

USS Horne North Solar LLC

Clay County, MN

Civil Construction Plans

REGIONAL MAP



VICINITY MAP



| Sheet List Table | |
|------------------|---|
| Sheet Number | Sheet Title |
| T.100 | Cover |
| C.100 | Existing Conditions |
| C.200 | Civil Site Plan |
| C.300 | Grading, Drainage, and Erosion Control Plan |
| C.400 | Construction Details |
| C.401 | Construction Details |
| C.402 | Construction Details |
| C.403 | Construction Notes |
| C.500 | Landscaping Plan |
| C.501 | Landscape Details |

| ADDITIONAL PLANS TO REFERENCE | |
|-------------------------------|---------------------|
| PLANS | PROVIDER |
| ELECTRICAL DESIGN | WESTWOOD |
| STRUCTURAL PILE DESIGN | RPCS |
| STRUCTURAL PAD DESIGN | WESTWOOD |
| TOPOGRAPHY | MN TOPO |
| HYDROLOGY REPORT | WESTWOOD |
| ALTA SURVEY | WESTWOOD |
| WETLANDS | WESTWOOD |
| AERIAL | ACGIS WORLD IMAGERY |

| CONTACT INFORMATION | | | | |
|-------------------------------|-------------------------------------|---|--------------|---|
| | COMPANY | CONTACT | PHONE | ADDRESS |
| PROJECT OWNER/DEVELOPER | UNITED STATES SOLAR CORPORATION | JESSE ROYER | 612-299-1987 | 100 N 6TH ST. #218C, MINNEAPOLIS, MN, 55403 |
| EPC CONTRACTOR | TBD | TBD | TBD | TBD |
| PROJECT CIVIL ENGINEER | WESTWOOD PROFESSIONAL SERVICES, INC | MATTHEW GAARDER, P.E. (MN) | 952-906-7416 | 12701 WHITEWATER DRIVE, SUITE 300, MINNETONKA, MN 55343 |
| ELECTRICAL ENGINEER OF RECORD | WESTWOOD PROFESSIONAL SERVICES, INC | DOUG A. MUTCHER, P.E. | 952-697-5709 | 12701 WHITEWATER DRIVE, SUITE 300, MINNETONKA, MN 55343 |
| GEOTECHNICAL ENGINEER | RPCS | DYLAN WRAGA | 855-428-3000 | 305 DEL VINA AVENUE, MONTEREY, CA 93940 |
| STRUCTURAL ENGINEER | WESTWOOD PROFESSIONAL SERVICES, INC | SAM JORGENSEN, P.E. | 608-662-5366 | 1800 DEMING WAY, SUITE 102, MIDDLETON, WI 53562 |
| SWPPP PREPARER | WESTWOOD PROFESSIONAL SERVICES, INC | AARON MLYNEK, CPESC, CESSWI, CISEC, QSD/P | 952-697-5710 | 12701 WHITEWATER DRIVE, SUITE 300, MINNETONKA, MN 55343 |
| CIVIL CONTRACTOR | TBD | TBD | TBD | TBD |

PROJECT LOCATION (APPROXIMATE CENTER OF SITE)

LATITUDE = 47.021849° N
LONGITUDE = 96.480177° W

PROJECT COORDINATE SYSTEM

BEARINGS & DIMENSIONS ARE BASED ON
NSRS 2011 MINNESOTA STATE PLANES, CENTRAL ZONE, US FOOT

DESIGN CRITERIA

CONDITIONAL USE PERMIT APPROVAL BY CLAY COUNTY: 01/22/2019
UNITED STATES ARMY CORPS OF ENGINEERS (USACE) DELINEATION APPROVAL: 11/27/2018
WETLAND CONSERVATION ACT (WCA) APPROVAL: 11/07/2018
WETLAND IMPACTS PERMITTED: NONE
NPDES GENERAL CONSTRUCTION STORMWATER PERMIT IDENTIFICATION: TBD
SWPPP SHALL BE AVAILABLE ON SITE DURING CONSTRUCTION. SEE SWPPP SECTION 15 FOR DETAILS.

Westwood

Phone (608) 821-6600 1800 Deming Way, Suite 102
Middleton, WI 53562
westwoodps.com

Westwood Professional Services, Inc.

PREPARED FOR:



100 N 6th St. #218c
Minneapolis, MN 55403

| REVISIONS: | | |
|------------|----------|-----------------------|
| # | DATE | COMMENT |
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USS Horne North
Solar LLC

Clay County, Minnesota

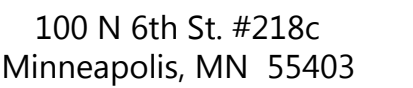
14874 120th Ave. N.
Feltsn, MN 56536

Cover

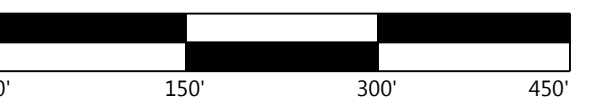
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SHEET: T.100



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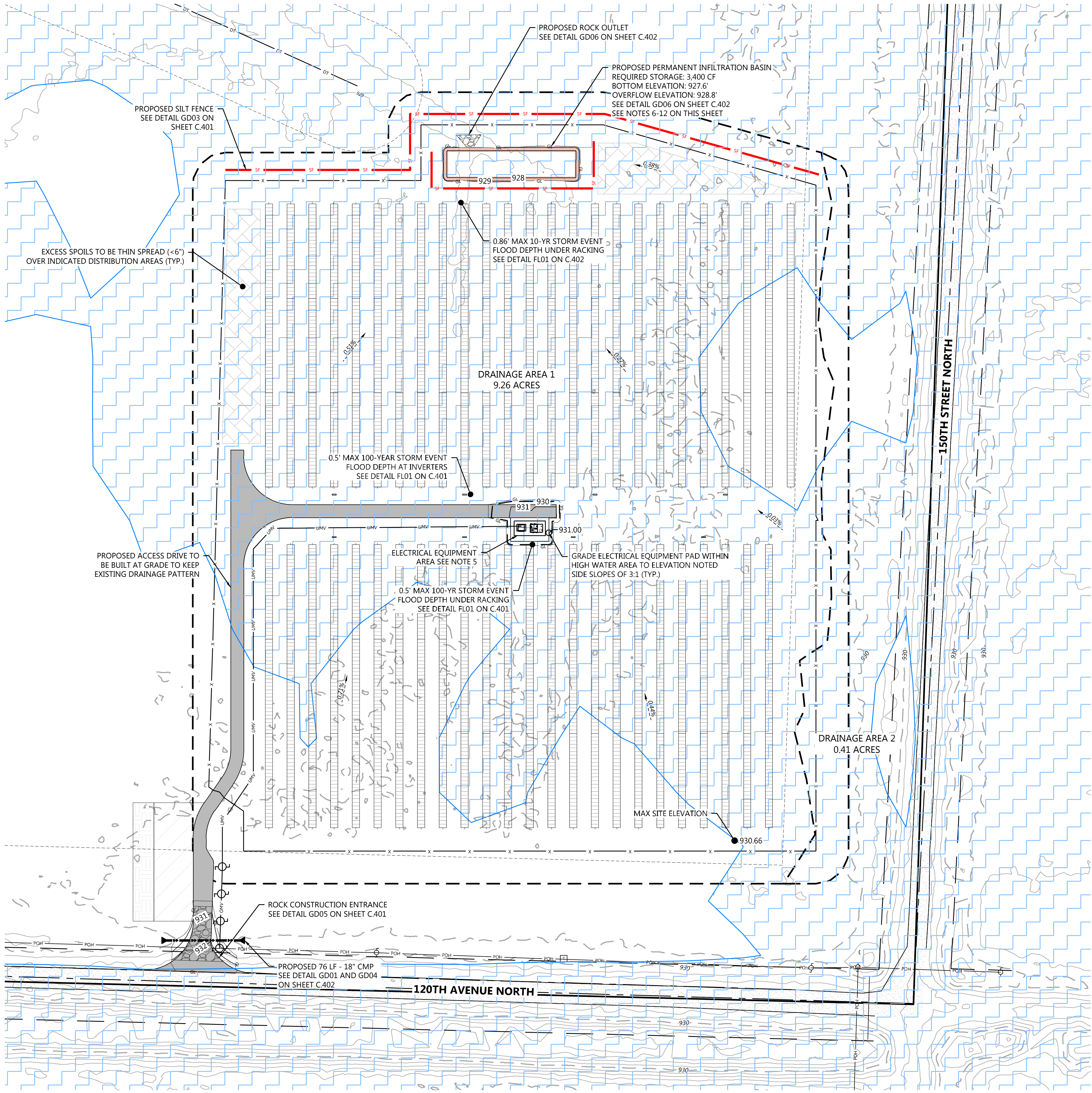


LEGEND

| | |
|--|-------------------------|
| | PROJECT BOUNDARY |
| | SECTION LINES |
| | RIGHT-OF-WAY LINES |
| | EASEMENT LINES |
| | EX. PAVED ROAD |
| | EX. GRAVEL ROAD |
| | EX. OVERHEAD POWER LINE |
| | EX. INDEX CONTOUR |
| | EX. INTERVAL CONTOUR |
| | EX. FENCE |
| | EX. DRAIN TILE |
| | EX. FIBER OPTIC LINE |
| | EX. GAS PIPELINE |
| | EX. TELEPHONE LINE |
| | EX. WATER LINE |
| | EX. STREAM CHANNEL |
| | EX. CULVERT |
| | FOUND MONUMENT |
| | EX. POWER POLE |
| | EX. TELEPHONE BOX |
| | EX. ELECTRIC BOX |
| | EX. POST |
| | EX. SIGN |

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03/01/2019 10:00 AM C:\Users\jgarcia\OneDrive\Documents\Projects\USS Horne North Solar LLC\03/01/2019 10:00 AM C:\Users\jgarcia\OneDrive\Documents\Projects\USS Horne North Solar LLC\03/01/2019 10:00 AM



LEGEND

- PROJECT BOUNDARY
- SECTION LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
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- EX. FENCE
- EX. FIBER OPTIC LINE
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- EX. STREAM CHANNEL
- EX. CROPLINE
- EX. CULVERT
- FOUND MONUMENT
- EX. POWER POLE
- EX. TELEPHONE BOX
- EX. ELECTRIC BOX
- EX. POST
- EX. SIGN
- EXISTING GROUND SLOPE
- PROPOSED SECURITY FENCE
- PROPOSED SILT FENCE
- PROPOSED UTILITY POWER POLE
- PROPOSED GRAVEL ACCESS DRIVE
- PROPOSED TEMPORARY LAYDOWN YARD
- PROPOSED TOPSOIL STOCKPILE AREA
- PROPOSED UNDERGROUND COLLECTOR
- PROPOSED OVERHEAD POWERLINE
- SWITCHBOARD AND TRANSFORMER PAD
- SINGLE AXIS TRACKER
- YARD SETBACK LINE
- PROPOSED INDEX CONTOUR
- PROPOSED INTERVAL CONTOUR
- GRADING BOUNDARY
- PROPOSED ROCK ENTRANCE
- PROPOSED LOW WATER CROSSING
- DRAINAGE AREA BOUNDARY
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED RIP RAP
- PROPOSED CULVERT
- HIGH WATER AREA

- GENERAL NOTES:
- INTERNAL ROADS WILL BE CONSTRUCTED TO MATCH THE SURROUNDING EXISTING GROUND ELEVATIONS TO ALLOW EXISTING DRAINAGE PATTERNS TO PERSIST.
 - ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO ANY UPSLOPE GROUND DISTURBANCE COMMENCING.
 - TOPSOIL SHALL BE SEGREGATED FROM ALL EARTHWORK ACTIVITIES THAT REQUIRE SUB-SOIL EXCAVATION
 - MINOR SURFACE SMOOTHING MAY OCCUR FOR RACKING INSTALLATION
 - FINAL TOP OF CONCRETE PAD ELEVATION SHALL BE AT LEAST 2" ABOVE THE SURROUNDING FINAL FINISHED GRADE AND CONTRACTOR SHALL ENSURE FINISHED GRADE PROVIDES POSITIVE DRAINAGE AWAY FROM EQUIPMENT PADS.
 - IF PERMANENT INFILTRATION BASIN IS CONSTRUCTED AT THE ONSET OF CONSTRUCTION ACTIVITIES, ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AT THE END OF CONSTRUCTION ACTIVITIES.
 - THE ENTIRETY OF THE SITE REQUIRES VEGETATION ESTABLISHMENT PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. THE PURPOSE OF THIS IS TO KEEP SOIL DISTURBANCE BELOW 5 ACRES TO A COMMON DISCHARGE POINT. VEGETATION MUST BE ESTABLISHED WITH A DENSITY OF 70% COVERAGE. ANNUAL VEGETATION COULD BE USED FOR PROJECT DURATIONS LESS THAN ONE GROWING SEASON. PERENNIAL VEGETATION ESTABLISHMENT IS NEEDED FOR PROJECT DURATIONS GREATER THAN ONE GROWING SEASON.
 - IF THE SITE IS NOT VEGETATED PRIOR TO CONSTRUCTION, THE SITE WILL EXCEED 5 DISTURBED ACRES TO A COMMON DISCHARGE POINT AND WILL REQUIRE A TEMPORARY SEDIMENT BASIN PER THE NPDES PERMIT (2 YEAR, 24 HOUR SIZING).
 - IF AT ANY TIME THE SITE EXCEEDS 5 ACRES OF DISTURBANCE TO A COMMON DISCHARGE POINT, A TEMPORARY SEDIMENT BASIN WILL BE REQUIRED.
 - THE CONTRACTOR SHALL DEVELOP AN ACCESS PLAN TO ISOLATE VEHICLE AND EQUIPMENT ACCESS TO DEFINED AREAS SO DISTURBANCE CAN BE CALCULATED. IF EQUIPMENT AND ACCESS IS NOT CONTROLLED THE POTENTIAL FOR RUTTING AND SOIL DISTURBANCE FROM TIRES AND TRACKED EQUIPMENT IS HIGH AND COULD RESULT IF EXCESSIVE SOIL DISTURBANCE.
 - PERIMETER SEDIMENT CONTROL BMPs (EG. SILT FENCE, STABILIZED SOIL BERMS, FIBER LOGS) ARE STILL REQUIRED.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT AND OBSERVE DISTURBED SOIL AREAS TO ENSURE COMPLIANCE WITH THE 5 ACRE DISTURBANCE LIMITS FOR TEMPORARY SEDIMENT BASIN NECESSITY.

