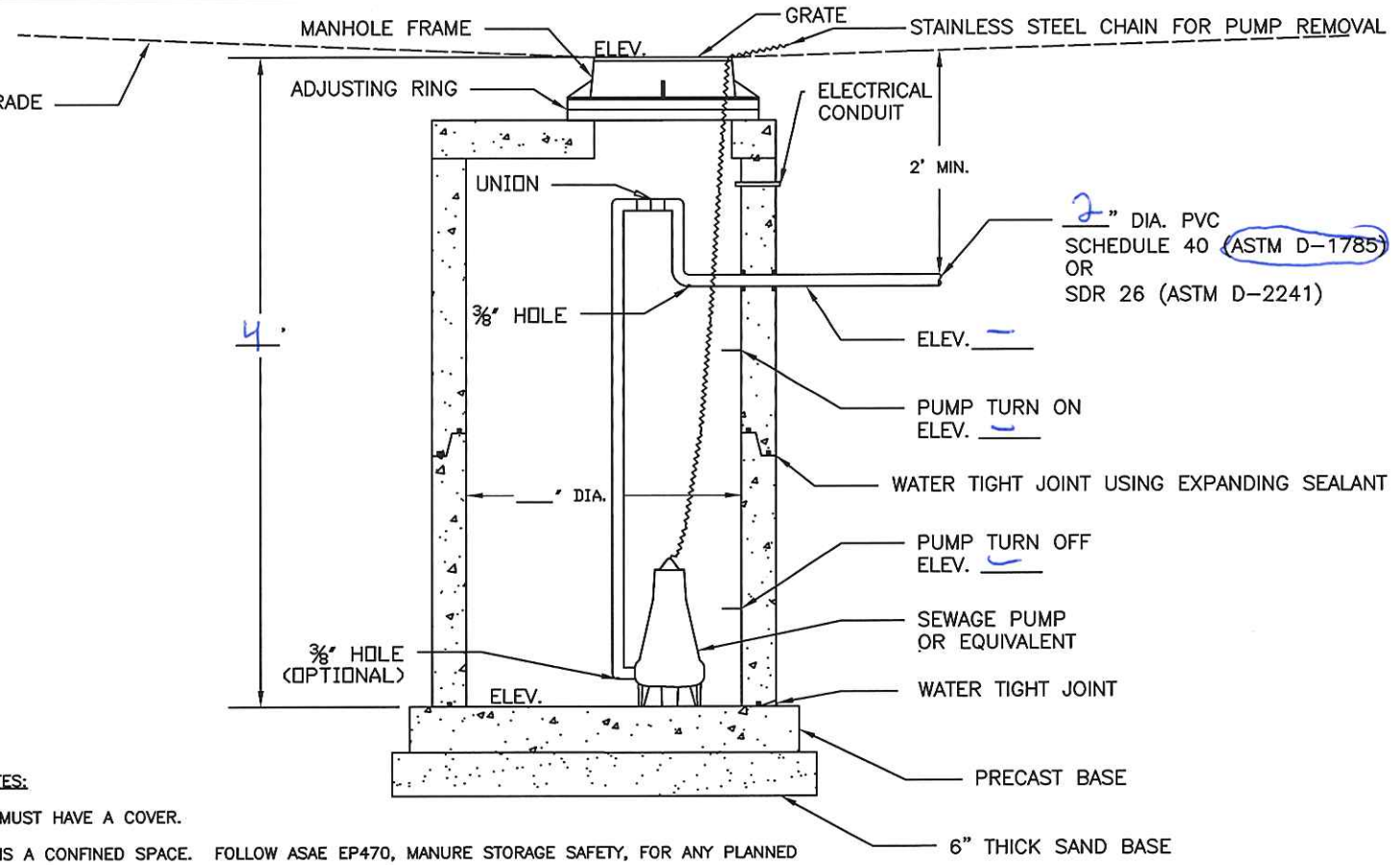


CONSTRUCTION NOTES:

1. THE MANHOLE MUST HAVE A COVER.
2. THE MANHOLE IS A CONFINED SPACE. FOLLOW ASAE EP470, MANURE STORAGE SAFETY, FOR ANY PLANNED ENTRY.
3. IN LIEAU OF A CHAIN, PLACE THE PUMP ON A RAIL TO ALLOW FOR EASY MAINTENANCE WITHOUT ENTRY INTO THE MANHOLE.
4. THE MANHOLE SHALL CONFORM TO CRITERIA IN ASTM C-478, PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
5. PLACE RIGID STYROFOAM INSULATION, 4 FEET WIDE, OVER THE PIPE WHEREVER THERE IS LESS THAN 3' OF COVER. 2.5-INCHES OF STYROFOAM REPLACES APPROXIMATELY ONE FOOT OF SOIL.
6. APPLY EXPANDING SEALANT OR NON-SHRINK GROUT AT PIPE OPENINGS.
7. A PRECAST RISER SECTION WITH INTEGRAL BASE IS AN ACCEPTABLE ALTERNATIVE.
8. A RUBBER BOOT CONNECTOR IS AN ACCEPTABLE ALTERNATIVE TO GROUTING THE PIPE (A-LOK, PRESS SEAL, OR EQUIVALENT).
9. THE PUMP MUST RUN AT LEAST ____ MINUTES TO PUMP ____ INCHES OF THE FIRST FLUSH.
10. MANHOLE INLET AND PUMP DETAILS MAY VARY, DEPENDING ON THE MANUFACTURER YOU SELECT.

QUANTITIES

___" PVC (SCH. 40 OR SDR 26)	___LIN. FEET
___" THICK STYROFOAM	___LIN. FT.
SEWAGE PUMP, GPM @ FT.	___EACH
UNION	___EACH
EXPANDING SEALANT	AS NEEDED

Drawing Name WI-911 | Date 7/10 | Sheet ___ of ___

Designed ___ Date 11/24/12
Drawn ___
Checked ___
Approved ___

PRECAST CONCRETE MANHOLE AND SEWAGE PUMP

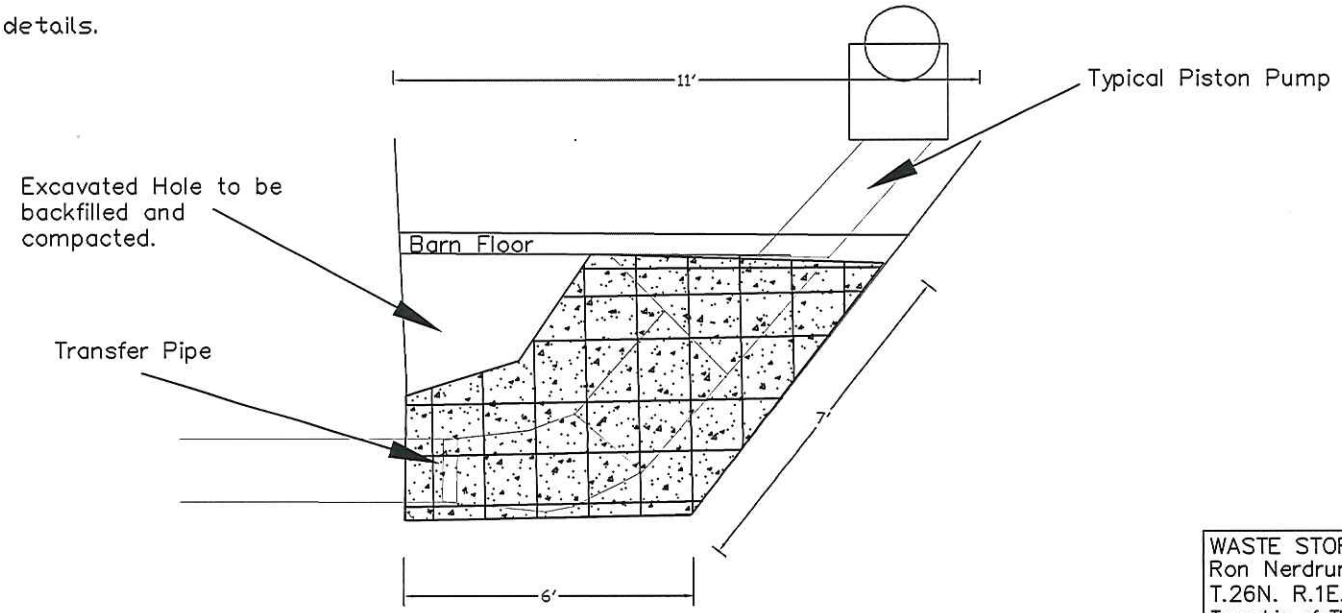
CLIENT: Ron Needham
COUNTY: Clark

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

Manure Pump Hopper and Pipe Installation Details

Installation of Piston Pump/Hopper will require #4 rebar Grade 60 to be placed 12" O-C around the hopper. Approx. 4.5 yards of 4000 psi concrete will be required to secure hopper in place. Rebar is to be bent around pump and transfer pipe. Minimum 15" bar overlap.

See Technician for more details.



WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date		Date
Designed GJ		Approved By	
Drawn		Title	
Checked		Title	
		Sheet No. ___ of ___	Drawing No.

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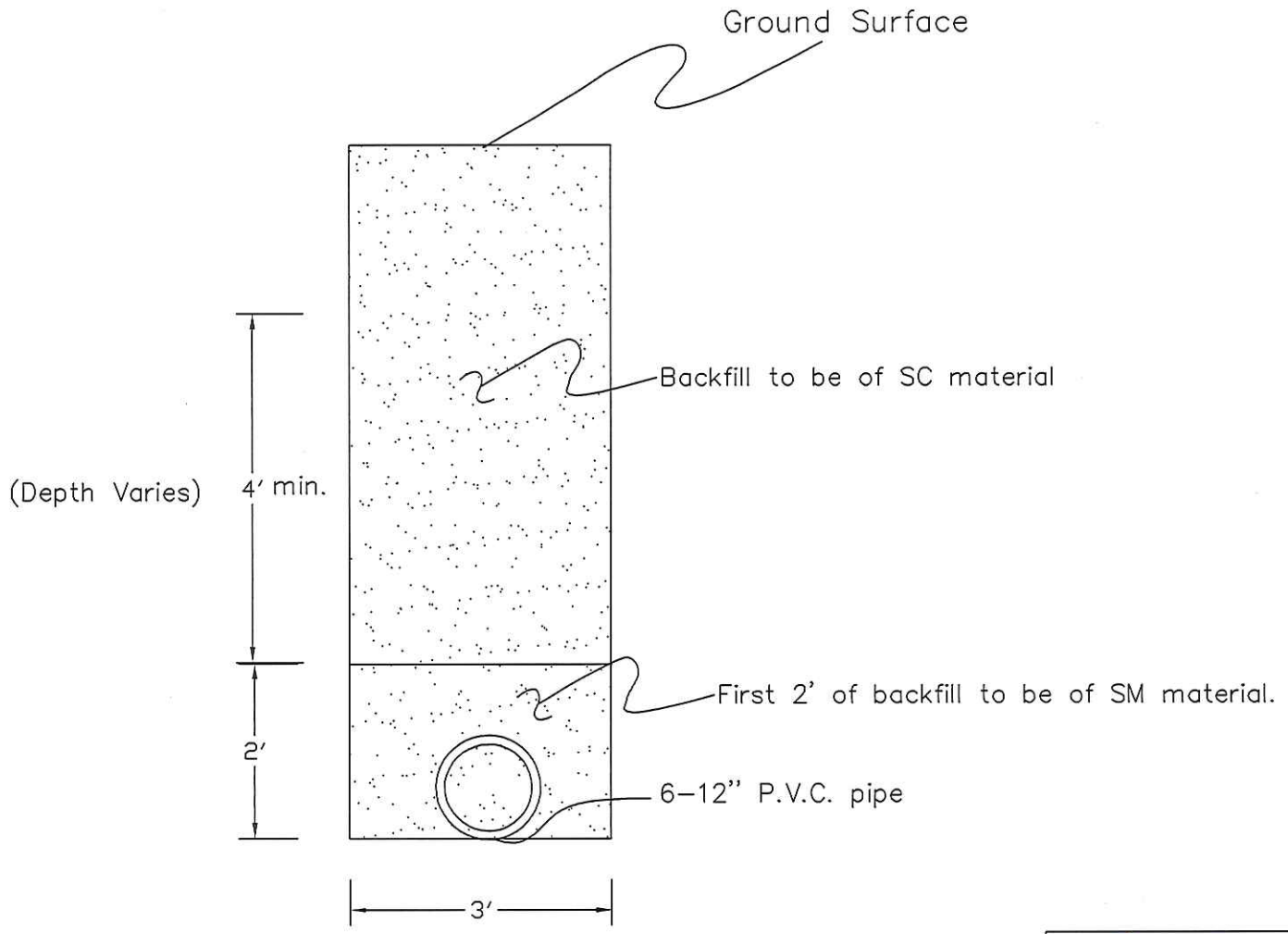
Transfer Pipe Bedding Detail



Backfill is to be compacted in 6" lifts according to Wis. Const. Spec. 204

Plastic Pipes to Follow Wis. Cons. Specs. #15.