GRADING QUANTITIES

| FEATURE | CUT | FILL |
|--------------------|--------|--------|
| INFILTRATION BASIN | 181 CY | 0 CY |
| ELECTRICAL PAD | 0 CY | 94 CY |
| ENTRANCE | 0 CY | 34 CY |
| TOTAL | 181 CY | 128 CY |

Westwood

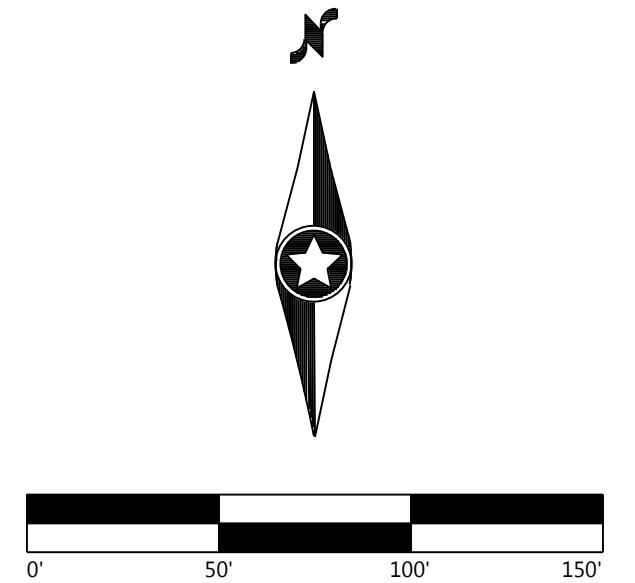
Phone (608) 821-6600 1800 Deming Way, Suite 102
Middleton, WI 53562
westwoodps.com
Westwood Professional Services, Inc.

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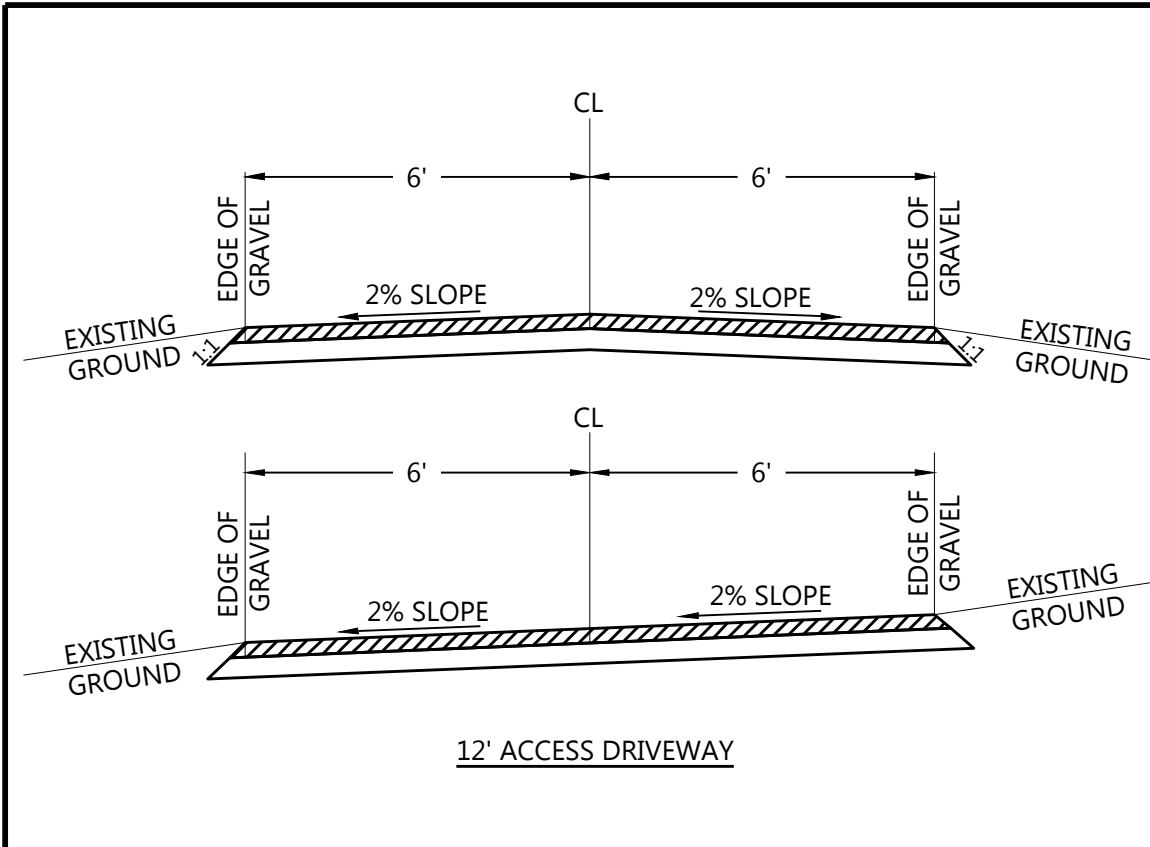
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Felts, MN 56536

Grading, Drainage, and Erosion Control Plan

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DATE: 08/02/2019

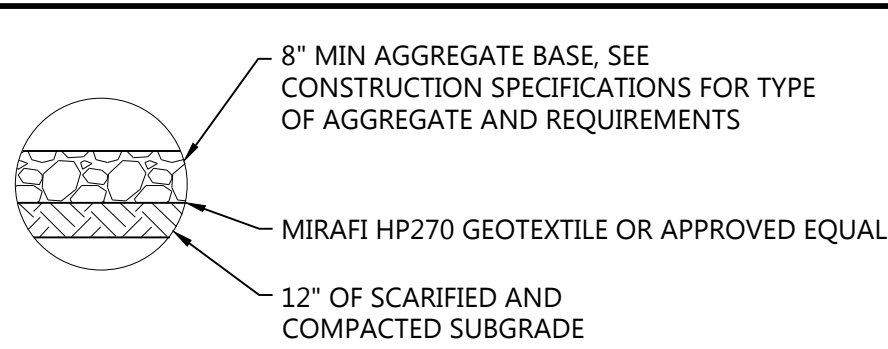
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NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.

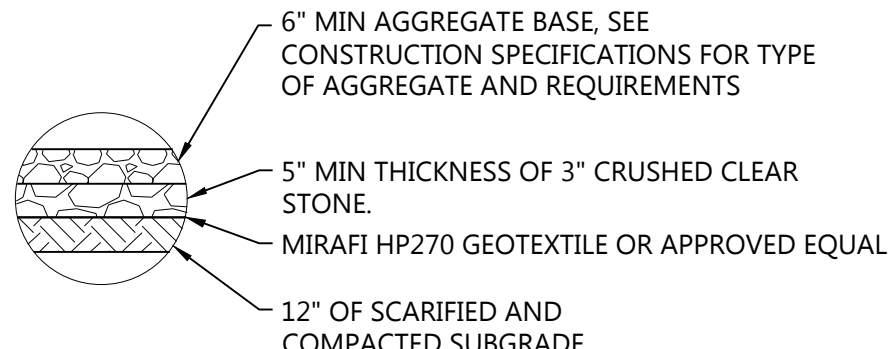
| | | |
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| Westwood | TYPICAL SOLAR ACCESS DRIVE | LAST REVISED: 07/07/16 |
| | | RD01 |



12' ACCESS DRIVE CROSS SECTION

NOTES:

1. DRIVE SECTION BASED ON OWNER REQUIREMENT AND MAY DIFFER FROM THE FINAL GEOTECHNICAL REPORT AND RECOMMENDATION OF THE ENGINEER OF RECORD. THE AGGREGATE THICKNESS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO CONSTRUCTION DURING UNUSUALLY WET PERIODS, OR IN LOW/WET AREAS.

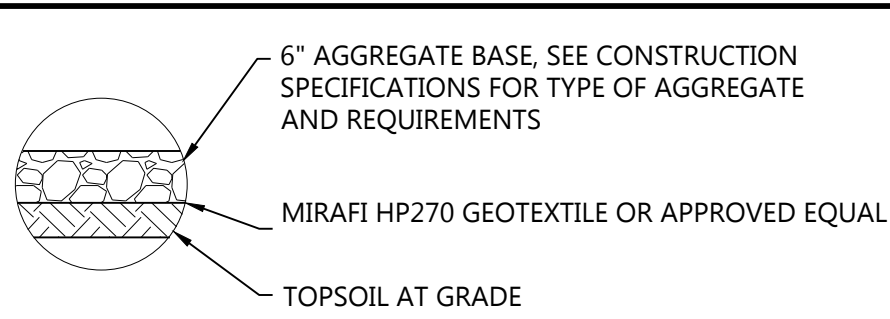


ENHANCED 12' ACCESS DRIVE CROSS SECTION

NOTES:

1. ENHANCED ACCESS DRIVE CROSS SECTION SHALL BE IMPLEMENTED WHERE THE ALTERNATE PROOF ROLL TEST CRITERIA IS APPLICABLE. IF ALTERNATE PROOF ROLL TEST DOES NOT PASS THE ENGINEER OF RECORD SHALL BE CONTACTED.

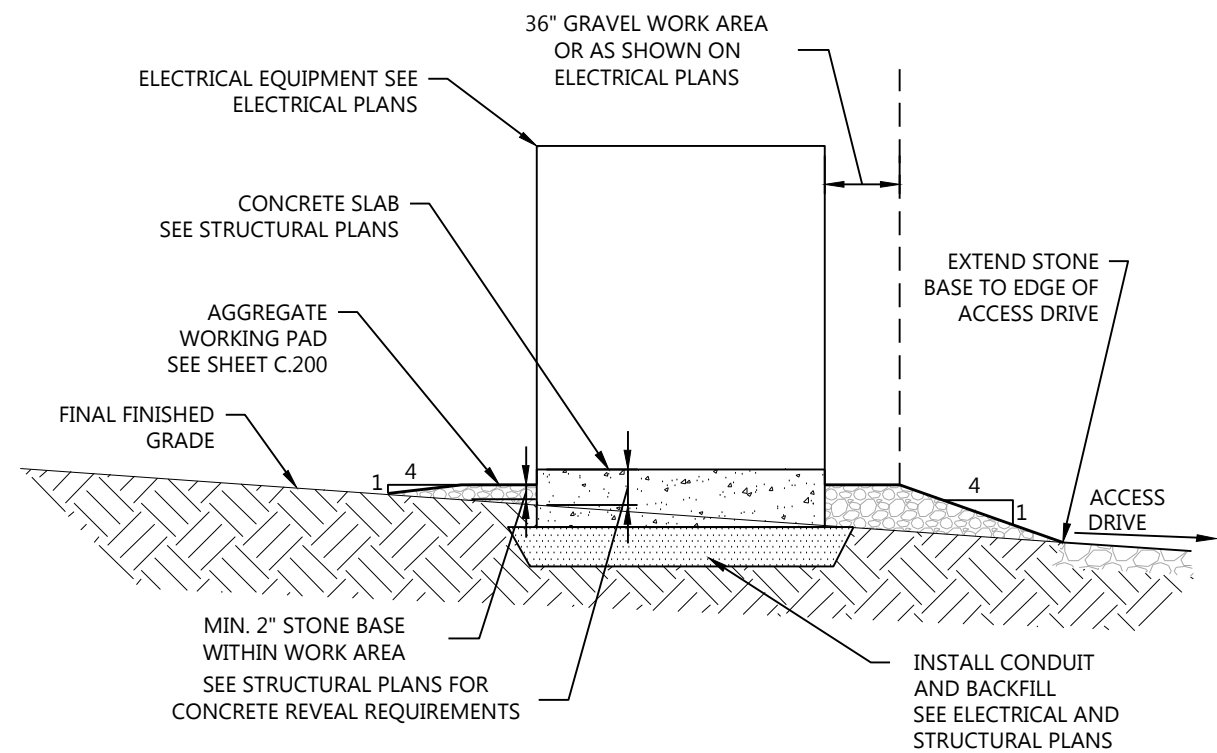
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| Westwood | DRIVEWAY AND LAYDOWN STRUCTURAL SECTIONS | LAST REVISED: 08/08/2016 |
| | | RD02 |



TEMPORARY GRAVEL SECTION

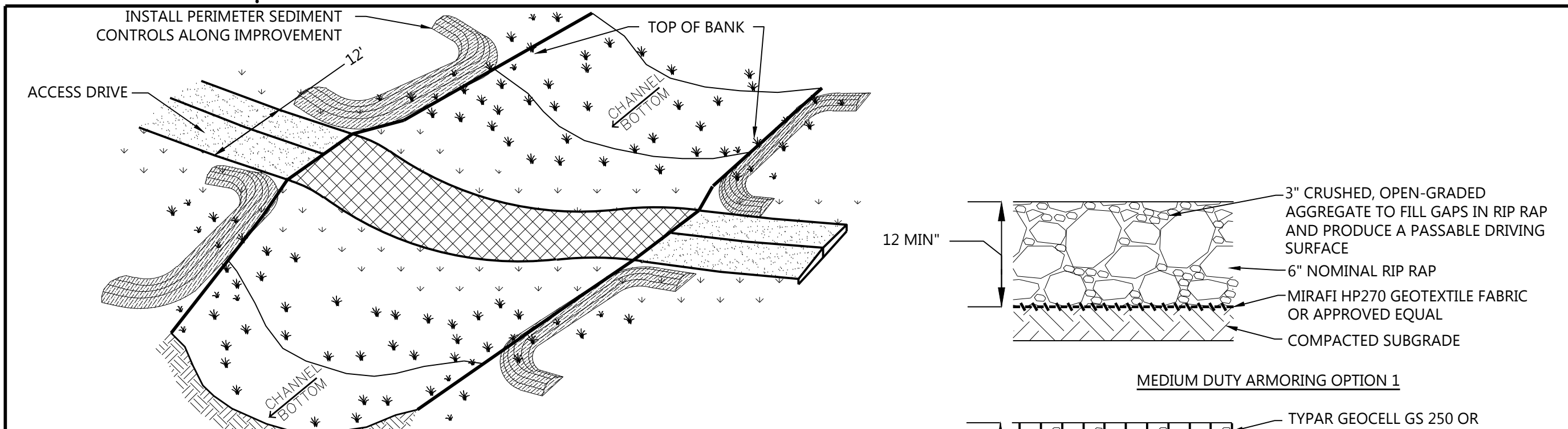
NOTES:

1. USE OF LAYDOWN YARD IMPROVEMENTS WILL BE DETERMINED BY SOIL TYPE AND ACTUAL FIELD CONDITIONS. DECISION TO USE PROPOSED IMPROVEMENT IS AT CONTRACTORS DISCRETION AT THE TIME OF CONSTRUCTION



- NOTES:**
1. SEE STRUCTURAL PLANS FOR FOUNDATION SUBGRADE PREPARATION AND FROST PROTECTION, IF REQUIRED.
2. SEE ELECTRICAL PLANS FOR CONDUIT INSTALLATION AND BACKFILL REQUIREMENTS.
3. SEE ELECTRICAL PLANS FOR EQUIPMENT LOCATIONS ON THE PAD.
4. FINAL TOP OF CONCRETE PAD ELEVATION SHALL BE AT LEAST 4" ABOVE THE SURROUNDING FINAL FINISHED GRADE. CONTRACTOR SHALL ENSURE FINISHED GRADE PROVIDES POSITIVE DRAINAGE AWAY FROM EQUIPMENT PAD.

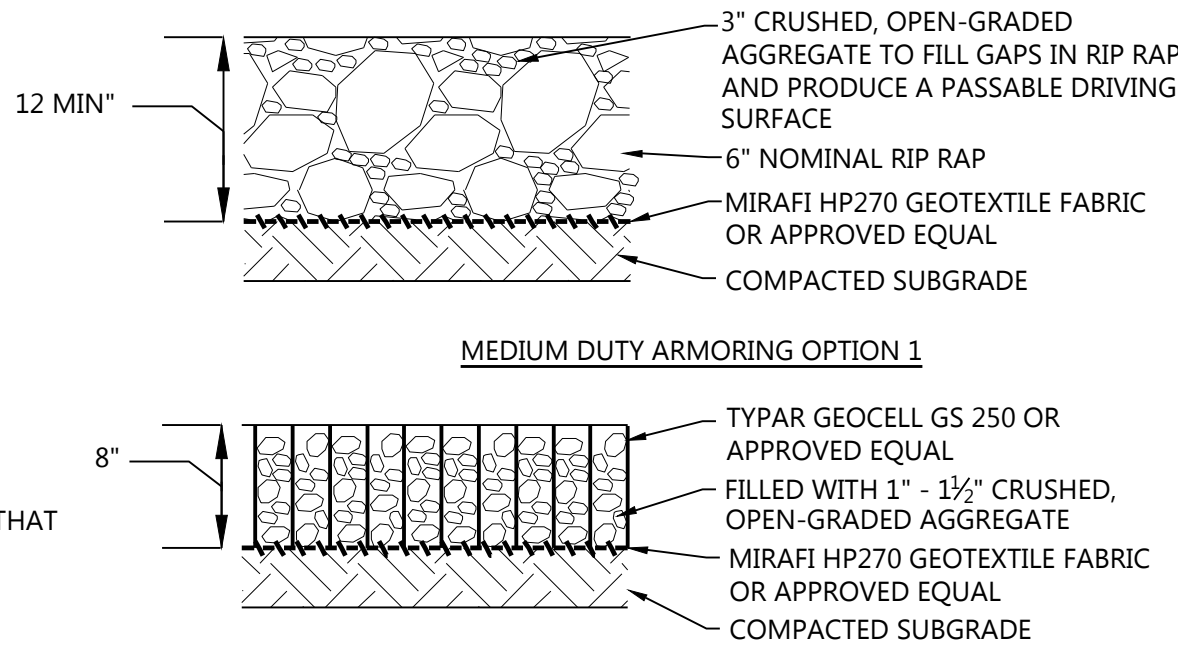
| | | |
|----------|---|---------------------------|
| Westwood | TYPICAL ELECTRICAL EQUIPMENT ON CONCRETE SLAB - PROFILE VIEW | LAST REVISED: 08/23/15 |
| | | INV02 |



NOTES:

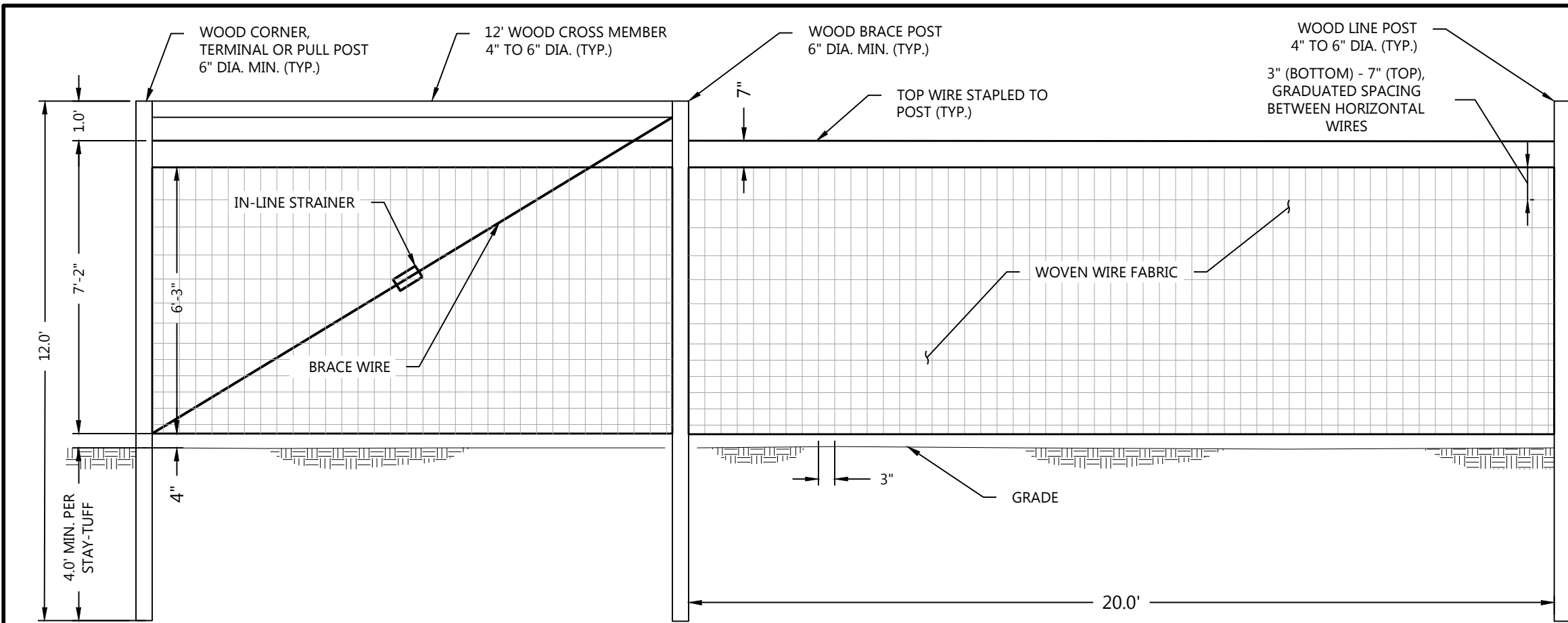
1. CHANNEL SIDE SLOPES MAY REQUIRE MODIFICATION TO CONSTRUCT THE ACCESS DRIVE THROUGH THE CHANNEL THAT MEETS DELIVERY REQUIREMENTS.
2. THE ACCESS DRIVE SHALL CROSS THE CHANNEL AS CLOSE TO 90-DEGREES AS POSSIBLE.
3. THE FINISHED ACCESS DRIVE SURFACE SHALL BE AT AN ELEVATION THAT ALLOWS WATER TO FLOW THROUGH THE CHANNEL UNIMPEDED AND WITHOUT PONDING UPSTREAM OF THE DRIVE OR ON THE DRIVE SURFACE.
4. ARMORED SURFACE TREATMENT OF THE DRIVE SURFACE SHALL EXTEND THROUGH THE CHANNEL BOTTOM AND UP THE CHANNEL SIDE SLOPES TO THE OBSERVED TOP OF BANK OF THE CHANNEL.
5. CROSSING MAY BE PLACED DURING PROJECT SITE RESTORATION PHASE.

| | | |
|----------|---|---------------------------|
| Westwood | PERMANENT ACCESS DRIVE LOW WATER CROSSING | LAST REVISED: 03/09/17 |
| | | RD11 |