Ron Nardini
owner
Clark LCC, WI.
county
designed CDO checked
sheet ___ of ___

Nardini 50 #65

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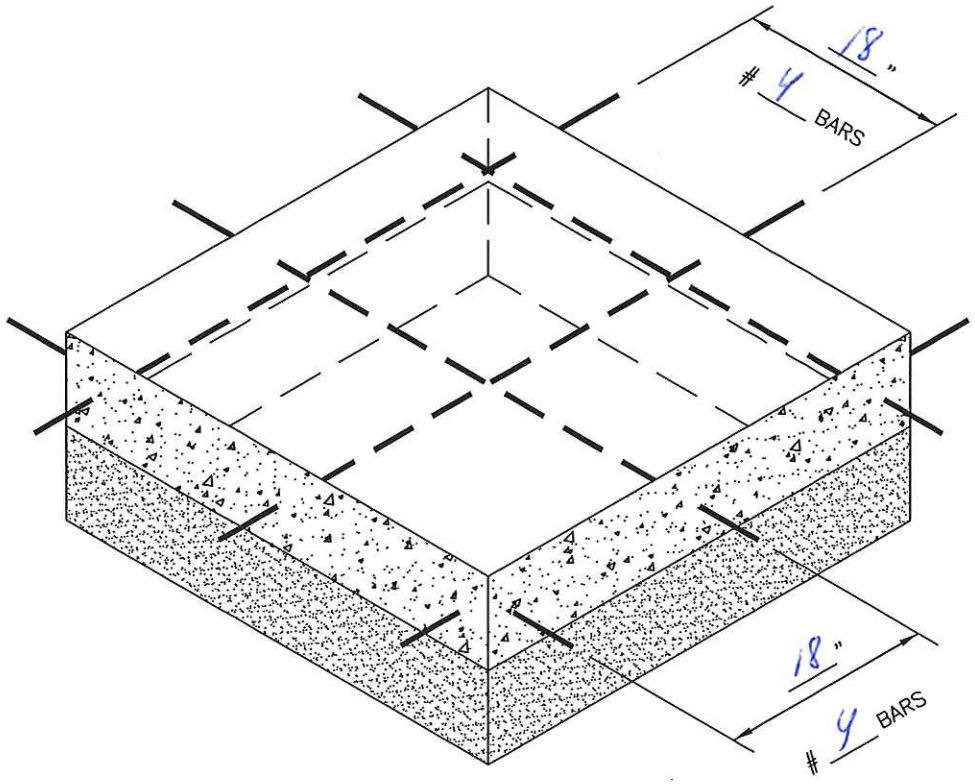
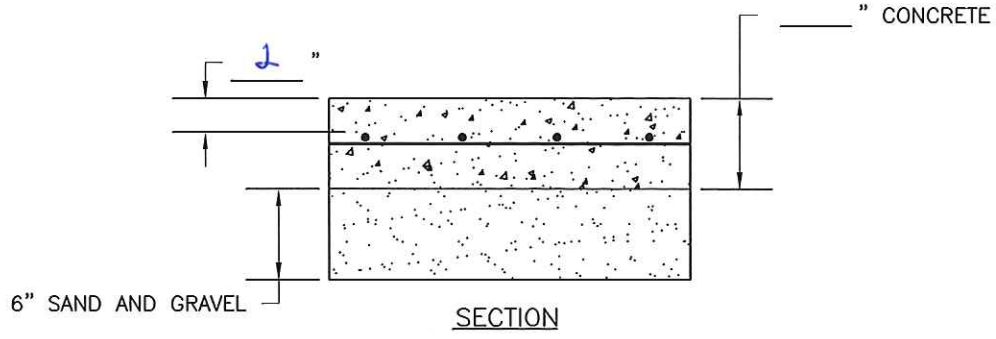


ISOMETRIC VIEW



SECTION

QUANTITY ESTIMATES

CONCRETE WCS #4 (WISCONSIN CONSTRUCTION SPECIFICATION)	—	CU. YDS.
STEEL	—	LBS.
SAND/GRAVEL	—	CU. YDS.

NOTES:

1. SEE SHEET ____ OF ____ FOR JOINT DETAILS.
2. BAR SPLICES SHALL BE 12 INCHES MINIMUM.

fc = 4,000
fy = 60
REQUIRED SPLICE LENGTH = 18"

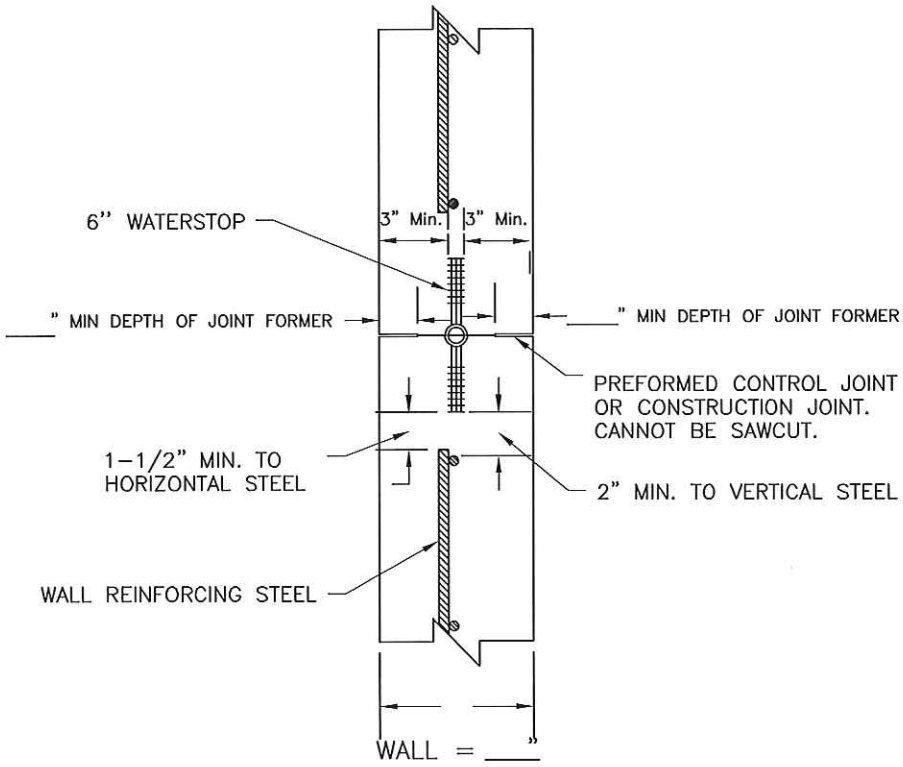
NRCS
Natural Resources Conservation Service
United States Department of Agriculture

CONCRETE SLAB REINFORCEMENT
DEFORMED STEEL

CLIENT: Ken Nordrum
COUNTY:

	Date	File Name
Designed		WI-565
Drawn		Date 9/10
Checked		
Approved		Sheet of

Nordrum 31 of 65



CROSS SECTION OF WALL AT WATERSTOP JOINT

QUANTITIES

6'' WATERSTOP See Plan _____ LIN.FT.