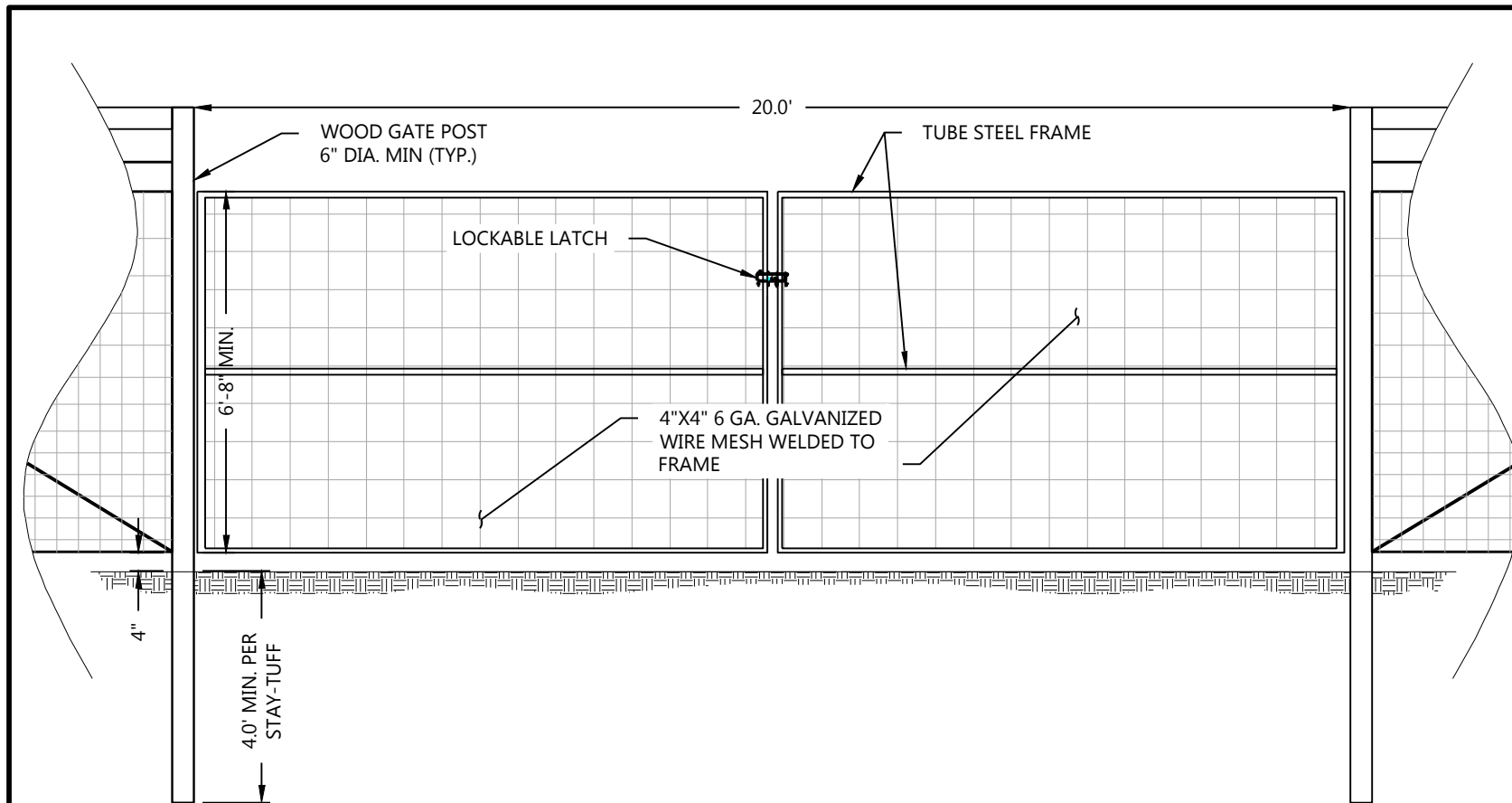
MEDIUM DUTY ARMORING OPTION 1

MEDIUM DUTY ARMORING OPTION 2



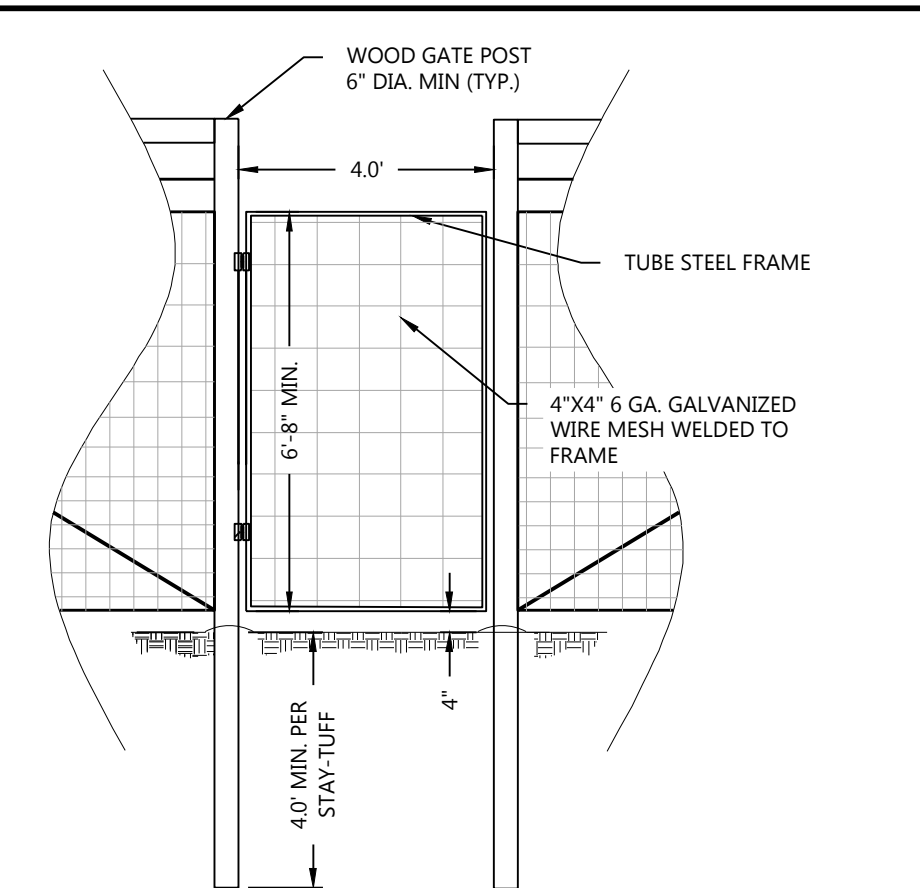
- NOTES:**
1. FENCE DESIGN PROVIDED BY STAY-TUFF. SEE SUPPLIER DRAWINGS FOR ADDITIONAL DETAIL.
2. WOVEN WIRE FABRIC SHALL BE STAY-TUFF 1775-3 FIXED KNOT FENCE FABRIC WITH 3"x3" OPENINGS AT BOTTOM.
3. ALL METALLIC PART SHALL BE GALVANIZED.
4. TOP WIRE SHALL ALWAYS EXCEED 7' ABOVE GRADE.
5. MAXIMUM SPACING BETWEEN END POSTS SHALL BE 1,320' WITHOUT ADDITIONAL INLINE BRACES OR PER MANUFACTURER RECOMMENDATION.
6. MANUFACTURER DRAWINGS SHALL SUPERSEDE DETAIL IF CONFLICTS ARE PRESENT. ANY DEVIATIONS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW.

| | | |
|----------|------------------------|---------------------------|
| Westwood | LIVESTOCK FENCE DETAIL | LAST REVISED: 11/24/17 |
| | | FN01 |



- NOTES:**
1. SEE NOTES IN DETAIL FN01 ON THIS SHEET.

| | | |
|----------|--------------|---------------------------|
| Westwood | VEHICLE GATE | LAST REVISED: 11/24/17 |
| | | FN05A |



- NOTES:**
1. SEE NOTES IN DETAIL FN01 ON THIS SHEET.

| | | |
|----------|----------------|---------------------------|
| Westwood | PERSONNEL GATE | LAST REVISED: 01/08/19 |
| | | FN05B |

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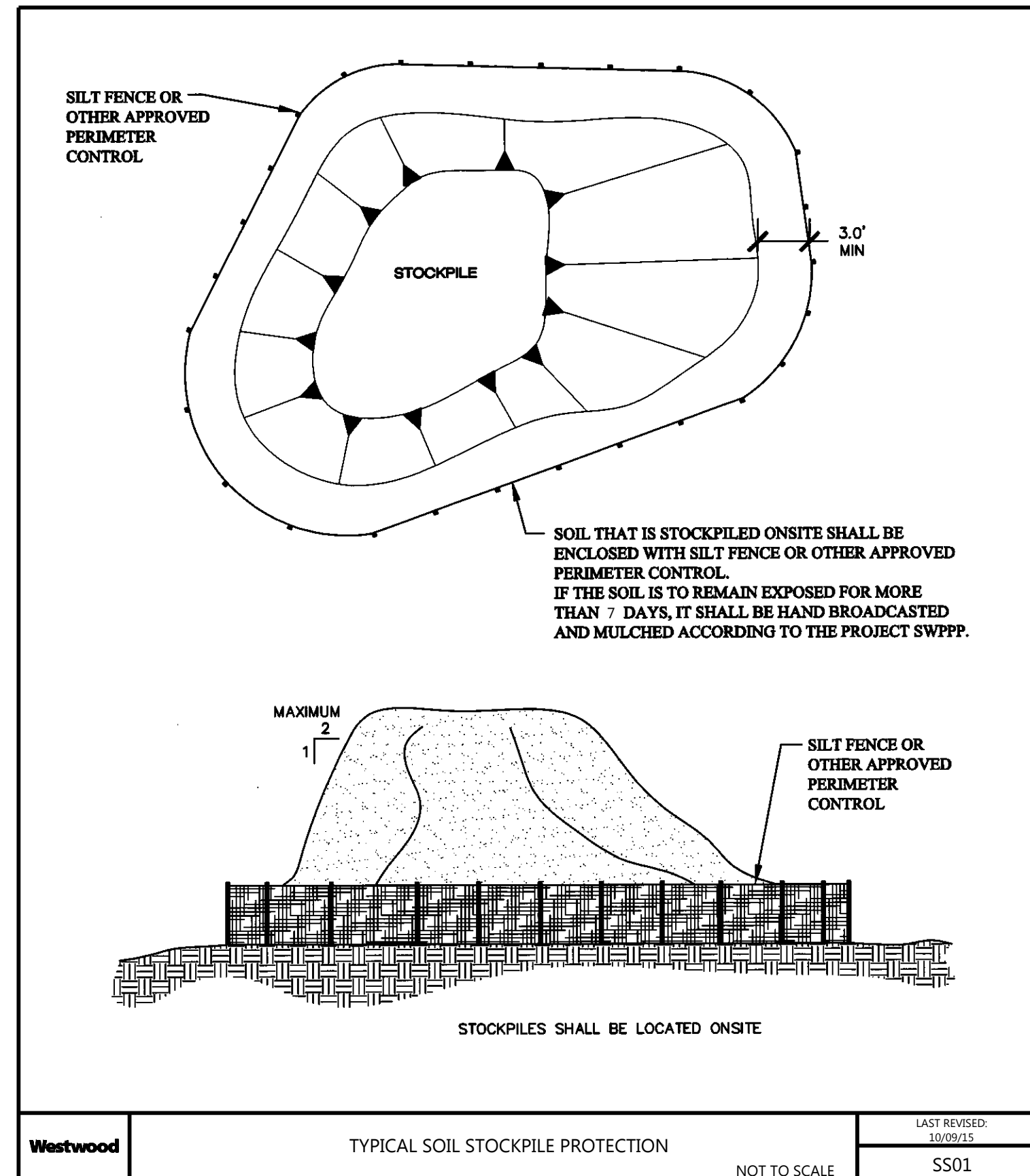
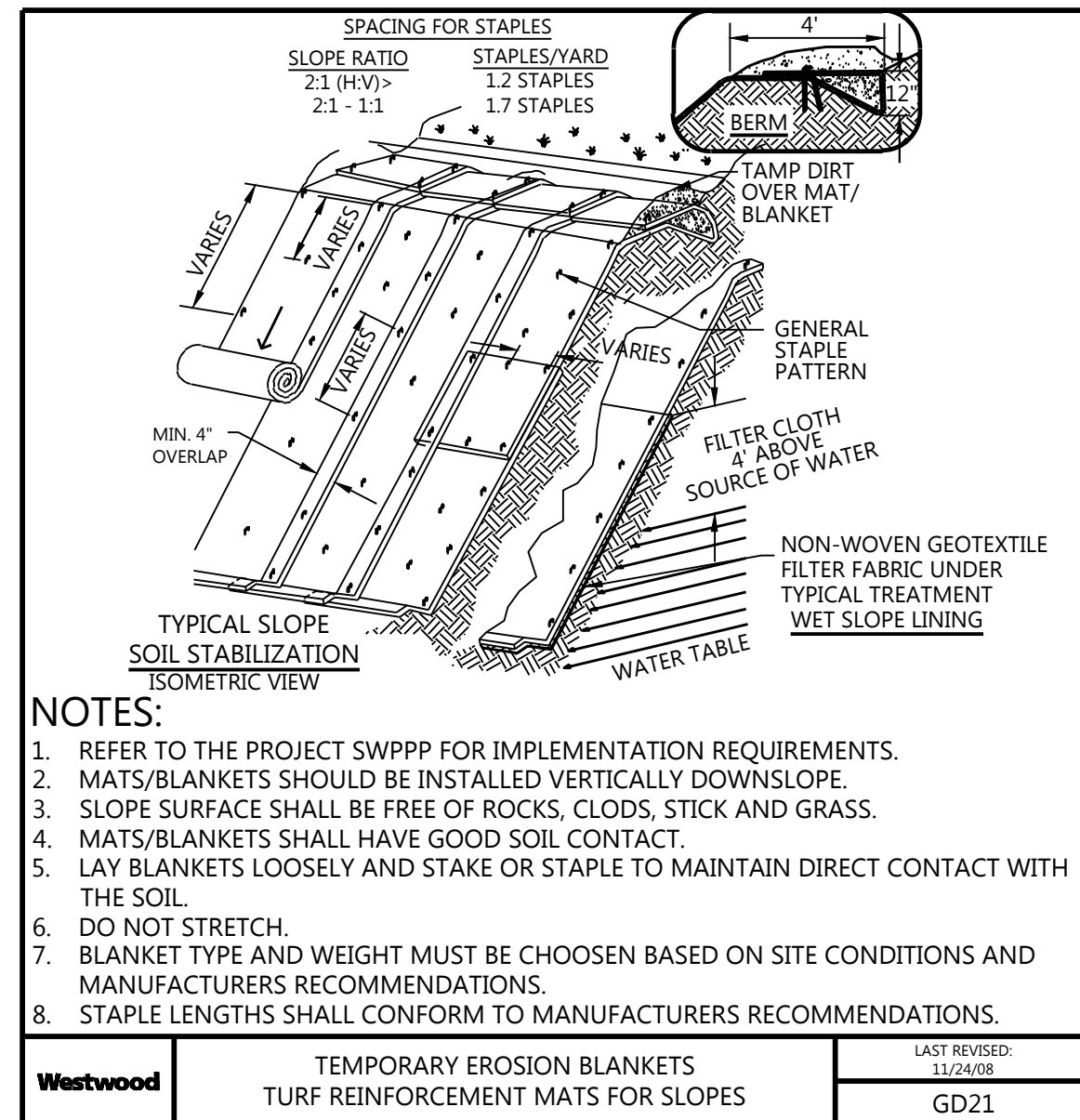
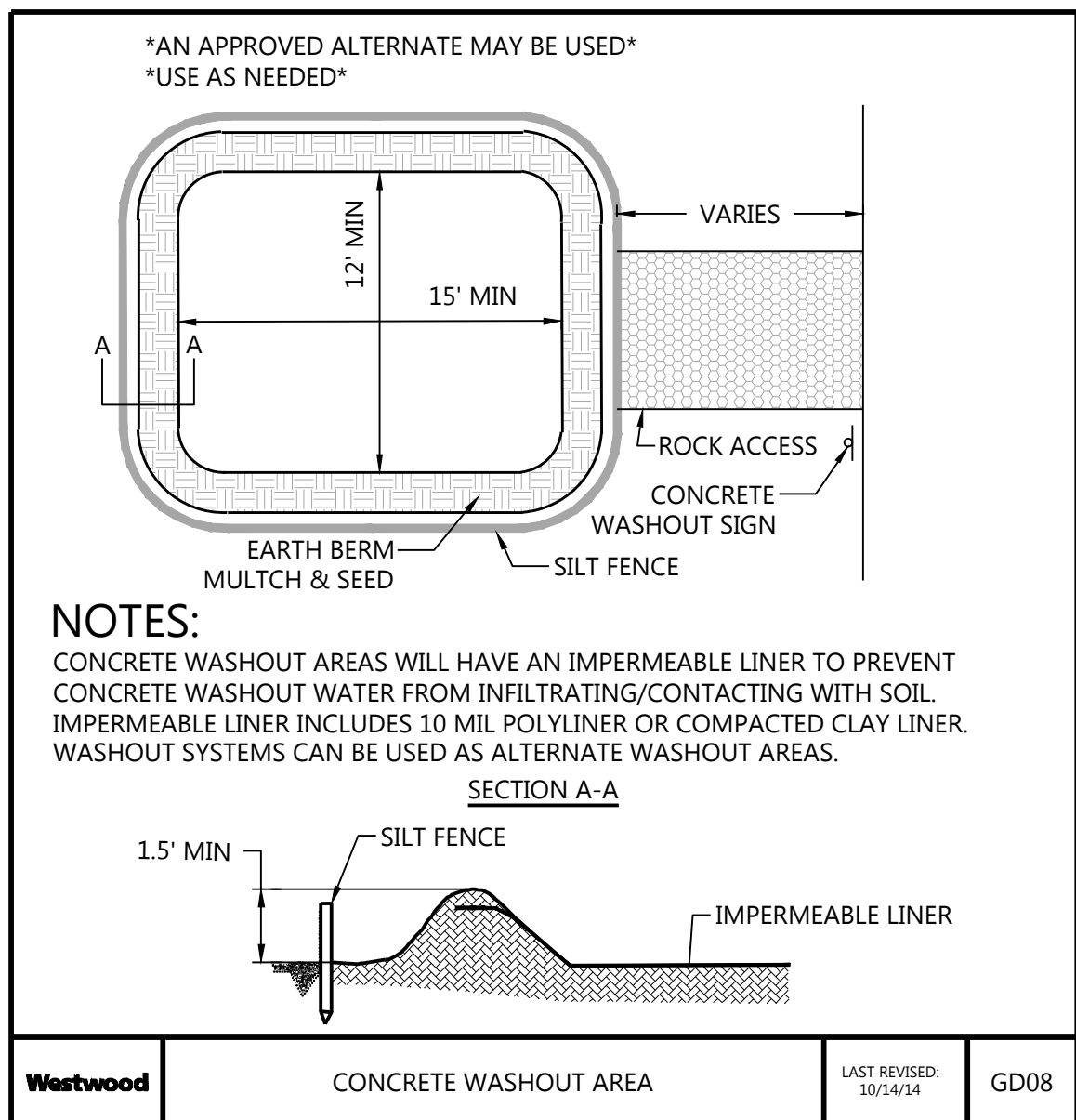
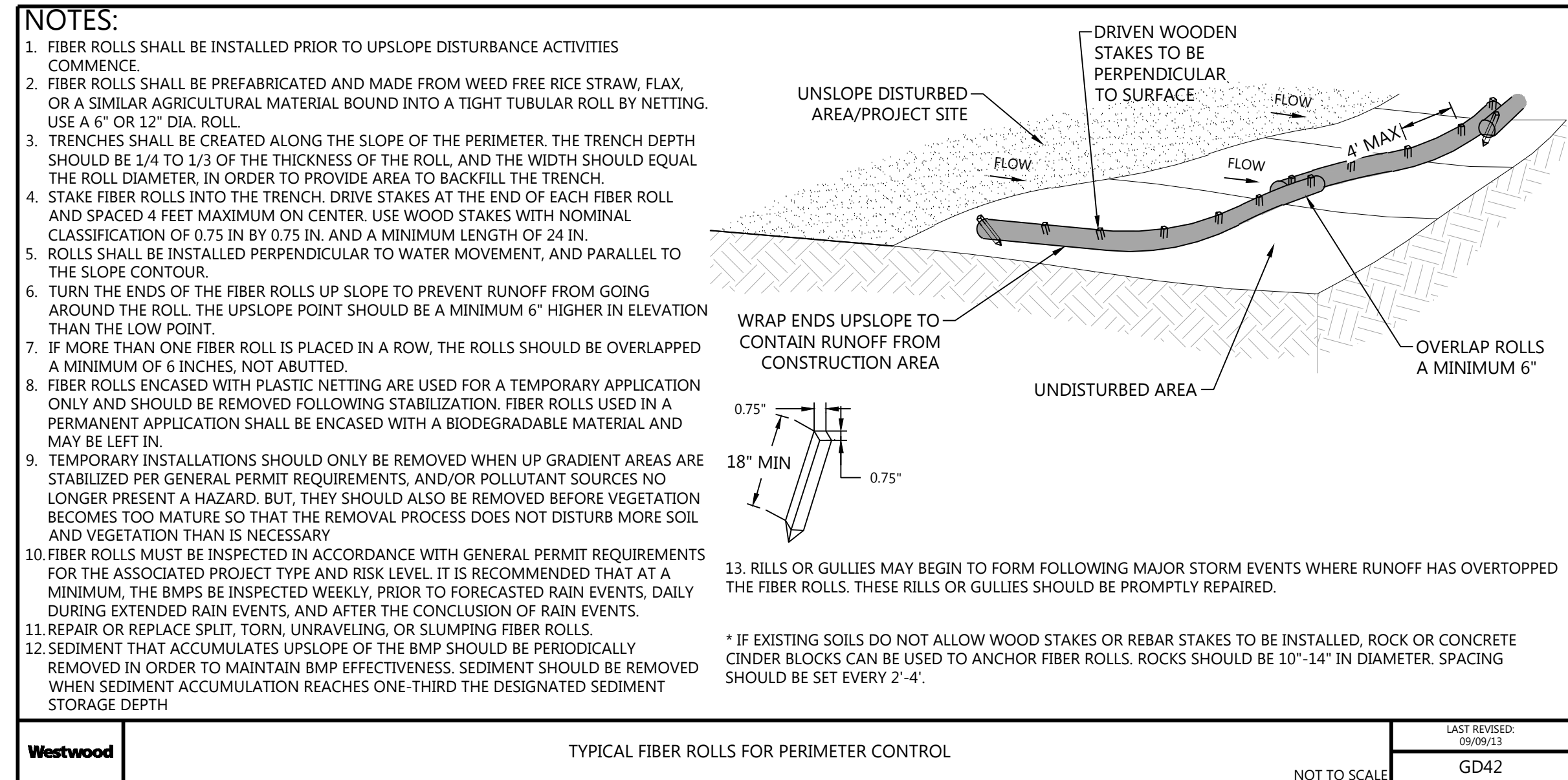
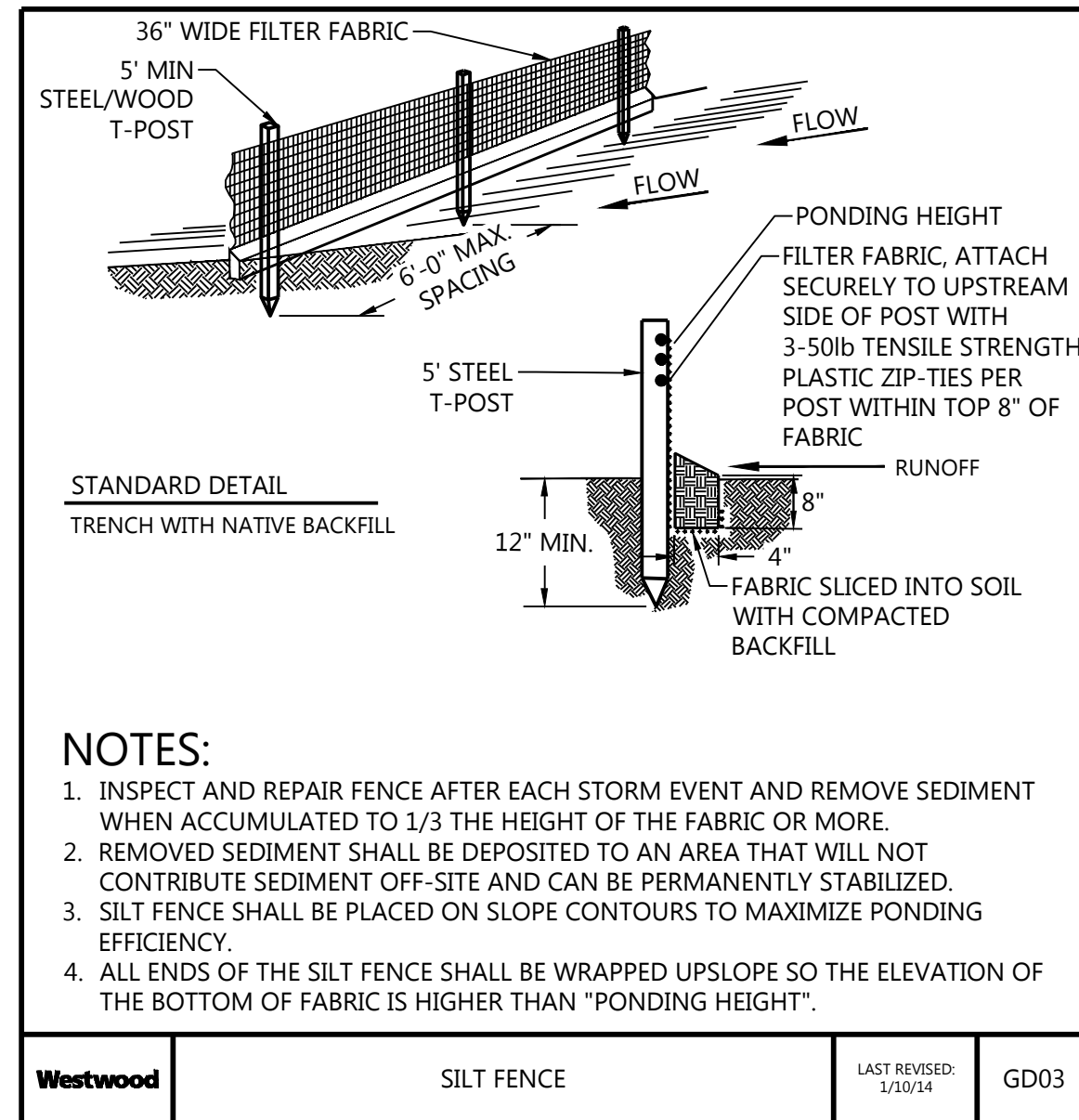
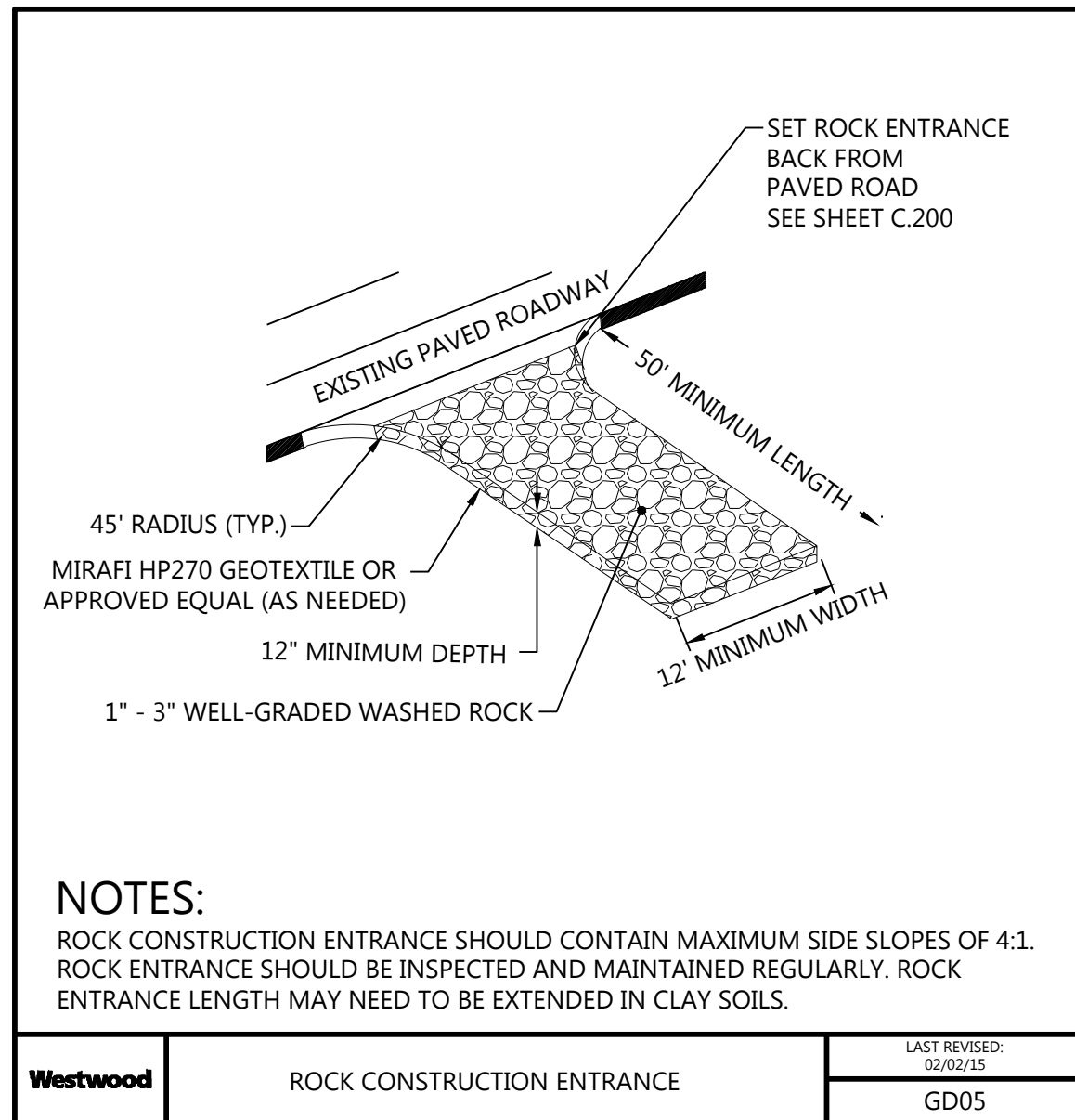
14874 120th Ave. N.
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Construction Details