CONSTRUCTION NOTES:

1. FACTORY CORNERS AND TRANSITIONS SHALL BE USED, LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD WELDING.
2. SEE DWG WI–506, SHEET __, FOR FACTORY TRANSITIONS NEEDED.
3. SEE JOINT PLAN, SHEET __, FOR LOCATIONS OF JOINTS.

INSTALLATION:

A. CENTER THE WATERSTOP ON THE JOINT.
B. SECURE THE WATERSTOP ALONG ITS LENGTH AT THE CENTER BULB AND SUFFICIENTLY AT THE WEB TO HOLD IT IN PLACE.
C. PLACE CONCRETE WITHOUT DISPLACING THE WATERSTOP.
D. THOROUGHLY VIBRATE CONCRETE AROUND WATERSTOP TO PREVENT VOIDS.
E. AFTER THE FIRST POUR, CLEAN THE UNEMBEDDED WATERSTOP WEB TO INSURE FULL CONTACT WITH THE SECOND POUR OF CONCRETE.
F. INSTALLATION METHODS SHALL BE IN STRICT COMPLIANCE WITH THE MANUFACTURERS REQUIREMENTS.

SEE REVERSE SIDE FOR ADDITIONAL INFORMATION

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

6" EMBEDDED WATERSTOP
FOR WALL SECTIONS ONLY

CLIENT: Ron Nerdrum
COUNTY: Clark

	Date	Drawing No.
Designed	CMO	WI–505A
Drawn	CMO	Date 6/07
Checked		
Approved		Sheet of

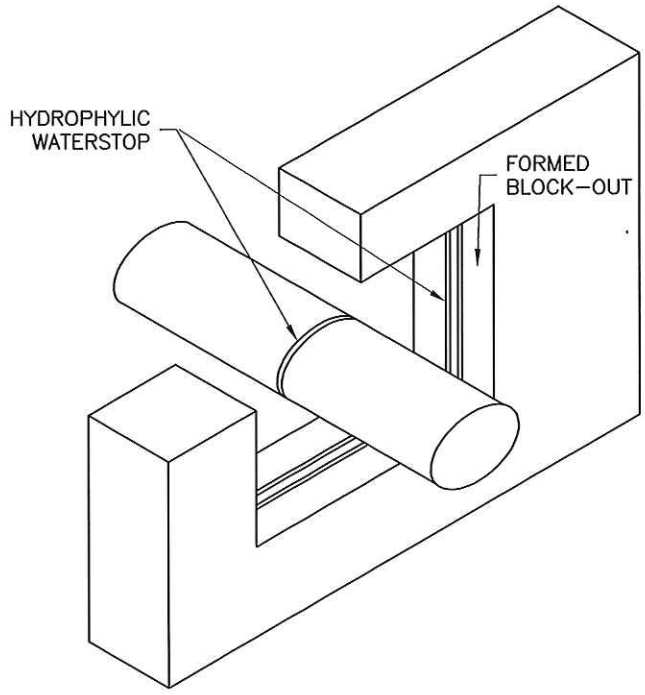
SPECIFICATIONS:

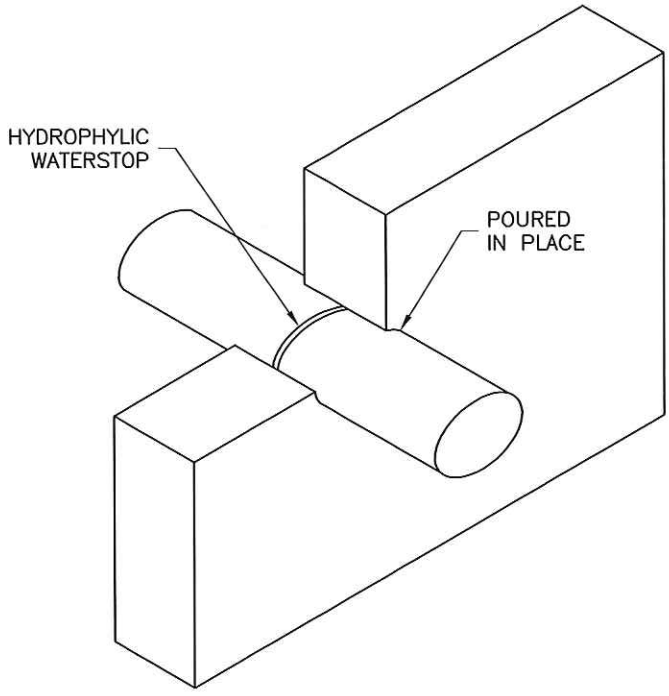
A. WORK CONSISTS OF PROVIDING FLEXIBLE WATERSTOPS, EMBEDDED IN CONCRETE WALLS, TO SPAN CONTROL AND/OR CONSTRUCTION JOINTS.
B. WATERSTOP MUST FORM A CONTINUOUS SEAL THROUGHOUT THE STRUCTURE.
C. WATERSTOP IS TO BE MANUFACTURED PVC, THERMOPLASTIC ELASTOMERIC RUBBER, (TPE), OR POLYETHYLENE P.E. MATERIAL WITH A MINIMUM WEB THICKNESS OF 3/16".
D. WATERSTOP IS TO BE FREE OF DIRT, OIL, AND DEFECTS.
E. REINFORCING STEEL SHALL NOT PASS THROUGH CONTROL JOINTS.

SPLICE FABRICATION:

A. PROVIDE FACTORY FABRICATED WATERSTOP CORNERS AND TRANSITIONS LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD FABRICATION, UNLESS SPECIFICALLY APPROVED IN WRITING BY THE MANUFACTURER AND PERFORMED IN ACCORDANCE WITH THEIR SPECIFICATIONS.
B. USE ONLY A SPLICING IRON SPECIFICALLY RECOMMENDED BY THE MANUFACTURER FOR HEAT FUSED WELDING OF ALL SPLICES.
C. WELDS ARE TO EXHIBIT A CONTINUOUS BEAD OF EXCESS MELTED MATERIAL, FREE OF DEFECTS.
D. SPLICES ARE TO BE HEAT WELDED WITH THE CENTER BULB AND RIBS ALIGNED.
E. ADHESIVES, SOLVENTS, LAP JOINTS, AND EDGE WELDING ARE NOT ACCEPTABLE.
F. EMBEDDED WATERSTOPS MAY NOT BE WELDED OR JOINED TO OTHER WATERSTOPS OF DIFFERENT SIZE, CONFIGURATION, OR MATERIAL.

WI-505A





CONSTRUCTION NOTES

1. THESE JOINT DRAWINGS ARE TO BE ADAPTED TO A SPECIFIC STRUCTURE OR SYSTEM. FOR THE JOINT LOCATION PLAN SEE SHEET _____.
2. WATERSTOP DIMENSIONS SHALL BE BASED ON MANUFACTURER'S REQUIREMENTS FOR MINIMUM COVER.
3. THE WATERSTOP SHALL BE APPLIED TO EVEN SURFACES, FREE OF DIRT, OIL, OR LAITANCE.
4. THE WATERSTOP MUST BE BONDED TO THE CONCRETE AND/OR PIPE PRIOR TO PLACEMENT OF ADJOINING CONCRETE.
5. THE MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE FOLLOWED FOR WATERSTOP SPLICING AND ADDITIONAL INSTALLATION REQUIREMENTS.

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

LIQUID TIGHT PIPE PENETRATIONS

CLIENT: Ken Nerdrum

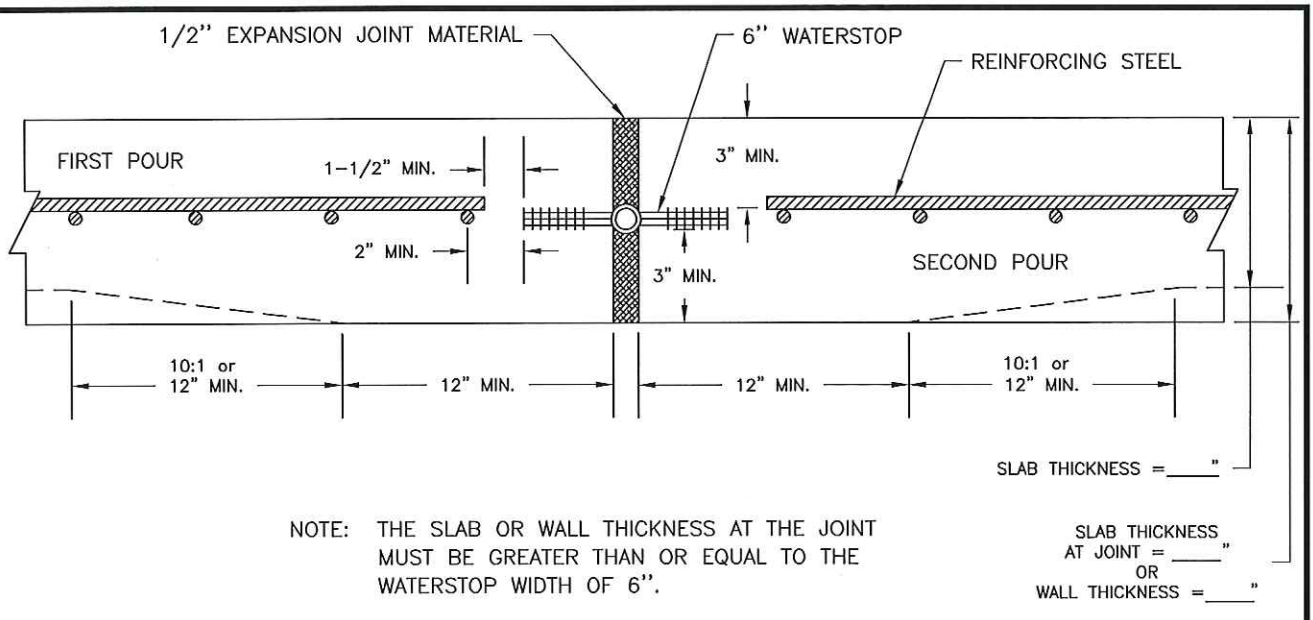
COUNTY: Clark

	Date
Designed	CDO
Drawn	CDO
Checked	
Approved	

File Name Date
WI-509 6/07

Sheet of

Nerdrum 54 of 65



NOTE: THE SLAB OR WALL THICKNESS AT THE JOINT MUST BE GREATER THAN OR EQUAL TO THE WATERSTOP WIDTH OF 6".

CROSS SECTION OF WALL OR SLAB AT WATERSTOP JOINT

QUANTITIES

6" WATERSTOP----------See plan LIN FT

1/2" EXPANSION MATERIAL---- _____ LIN FT

CONSTRUCTION NOTES:

1. FACTORY CORNERS AND TRANSITIONS SHALL BE USED, LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD WELDING.
2. SEE DWG WI-506, SHEET __, FOR FACTORY TRANSITIONS NEEDED.
3. SEE JOINT PLAN, SHEET __, FOR LOCATIONS OF JOINTS.

INSTALLATION:

A. CENTER THE WATERSTOP ON THE JOINT.
B. SECURE THE WATERSTOP ALONG ITS LENGTH AT THE CENTER BULB AND SUFFICIENTLY AT THE WEB TO HOLD IT IN PLACE.
C. PLACE CONCRETE WITHOUT DISPLACING THE WATERSTOP.
D. THOROUGHLY VIBRATE CONCRETE AROUND THE WATERSTOP TO PREVENT VOIDS.
E. AFTER THE FIRST POUR, CLEAN THE UNEMBEDDED WATERSTOP WEB TO INSURE FULL CONTACT WITH THE SECOND POUR OF CONCRETE.
F. KEEP THE CENTER BULB UNEMBEDDED AT THE JOINT CENTERLINE.
G. INSTALLATION METHODS SHALL BE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S REQUIREMENTS.