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DATE: 08/02/2019

SHEET: C.400



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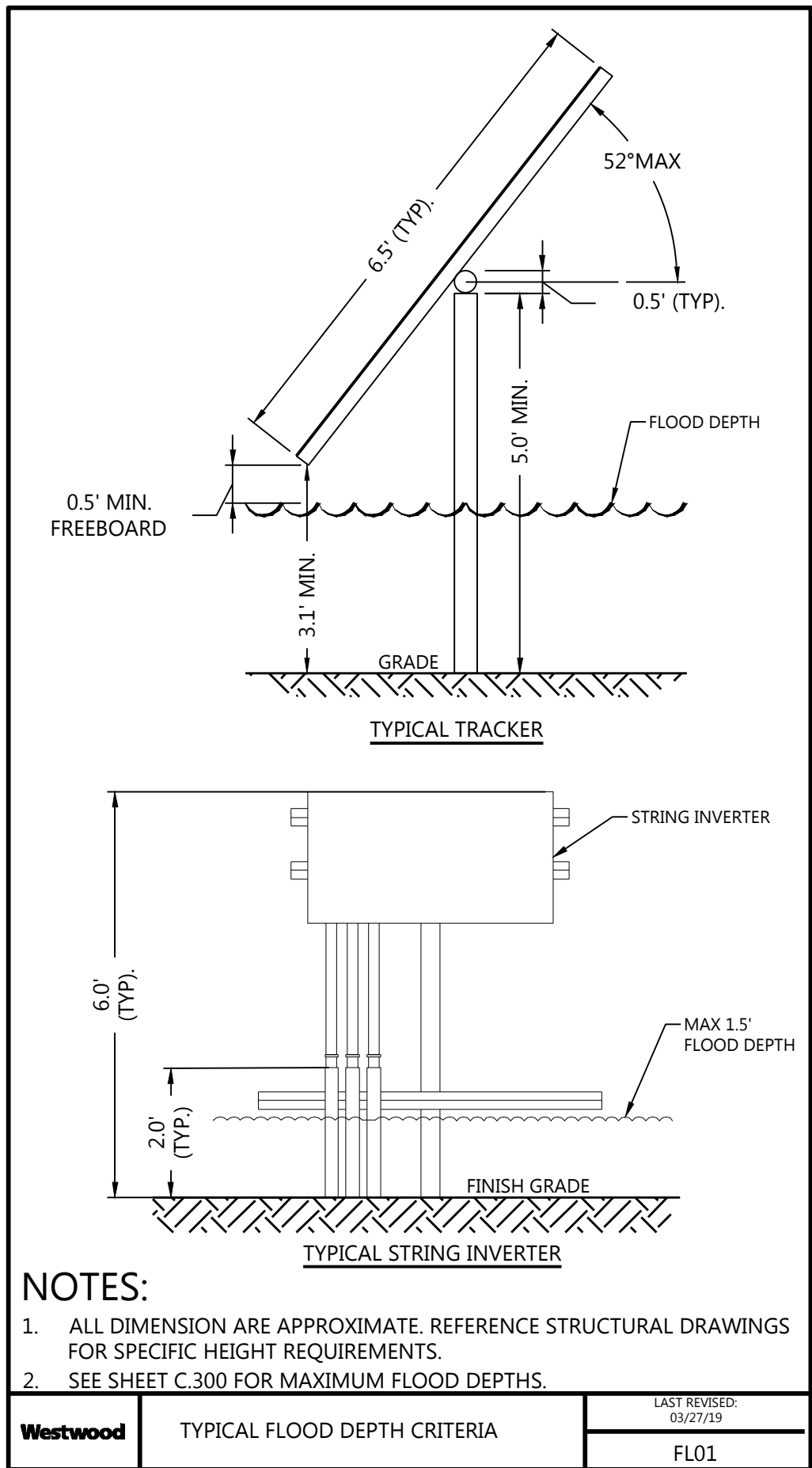
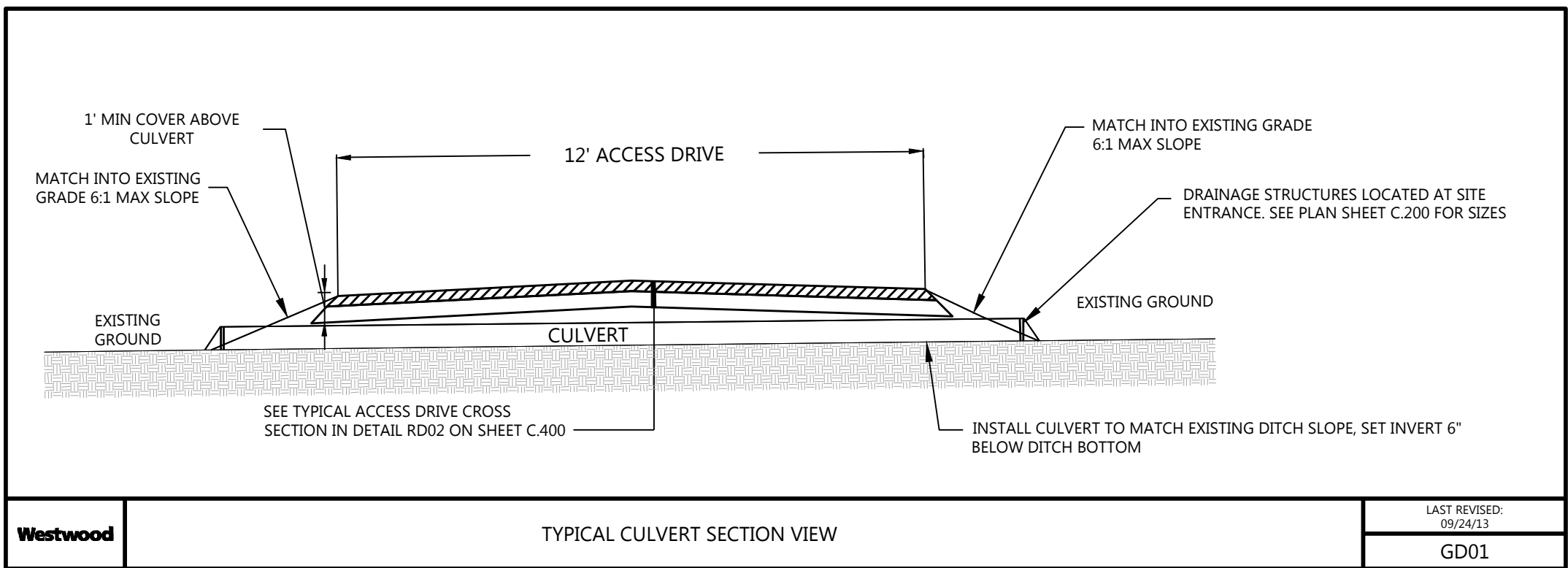
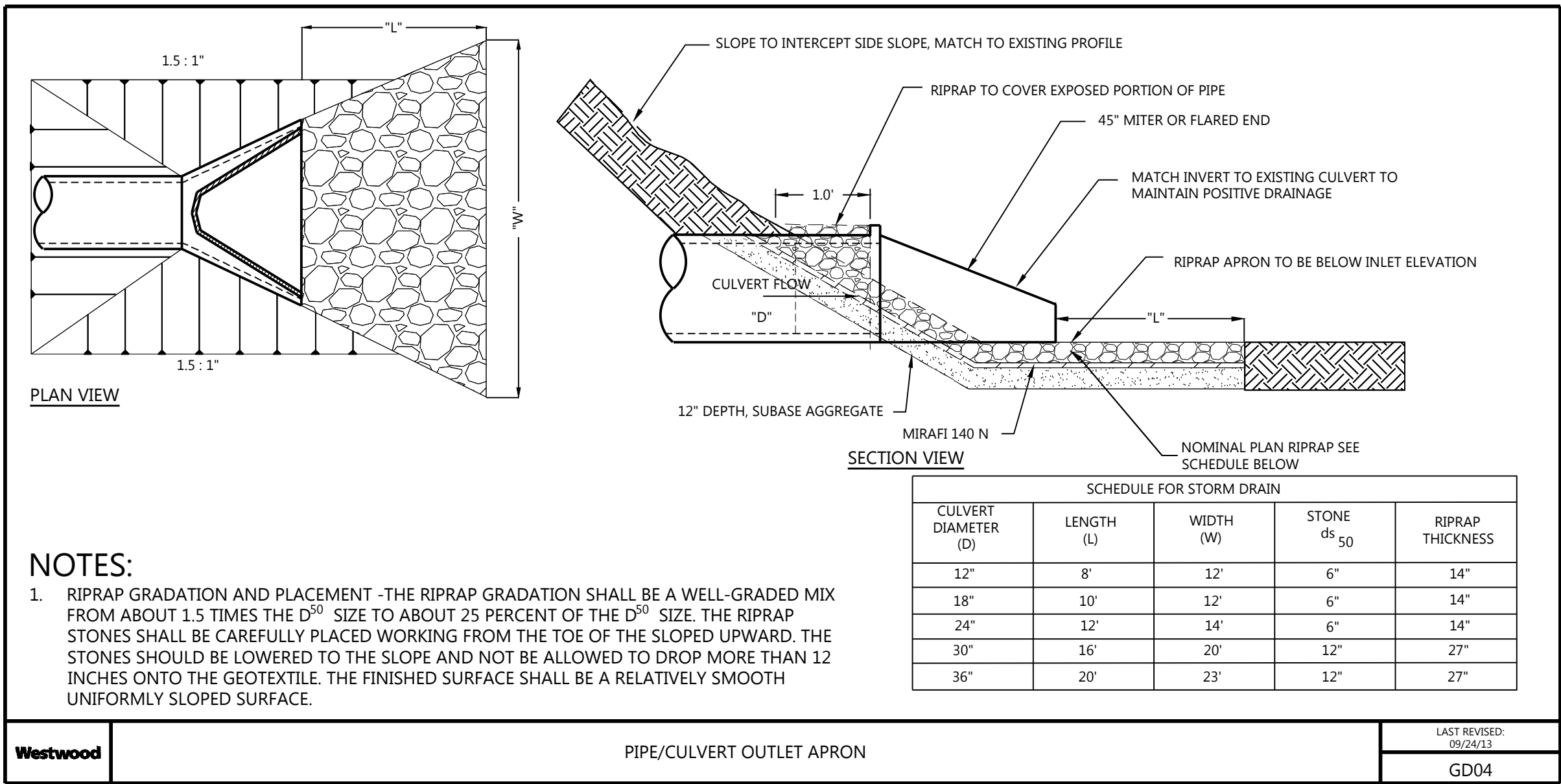
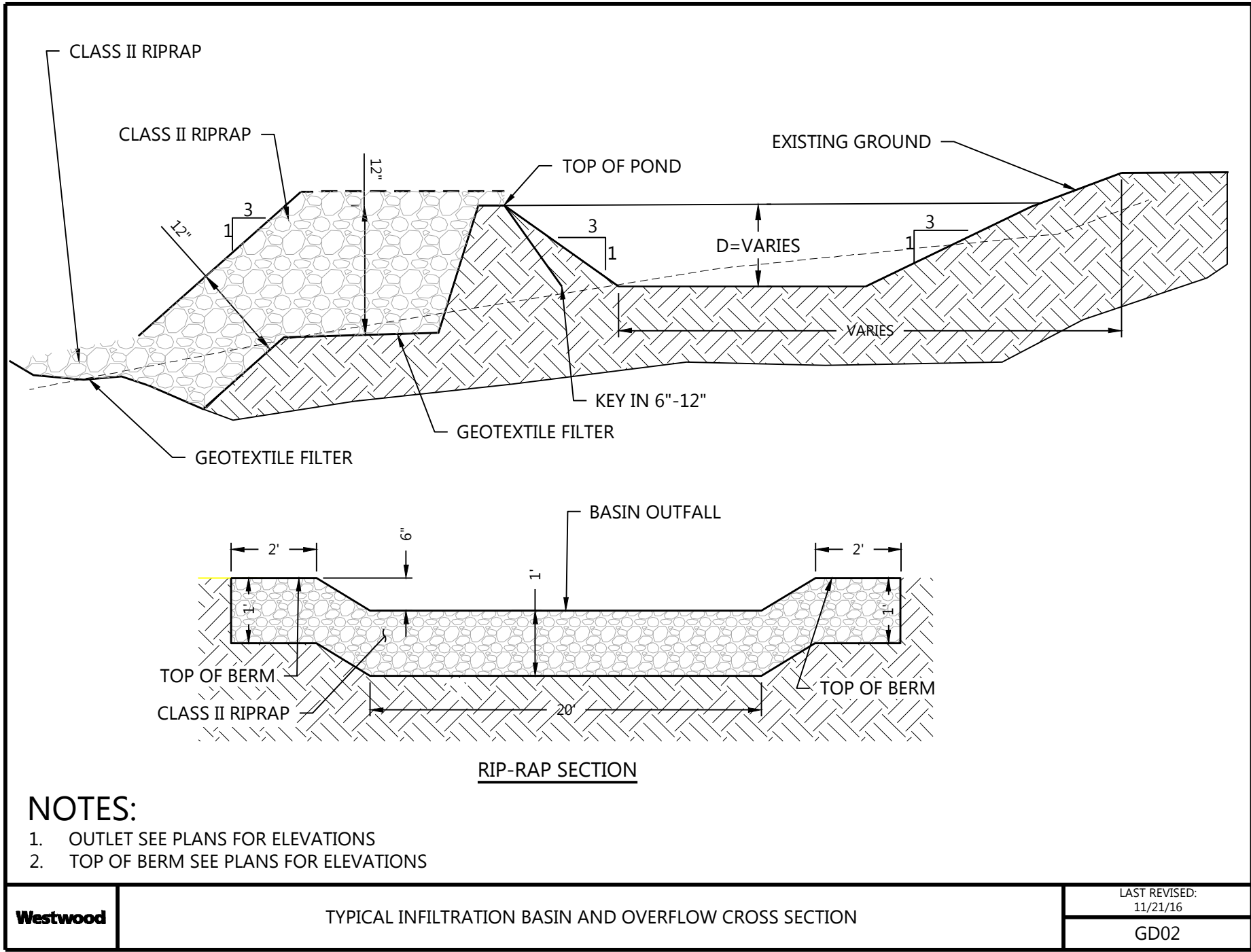
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Construction Details