SEE REVERSE SIDE FOR ADDITIONAL INFORMATION

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

6" EMBEDDED WATERSTOP WITH EXPANSION JOINT MATERIAL FOR WALLS AND SLABS

CLIENT: Ron Nerdrum

COUNTY: Vernon

	Date	Drawing No.
Designed		WI-505B
Drawn		Date 6/11
Checked		
Approved		Sheet of

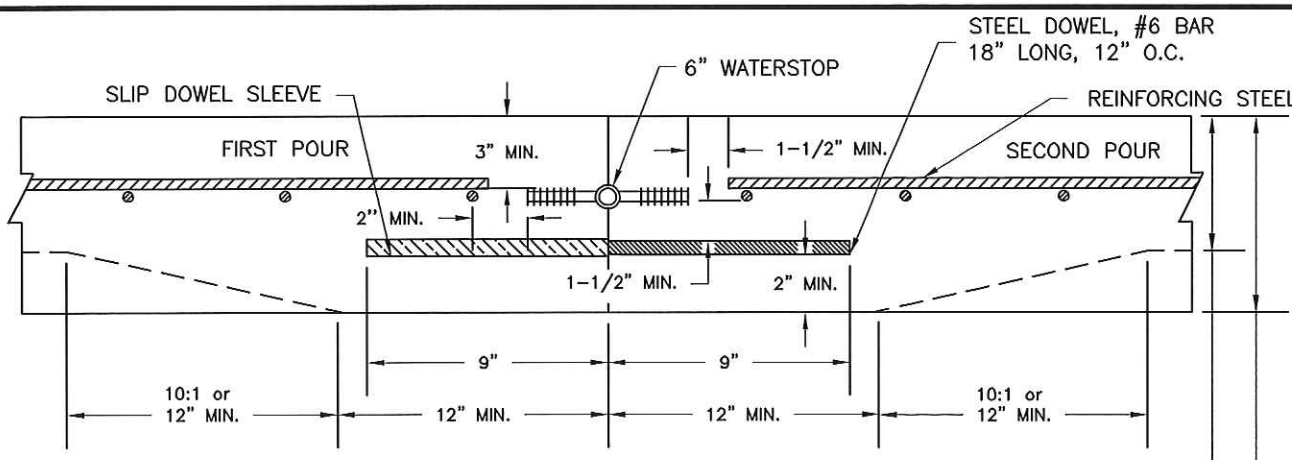
SPECIFICATIONS:

A. WORK CONSISTS OF PROVIDING FLEXIBLE WATERSTOPS, EMBEDDED IN CONCRETE, TO SPAN CONTROL, CONSTRUCTION, AND/OR ISOLATION JOINTS.
B. WATERSTOP MUST FORM A CONTINUOUS SEAL THROUGHOUT THE STRUCTURE.
C. WATERSTOP IS TO BE MANUFACTURED PVC, THERMOPLASTIC ELASTOMERIC RUBBER, (TPE), OR POLYETHYLENE P.E. MATERIAL WITH A MINIMUM WEB THICKNESS OF 3/16".
D. WATERSTOP IS TO BE FREE OF DIRT, OIL, AND DEFECTS.
E. REINFORCING STEEL SHALL NOT PASS THROUGH CONTROL JOINTS.

SPLICE FABRICATION:

A. PROVIDE FACTORY FABRICATED WATERSTOP CORNERS AND TRANSITIONS LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD FABRICATION, UNLESS SPECIFICALLY APPROVED IN WRITING BY THE MANUFACTURER AND PERFORMED IN ACCORDANCE WITH THEIR SPECIFICATIONS.
B. USE ONLY A SPLICING IRON SPECIFICALLY RECOMMENDED BY THE MANUFACTURER FOR HEAT FUSED WELDING OF ALL SPLICES.
C. WELDS ARE TO EXHIBIT A CONTINUOUS BEAD OF EXCESS MELTED MATERIAL, FREE OF DEFECTS.
D. SPLICES ARE TO BE HEAT WELDED WITH THE CENTER BULB AND RIBS ALIGNED.
E. ADHESIVES, SOLVENTS, LAP JOINTS, AND EDGE WELDING ARE NOT ACCEPTABLE.
F. EMBEDDED WATERSTOPS MAY NOT BE WELDED OR JOINED TO OTHER WATERSTOPS OF DIFFERENT SIZE, CONFIGURATION, OR MATERIAL.

WI-505B



NOTE: THE SLAB OR WALL THICKNESS AT THE JOINT MUST BE GREATER THAN OR EQUAL TO 8".

SLAB THICKNESS =____"

SLAB THICKNESS AT JOINT =____"
OR
WALL THICKNESS =____"

CROSS SECTION OF WALL OR SLAB AT WATERSTOP JOINT

QUANTITIES

6" WATERSTOP — — — — — _____ LIN.FT.

STEEL DOWELS — — — — _____ EACH

DOWEL SLEEVES — — — — _____ EACH

CONSTRUCTION NOTES:

1. FACTORY CORNERS AND TRANSITIONS SHALL BE USED, LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD WELDING.
2. SEE DWG WI-506, SHEET __, FOR FACTORY TRANSITIONS NEEDED.
3. SEE JOINT PLAN, SHEET __, FOR LOCATIONS OF JOINTS.

INSTALLATION:

A. POSITION THE WATERSTOP AND DOWEL AS SHOWN IN THE DRAWING.
B. SECURE THE WATERSTOP ALONG ITS LENGTH AT THE CENTER BULB AND SUFFICIENTLY AT THE WEB TO HOLD IT IN PLACE.
C. FOLLOW THE MANUFACTURERS RECOMMENDATIONS TO INSTALL THE DOWEL AND SLEEVE.
D. PLACE CONCRETE WITHOUT DISPLACING THE WATERSTOP.
E. THOROUGHLY VIBRATE CONCRETE AROUND THE WATERSTOP TO PREVENT VOIDS.
F. AFTER THE FIRST POUR, CLEAN THE UNEMBEDDED WATERSTOP WEB TO INSURE FULL CONTACT WITH THE SECOND POUR OF CONCRETE.
G. INSTALLATION METHODS SHALL BE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S REQUIREMENTS.

SEE REVERSE SIDE FOR ADDITIONAL INFORMATION

NRCS Natural Resources Conservation Service United States Department of Agriculture	6" EMBEDDED WATERSTOP WITH STEEL DOWELS FOR WALLS AND SLABS CLIENT: Ron Nerdrum COUNTY: Clark	Date Designed Drawn Checked Approved	Drawing No. WI-505D Date 6/11 Sheet of

Nerdrum 57 of 65

SPECIFICATIONS:

A. WORK CONSISTS OF PROVIDING FLEXIBLE WATERSTOPS, EMBEDDED IN CONCRETE, TO SPAN CONTROL AND/OR CONSTRUCTION JOINTS.
B. WATERSTOP MUST FORM A CONTINUOUS SEAL THROUGHOUT THE STRUCTURE.
C. WATERSTOP IS TO BE MANUFACTURED PVC, THERMOPLASTIC ELASTOMERIC RUBBER, (TPE), OR POLYETHYLENE P.E. MATERIAL WITH A MINIMUM WEB THICKNESS OF 3/16".
D. WATERSTOP IS TO BE FREE OF DIRT, OIL, AND DEFECTS.
E. REINFORCING STEEL SHALL NOT PASS THROUGH CONTROL JOINTS.