NOT FOR CONSTRUCTION

DATE: 08/02/2019

SHEET: C.402



ACCESS DRIVE DESIGN PARAMETERS

1. THE DRIVE HAS BEEN DESIGNED TO ACCOMMODATE LOADS DURING CONSTRUCTION AND LIGHT DUTY TRUCKS FOR LOW VOLUME USE IN NORMAL OPERATING CONDITIONS. THE DRIVE DESIGN SPECIFIED IS NOT INTENDED FOR ALL WEATHER USE FOR HEAVY DUTY, HIGH VOLUME, CONSTRUCTION LOADS.
2. DRIVE MAINTENANCE CAN BE EXPECTED DURING CONSTRUCTION AND OVER THE LIFE OF THE PERMANENT FACILITY.
3. DRIVE SECTION AND SPECIFICATION SHOWN ON THE PLANS ARE BASED ON OWNER REQUIREMENTS AND MAY DIFFER FROM THE FINAL GEOTECHNICAL REPORT AND RECOMMENDATIONS FROM THE ENGINEER OF RECORD.

PRODUCTS

1. ACCESS DRIVE AGGREGATE SHALL CONSIST OF CRUSHED CLASS 5 AGGREGATE BASE MEETING MNDOT SPEC 3138 AND THE GRADATION PROVIDED IN TABLE 1A.
2. CULVERTS: SEE PLAN FOR DRAINAGE CULVERT LOCATIONS. ACCESS DRIVE CULVERTS SHALL MEET THE MINIMUM SPECIFICATIONS SET FORTH BY THE MINNESOTA DEPARTMENT OF TRANSPORTATION AND/OR CLAY COUNTY, MN. ALL MANUFACTURED OF CORRUGATED METAL PIPE OR APPROVED EQUAL.
3. GEOTEXTILE FABRIC FOR ACCESS DRIVES SHALL BE MIRAFI HP270 AND FOR PONDS SHALL BE MNDOT 3733 TYPE IV OR APPROVED EQUAL.
4. EXCAVATED SOILS THROUGHOUT PROJECT MAY BE USED AS STRUCTURAL FILL OR THIN SPREAD ON THE PROJECT PROPERTY. STRUCTURAL FILL SHALL BE CLEAN OF FROZEN MATERIAL, DEBRIS AND ORGANIC MATERIAL.

EXECUTION

1. **SITE PREPARATION**
 - A. THE CONTRACTOR SHALL BE REQUIRED TO CLEAR AND GRUB AREAS DESIGNATED ON THE PLANS REMOVING ALL TREES, STUMPS, BRUSH AND DEBRIS. TREES AND BRUSH LOCATED OUTSIDE OF THE PROJECT FENCE SHALL NOT BE DISTURBED EXPECT WHERE NOTED ON THE PLANS. SEE SHEET C.300 FOR LOCATIONS OF TREE REMOVAL AND WHERE STUMPS SHALL BE REMOVED OR REMAIN.
 - B. AREAS THAT ARE NOT TO BE CLEARED AND GRUBBED SHALL HAVE ANY EXISTING VEGETATION MOWED TO A MAXIMUM HEIGHT OF 6 INCHES.
 - C. THE CONTRACTOR SHALL PRESERVE OTHER EXISTING VEGETATION TO THE MAXIMUM EXTENT PRACTICABLE. ANY VEGETATION THAT IS REMOVED SHALL ONLY BE ALLOWED WITHIN THE PROJECT BOUNDARY. THE CONTRACTOR IS TO REMOVE ONLY THAT VEGETATION WHICH SHALL BE DESIGNATED BY THE OWNERS REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING VEGETATION TO BE SAVED. CONSTRUCTION FENCING MAY BE INSTALLED TO PROTECT AREAS THAT ARE NOT TO BE DISTURBED.
 - D. NO BURNING OF DEBRIS IS ALLOWED WITHOUT THE NECESSARY PERMITS FROM JURISDICTIONAL GOVERNING AUTHORITIES AND APPROVAL BY THE OWNER.
2. **FILL MATERIALS AND PLACEMENT**
 - A. ALL STRUCTURAL FILL MATERIALS SHALL BE INORGANIC SOILS FREE OF VEGETATION, DEBRIS, FROZEN SOIL, AND FRAGMENTS LARGER THAN THREE (3) INCHES IN SIZE. PEA GRAVEL OR OTHER SIMILAR NON-CEMENTITIOUS, POORLY-GRADED MATERIALS SHALL NOT BE USED AS FILL OR BACKFILL WITHOUT THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
 - B. CLEAN ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS STRUCTURAL FILL MATERIAL FOR SITE GRADING IN ARRAY AREAS AND BELOW ACCESS ROADS. THIS MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8".
 - C. ANY IMPORTED SOILS MUST HAVE EXPANSION INDEX VALUES IN THE "VERY LOW" RANGE AND MEET THE GRADATION PROVIDED IN TABLE 4.

ACCESS DRIVE CONSTRUCTION AND SITE GRADING

1. **TOPSOIL MANAGEMENT**
 - A. TOPSOIL SHALL BE STRIPPED FROM ALL DRIVEWAY AREAS A MINIMUM OF 8" OR WHERE THE ROOT ZONE EXTENDS TO A DEEPER DEPTH. TOPSOIL STRIPPING SHALL OCCUR FOR ANY AREAS WHERE FILL WILL BE PLACED.
 - B. STRIPPED MATERIALS CONSISTING OF VEGETATION AND ORGANIC MATERIALS SHALL BE STOCKPILED ON THE SITE. STOCKPILES WITHIN THE SITE SHALL HAVE TEMPORARY EROSION AND SEDIMENT CONTROL APPLIED IN ACCORDANCE WITH THE PROJECT SWPPP OR USED TO REVEGETATE LANDSCAPED AREAS OR EXPOSED SLOPES AFTER COMPLETION OF GRADING OPERATIONS. IF IT IS NECESSARY TO DISPOSE OF ORGANIC MATERIALS ON-SITE THEY SHALL BE PLACED IN NON-STRUCTURAL AREAS.
2. **INTERNAL DRIVE EMBANKMENT**
 - A. EMBANKMENT CONSTRUCTION SHALL CONSIST OF PLACING SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE AS INDICATED ON CIVIL PLANS. GENERALLY, THE INTERNAL DRIVE EMBANKMENT SHALL HAVE COMPACTED SUPPORT SLOPES OF THREE FEET HORIZONTAL AND ONE FOOT VERTICAL.
 - B. THE STRUCTURAL FILL FOR EMBANKMENT CONSTRUCTION SHALL BE GENERATED ON SITE BY THE CONTRACTOR FROM THE IDENTIFIED BORROW AREA, IF APPLICABLE. THIS MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8".
 - C. ALL SLOPES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GRADING SHOWN ON THE PLANS.
 - D. EXPOSED SURFACES SHALL BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION. SEE TABLE 2 FOR TESTING REQUIREMENTS AND TABLE 3 FOR COMPACTION REQUIREMENTS.
3. **SITE GRADING**
 - A. SUBSEQUENT TO THE SURFACE CLEARING, GRUB AND REMOVE TOPSOIL IN ALL GRADING AREAS ON THE PLAN, THE SUBSURFACE SOILS SHALL HAVE THE GRADES AND ELEVATIONS MODIFIED AS SHOWN ON THE PLANS. THE PROPOSED CONTOURS AND ELEVATIONS SHOWN ON THE PLANS ARE TO FINISHED GRADE. TOPSOIL SHALL BE STOCKPILED ON-SITE TO BE REPLACED ON THE TOP 6" OF FINISHED GRADES AND BASIN AREAS.
 - B. SUBSURFACE SOILS SHALL BE MOISTURE CONDITIONED AND COMPACTED TO THE SPECIFICATIONS OF TABLE 3.
 - C. CLEAN, ORGANIC FREE, ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS SUBGRADE MATERIAL FOR GENERAL SITE GRADING.
3. **SUBGRADE PREPARATION**
 - A. SUBSEQUENT TO THE SURFACE CLEARING, GRUBBING, TOPSOIL REMOVAL AND EMBANKMENT CONSTRUCTION, THE EXPOSED SUBGRADE SOILS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF TWELVE (12) INCHES, MOISTURE CONDITIONED AND COMPACTED TO THE SPECIFICATIONS OF TABLE 3. THE COMPACTED EXPOSED SUBGRADES SHALL BE PROOF ROLLED AND OBSERVED BY A GEOTECHNICAL ENGINEER TO DETERMINE IF SOFT SOILS EXIST. IF SOFT SOILS EXIST THEY SHALL BE SCARIFIED AND ALLOWED TO DRY, RECOMPACTED AND TESTED AGAIN. IF THEY CONTINUE TO REMAIN SOFT, FOLLOWING SCARIFICATION, DRYING AND RECOMPACTION EFFORTS ADDITIONAL AGGREGATE MAY BE ADDED FOR STABILITY.
 - B. CLEAN, ORGANIC FREE, ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS SUBGRADE MATERIAL FOR GENERAL SITE GRADING AND DRIVEWAY AREAS.
4. **AGGREGATE PLACEMENT**
 - A. ACCESS DRIVES - SUBSEQUENT TO THE SUBGRADE PREPARATION THE DRIVE AGGREGATE BASE SHALL BE PLACED AND COMPACTED TO THE SPECIFICATIONS IDENTIFIED IN TABLE 3.
 - B. CLASS II RIP-RAP - AT STORMWATER BASIN, RIP-RAP QUALITY SHALL COMPLY WITH MNDOT SPECIFICATION 3601 AND THE GRADATION IDENTIFIED IN TABLE 1B.
5. **TOPSOIL REDISTRIBUTION AND STABILIZATION**
 - A. FOLLOWING THE PLACEMENT OF THE AGGREGATE BASE AND APPROVAL OF THE TESTING, TOPSOIL SHALL BE DISTRIBUTED IN THE AREAS INDICATED ON SHEET C. 300.
 - B. FOLLOWING SITE GRADING OPERATIONS, TOPSOIL CAN BE USED TO BRING THE GROUND ELEVATIONS UP TO THE DESIGNED FINISHED GRADE ELEVATIONS. THE TOP 6" OF FINISHED GRADE IN AREAS TO BE SEEDED (INCLUDING PERMANENT STORMWATER BASINS) SHALL CONSIST OF TOPSOIL.
 - C. THE TOPSOIL SHALL HAVE TEMPORARY AND PERMANENT STABILIZATION MEASURES ESTABLISHED IN ACCORDANCE WITH THE PROJECT SWPPP.

| TABLE 1A: MNDOT CLASS 5, MNDOT SPEC 3138 | |
|--|-----------------|
| SIEVE SIZE | PERCENT PASSING |
| 1" | (100) |
| 3/4" | (90-100) |
| 3/8" | (50-90) |
| #4 | (35-80) |
| #10 | (20-65) |
| #40 | (10-35) |
| #200 | (3.0-10.0) |

| TABLE 1B: MNDOT CLASS II RIP RAP, MNDOT SPEC 3601 | |
|---|-----------------|
| WEIGHT (LBS) | PERCENT PASSING |
| 120 | 100 |
| 50 | 75 |
| 15 | 50 |
| 2 (INCHES) | 10 |

| TABLE 2: TESTING SCHEDULE SUMMARY | | |
|-----------------------------------|--|---|
| LOCATION | TEST | FREQUENCY |
| STRUCTURAL FILL | GRAIN SIZE ANALYSIS, MOISTURE CONTENT, AND PROCTOR | 1 PER MAJOR SOIL TYPE |
| | MOISTURE DENSITY TEST (NUCLEAR DENSITY) | 1 PER 1 FOOT VERTICAL LIFTS AND/OR 200 C.Y. OF MATERIAL |
| COMPACTED SUBGRADE | PROOF-ROLL | ENTIRE LENGTH |
| AGGREGATE BASE | PROOF-ROLL | ENTIRE LENGTH |
| | SIEVE ANALYSIS | 1 PER 2000 C.Y. |

TABLE 3: COMPACTION AND MOISTURE CONTENT REQUIREMENTS

| MATERIAL TYPE AND LOCATION | MINIMUM COMPACTION REQUIREMENT (%) | RANGE OF MOISTURE CONTENTS FOR COMPACTION (% OVER OPTIMUM) | |
|----------------------------|------------------------------------|--|---------|
| | | MINIMUM | MAXIMUM |
| AGGREGATE BASE: | 95 | -2% | 2% |
| STRUCTURAL FILL: | 95 | -2% | 2% |
| NON-STRUCTURAL FILL: | 90 | -4% | 4% |

TABLE 4: MNDOT SPEC 3149, TABLE 3149-4 (IMPORTED STRUCTURAL FILL)

| SIEVE SIZE | PERCENT PASSING |
|------------|-----------------|
| 3/4" | (100) |
| #40 | (0-65) |
| #200 | (0-10) |

1. PROVIDE SCREENED MATERIAL MEETING THE REQUIREMENTS OF 3137.2.B.3, "CLASSIFICATION" FOR CLASS C.
2. PROVIDE MATERIAL WITH A MINIMUM ANGLE OF FRICTION OF 34° IN ACCORDANCE WITH AASHTO T.236. PERFORM TESTS ON THE SAMPLE PORTION PASSING THE NO. 10 SIEVE AND COMPACTED TO 95 PERCENT OF MOISTURE DENSITY TEST METHOD (PROCTOR).