SPLICE FABRICATION:

A. PROVIDE FACTORY FABRICATED WATERSTOP CORNERS AND TRANSITIONS LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD FABRICATION, UNLESS SPECIFICALLY APPROVED IN WRITING BY THE MANUFACTURER AND PERFORMED IN ACCORDANCE WITH THEIR SPECIFICATIONS.
B. USE ONLY A SPLICING IRON SPECIFICALLY RECOMMENDED BY THE MANUFACTURER FOR HEAT FUSED WELDING OF ALL SPLICES.
C. WELDS ARE TO EXHIBIT A CONTINUOUS BEAD OF EXCESS MELTED MATERIAL, FREE OF DEFECTS.
D. SPLICES ARE TO BE HEAT WELDED WITH THE CENTER BULB AND RIBS ALIGNED.
E. ADHESIVES, SOLVENTS, LAP JOINTS, AND EDGE WELDING ARE NOT ACCEPTABLE.
F. EMBEDDED WATERSTOPS MAY NOT BE WELDED OR JOINED TO OTHER WATERSTOPS OF DIFFERENT SIZE, CONFIGURATION, OR MATERIAL.

WI-505D

SEEDING DATES

TIME PERIOD	DATES			TYPE OF SEEDING
Spring	April 15	through	June 1	Permanent
Summer	June 2	through	July 31	Temporary *
Late Summer	August 1	through	August 21	Permanent
Fall	August 22	through	October 15	Temporary *
Late Fall	Nonvember 1	through	Snow Cover	Dormant
Winter	No Snow Cover	through	April 14	Frost Seed

MATERIALS

No Application Of Lime Required On This Site.(Soils Test shown none required)
No fertilizer is required.(Soils Test shows none required.)
Mulch with 1-1/2 tons per acre of straw or hay reasonably free from grain and weed seed. If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations.
* Seed a temporary cover crop of Oats at a rate of 3 bushels/acre.
A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS)[1] RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX 5	LOCATION - Area ACRES - 2.0	
SPECIES	RATE (Per Acre)	POUNDS Required
Kentucky Bluegrass	4 lbs.	8 lbs.
Creeping Red Fescue	3 lbs.	6 lbs.
Winter Rye * (Cover Crop)	1.5 bu	3.0

SEEDING MIX #5 x 150%	LOCATION Area ACRES 2.0	
SPECIES	RATE (Per Acre)	POUNDS Required
Kentucky Bluegrass	6 lbs.	12 lbs.
Creeping Red Fescue	4.5 lbs.	9.0 lbs.
Winter Rye * (Cover Crop)	2.25 bu	4.5

1. PLS = (% Germination X % Purity)

SEEDBED PREPARATION

During the recommended seeding periods, seedbed preparation shall immediately follow construction activities. Prepare a fine, firm seedbed to a minimum depth of 3 inches.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer. Seed grasses and legumes no more than 1/4 inch deep. Seed may be broadcast or drilled as appropriate to the site. Seeding shall be done prior to mulching, except for dormant seedings.

MULCHING

Mulching is required..

Landowner RON NERDRUM

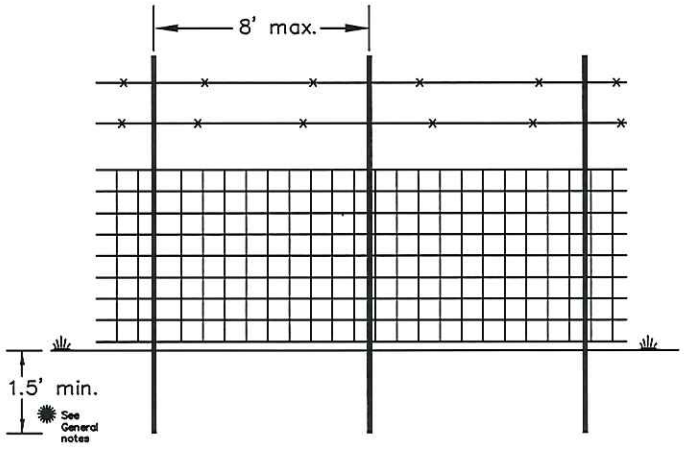
CLARK COUNTY

INTRODUCED SPECIES
SEEDING ESTABLISHMENT
Central Region

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Designed	Date	Drawing No.	Date
		WI-710 modified	7/02
Checked		Sheet No.	of

Woven Wire Fence

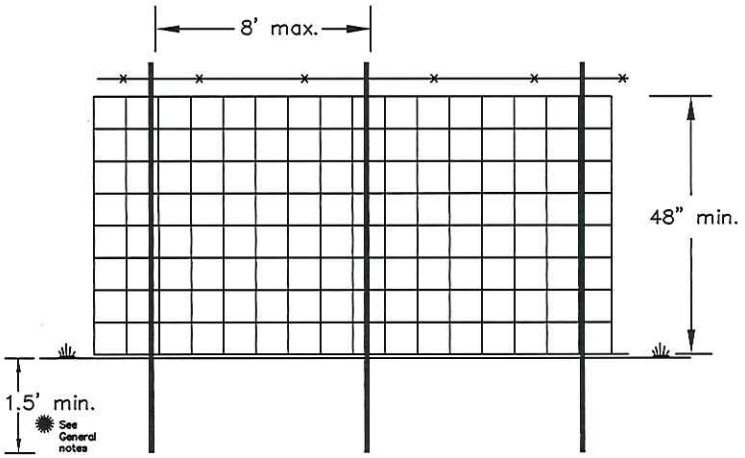


Not to Scale

NOTES:

1) Woven wire and clips or fasteners to be 14 gauge or heavier.
2) Top and bottom wires in woven wire to be 11 gauge or heavier.
3) Woven Wire less than 32 inches high needs 2 strands of barbed wire above the woven wire.
4) Woven wire higher than 32 inches only needs 1 strand above the woven wire.
5) Barbed wire is to be two twisted strands of 12 ½ ga. or heavier. Barbs to be 14 ga. or heavier and on appox. 5 inch centers.

Cattle Panel Fence

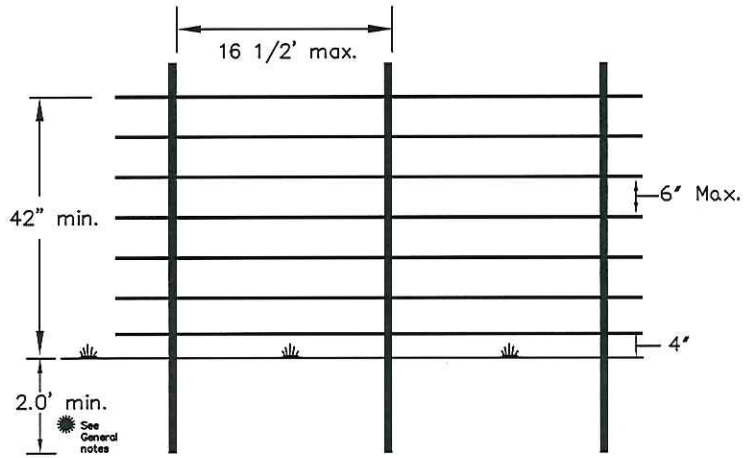


Not to Scale

NOTES:

1) A strand of barb wire should be placed above the cattle panels.
2) Barbed wire is to be two twisted strands of 12 ½ ga. or heavier. Barbs to be 14 ga. or heavier and on appox. 5 inch centers.

High–Tensile Wire Fence



Not to Scale

NOTES: 1) Fence shall not allow passage of a 6 inch sphere between any fence member.

2) Wire shall be galvanized smooth high tensile class III steel, min. of 14 guage in diameter.

General Notes

1) Wood posts are to be treated pine or untreated white oak (min. dia. 3")
2) Woven wire or cattle panels are to be fastened at bottom, middle, and top as a minumum.
3) Fencing to be on outside of posts along curves and areas being protected.
4) Steel Posts to have minimum length of 5½ ft. with a minumum depth of 1½ ft.
5) Wood Posts to have minumum length of 6½ ft. with a minimum depth of 2 ft.

Fencing Options

WASTE STORAGE POND
Ron Nerdrum
T.26N. R.1E. Sec.25
Township of Thorp, Clark Co, Wi.

Clark County Land Conservation Department

	Date	Approved By	Date
Designed CDO		Title	
Drawn		Title	
Checked		Sheet No. ___ of ___	Drawing No.

Attachment 6 of 65

24

THIS IS ONLY AN EXAMPLE OF THE TYPE OF SIGN THAT MUST BE POSTED AROUND THE FACILITY. OTHER COMMERCIALLY AVAILABLE SIGNS MAY BE USED.

NRCS Natural Resources Conservation Service United States Department of Agriculture	MANURE STORAGE PIT WARNING SIGNS CLIENT: Ron Nerdrum COUNTY: Clark	Date Designed CBO Drawn CBO Checked Approved	Drawing Name WI-596A Date 5/2008 Sheet of

SOIL INVESTIGATION LOG

LANDOWNER Ron Nerdrum
LEGAL DESC.
HOLE NO. 1
SURFACE ELEVATION 99.33
LOGGED BY C. Overgaard

COUNTY Clark
PRACTICE 313
STATION
DATE 8/30/11

DEPTH -FT	USCS	DESCRIPTION OF MATERIALS
0-8"	ML	Topsoil, silt loam
8-30"	ML	silt cap, silt loam
30"-60"	SC	gravel, orange sand mix / some red fill 3-5% cobbles
60"-9'	SM	orange sand, coarse, wet
9'-12'	SM	orange sand, mottled, fine/coarse mix, wet
		Seep @ 6' & down
		No bedrock observed

Description of materials could include: 1) composite gradation and sand and gravel size; 2) color and organic content; 3) moisture and drainage condition; and 4) plasticity of fines. Also note the depth samples were taken for laboratory analysis.

SOIL INVESTIGATION LOG

LANDOWNER Ron Nerdrum
LEGAL DESC.
HOLE NO. 2
SURFACE ELEVATION 99.34
LOGGED BY C. Overpeck

COUNTY Clark
PRACTICE 313
STATION
DATE 8/30/11

DEPTH FT	USCS	DESCRIPTION OF MATERIALS
0-7"	ML	topsoil, silt loam, dry
7"-29"	ML	silt cap, silt loam, dry
29"-38"	SM	orange sand w/ fines, wet, moist
38"-12'	SP	gravel, orange sand, wet
		Seeps @ 5' and down
		No bedrock observed

Description of materials could include: 1) composite gradation and sand and gravel size; 2) color and organic content; 3) moisture and drainage condition; and 4) plasticity of fines. Also note the depth samples were taken for laboratory analysis.

Nerdrum 63 of 65

SOIL INVESTIGATION LOG

LANDOWNER Ron Nerdrum
LEGAL DESC.
HOLE NO. 2
SURFACE ELEVATION 98.63
LOGGED BY C. Ovegal

COUNTY Clark
PRACTICE 313
STATION 0
DATE 8/30/11

DEPTH FT	USCS	DESCRIPTION OF MATERIALS
0-7"	ML	topsoil, silt loam
7"-30"	ML	silt cap, silt cap w/ loam
30"-6'	GP	gravel, outwash, wet
6'-12'	SC	red till, massive, wet
12'-15'	ML	grey/blue silt, wet
		Seep @ 5'
		No bedrock Observed

Description of materials could include: 1) composite gradation and sand and gravel size; 2) color and organic content; 3) moisture and drainage condition; and 4) plasticity of fines. Also note the depth samples were taken for laboratory analysis.

SOIL INVESTIGATION LOG

LANDOWNER	Ron Nerdrum	COUNTY	Clark
LEGAL DESC.		PRACTICE	313
HOLE NO.	4	STATION	0
SURFACE ELEVATION	96.52		
LOGGED BY	C. Ouzyl	DATE	8/30/11

DEPTH FT	USCS	DESCRIPTION OF MATERIALS
0-11"	ML	Topsoil, silt loam
11"-32"	ML	silt cap, silt loam
32"-6'	GP	gravel, orange sand mix, wet
6'-62"	ML	blue silt, mottles, wet
		seeps @ 6' and down
		No bedrock observed

Description of materials could include: 1) composite gradation and sand and gravel size; 2) color and organic content; 3) moisture and drainage condition; and 4) plasticity of fines. Also note the depth samples were taken for laboratory analysis.