TESTING REQUIREMENTS:

DEFINITIONS

1. THE CONTRACTOR SHALL SUBMIT MATERIAL TESTING REPORTS AS SHOWN ON THE DRAWINGS AS WELL AS GEOTEXTILE MATERIAL TO BE USED DURING CONSTRUCTION.
2. TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
3. SUBMIT TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD FOR REVIEW.
 - A. THE ENGINEER WILL REVIEW THE TESTING AND INSPECTION RECORDS TO CHECK CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONSTRUCTION CONTRACTOR FROM THE RESPONSIBILITY FOR CORRECTING DEFECTIVE WORK.
3. PROOF ROLLING SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED WATER TRUCK WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
4. SIEVE ANALYSIS SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM C136
5. PROCTORS SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D698
6. MOISTURE DENSITY (NUCLEAR DENSITY) TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM D2922
7. EXPANSION INDEX TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM D4829-11

REQUIREMENTS

1. COMPACTION:
 - A. REFER TO TABLE 3 FOR COMPACTION REQUIREMENTS AND ACCEPTABLE MOISTURE CONTENTS.
2. IMPORTED FILL MATERIAL:
 - A. IMPORTED SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS, PROCTOR TESTS, AND MAXIMUM EXPANSION INDEX.
3. COMPACTED SUBGRADE:
 - A. THE ENTIRE INTERNAL/ACCESS DRIVE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE. IF UNSTABLE SUBGRADE IS ENCOUNTERED SCARIFY, MOISTURE CONDITION, AND RECOMPACT SOILS TO ACHIEVE COMPACTION.
4. AGGREGATE BASE:
 - A. AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. IF PROOF ROLLING DETERMINES THAT THE DRIVE IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL FOR ALL DRIVE CLASSIFICATIONS.
 - B. PROVIDE 1 SIEVE ANALYSIS PER 2000 CY OF DRIVE AGGREGATE BASE PLACED.
5. STRUCTURAL FILL:
 - A. PROVED GRAIN SIZE ANALYSIS, MOISTURE CONTENT, AND PROCTOR TESTS ONCE PER MAJOR SOIL TYPE.
 - B. PROVIDE MOISTURE DENSITY COMPACTION TESTS ONCE PER 1 FOOT VERTICAL LIFTS AND/OR 200 C.Y. OF COMPACTED FILL MATERIAL.
6. PROVIDE ALL TEST RESULTS TO OWNER AND ENGINEER FOR THEIR RECORDS.

TRAFFIC CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGGERS AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE CITY/COUNTY AND ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST VERSION OF THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

GENERAL NOTES:

1. CONSTRUCTION PLANS ARE BASED OFF THE NSRS 2011 MINNESOTA STATE PLANES, CENTRAL ZONE COORDINATE SYSTEM, US FOOT
2. THE ALTA SURVEY AND EXISTING PLANIMETRIC DATA WAS PROVIDED BY WESTWOOD PROFESSIONAL SERVICES.
3. ALL DIMENSIONS ARE TO PROJECT BOUNDARY, EDGE OF GRAVEL, FENCE LINES AND SOLAR PANELS UNLESS OTHERWISE NOTED.
4. THE GROUND SURFACE CONTOURS (AT ONE-FOOT VERTICAL INTERVALS) AND ELEVATIONS ARE BASED ON A LIDAR DATA. CONTRACTOR (AND ITS SUBCONTRACTORS) WILL NOTIFY THE ENGINEER AND OWNER OF DISCREPANCIES FOUND BETWEEN THE LIDAR SURVEY AND THE ACTUAL FIELD CONDITIONS.
5. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED AND ARE NOT TO BE REMOVED WITHOUT PERMISSION FROM THE OWNER. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
6. THE CONTRACTOR SHALL NOTIFY GOPHER ONE CALL (811 ONE CALL) AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
7. ELECTRONIC FILES ARE AVAILABLE FROM WESTWOOD PROFESSIONAL SERVICES FOR CONSTRUCTION OPERATIONS.
8. CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF ANY FEATURES AND FACILITIES (INCLUDING DRAIN TILE) FOUND DURING CONSTRUCTION.

EROSION AND SEDIMENT CONTROL / STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. PROJECT SWPPP PREPARED BY WESTWOOD.
2. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA) AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT. SEE THE PROJECT SITE PLANS AND ASSOCIATED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL AND RESTORATION LOCATIONS AND SPECIFICATIONS. UNLESS OTHERWISE NOTED OR MODIFIED IN THE SWPPP/HEREIN, ALL CONDITIONS OF THE GENERAL PERMIT SHALL APPLY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SWPPP'S AVAILABILITY ON SITE.
4. ALL EROSION CONTROL FEATURES SHALL BE IN-PLACE PRIOR TO ANY EXCAVATION/CONSTRUCTION AND SHALL BE MAINTAINED UNTIL VIABLE TURF OR GROUND COVER HAS BEEN ESTABLISHED.
5. ALL DRAINAGE SWALES DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY DRIVE SURFACING MATERIALS, SHALL BE STABILIZED IN ACCORDANCE WITH THE SWPPP PLAN.

Westwood

Phone (608) 821-6600 1800 Deming Way, Suite 102
Middleton, WI 53562
westwoodps.com

Westwood Professional Services, Inc.

PREPARED FOR:

US/SOLAR

100 N 6th St. #218c
Minneapolis, MN 55403

| REVISIONS: | | |
|------------|----------|-----------------------|
| # | DATE | COMMENT |
| A | 08/02/19 | Issued for 90% Review |
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USS Horne North
Solar LLC

Clay County, Minnesota

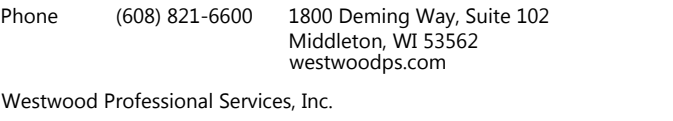
14874 120th Ave. N.
Feltsen, MN 56536

Construction Notes

NOT FOR CONSTRUCTION

DATE: 08/02/2019

SHEET: C.403



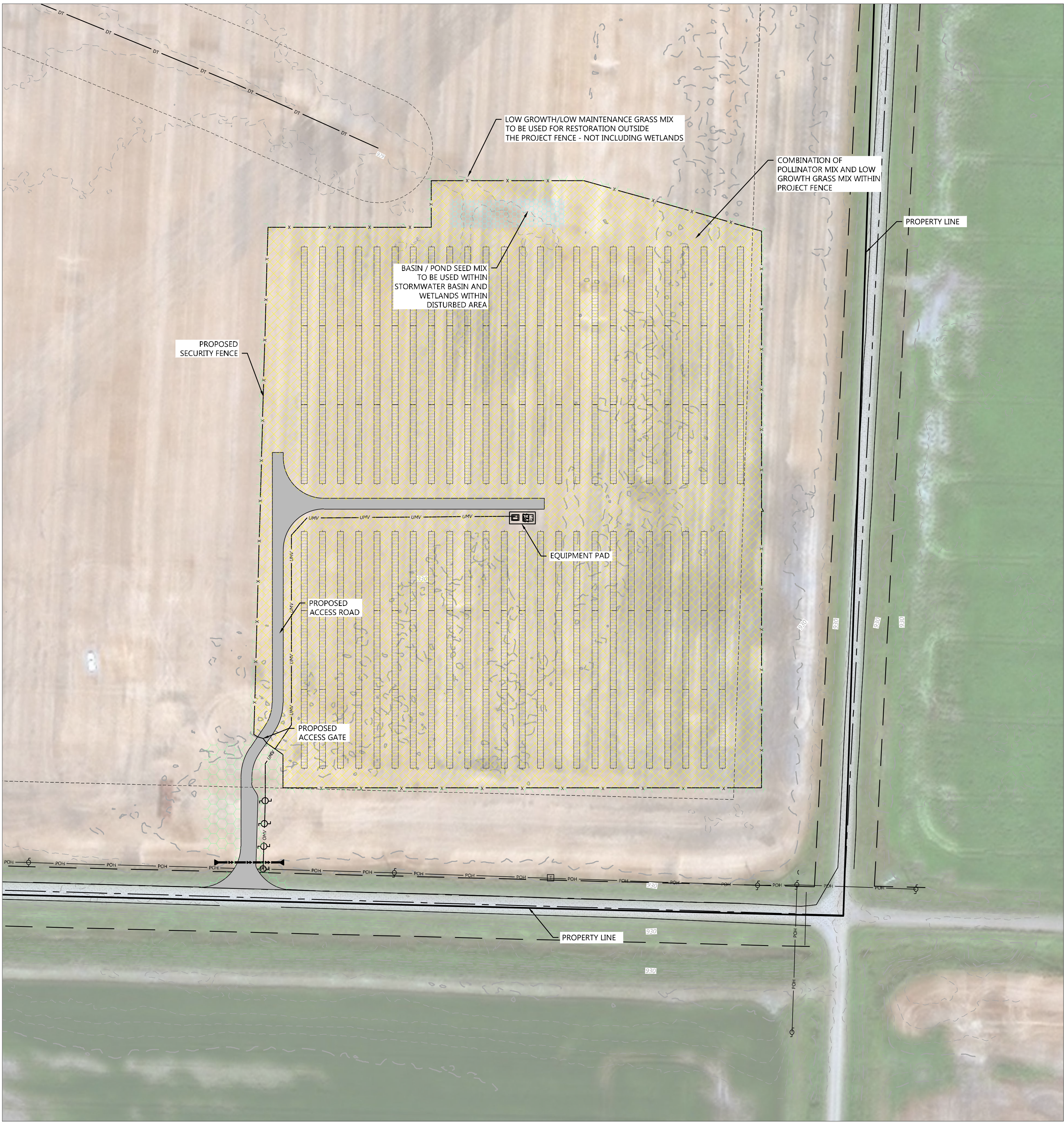
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14874 120th Ave. N
Felton, MN 56536

SHEET: C.500



—x— DENOTES PROPOSED SECURITY FENCE

| | |
|---|---|
|  | COMBINATION OF POLLINATOR MIX AND LOW GROWTH GRASS MIX - 7.8 AC |
|  | LOW GROWTH/LOW MAINTENANCE GRASS MIX - 0.5 AC |
|  | BASIN/POND MIX - 0.1 AC |

POLLINATOR MIX

SEED MIX TO BE PROVIDED BY LANDSCAPE CONTRACTOR FOR REVIEW.

LOW GROWTH/LOW MAINTENANCE GRASS MIX

SEED MIX TO BE PROVIDED BY LANDSCAPE CONTRACTOR FOR REVIEW.

BASIN/POND MIX

SEED MIX TO BE PROVIDED BY LANDSCAPE CONTRACTOR FOR REVIEW.

Seeding Notes

- NOTES:
- SEEDING TO BE COMPLETED USING A DRILL SEED METHOD WHERE FEASIBLE. WHERE DRILL SEEDING IS NOT FEASIBLE THE APPLICATION OF SEED VIA ALTERNATE METHODS INCLUDING BUT NOT LIMITED TO, BROADCAST OR HYDROSEEDING.
 - BROADCAST SEEDING SHALL BE COMPLETED IF AMBIENT SOIL TEMPERATURE IS CONSISTENTLY 60 DEGREES F OR LOWER
 - IF NOT FROST SEEDING, DRILLING SHOULD OCCUR BETWEEN APRIL 1ST AND JUNE 1ST
 - THE CONTRACTOR SHALL NOT TILL OR FERTILIZE THE FIELDS, IF THE GROUND NEEDS TO TO BE TILLED, CONTRACTOR SHALL USE A VERTICAL PLOW

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USS Horne North Solar LLC

Clay County, Minnesota

14874 120th Ave. N.
Felton, MN 56536

Landscape Details

NOT FOR CONSTRUCTION

DATE: 08/02/2019

SHEET: C.501