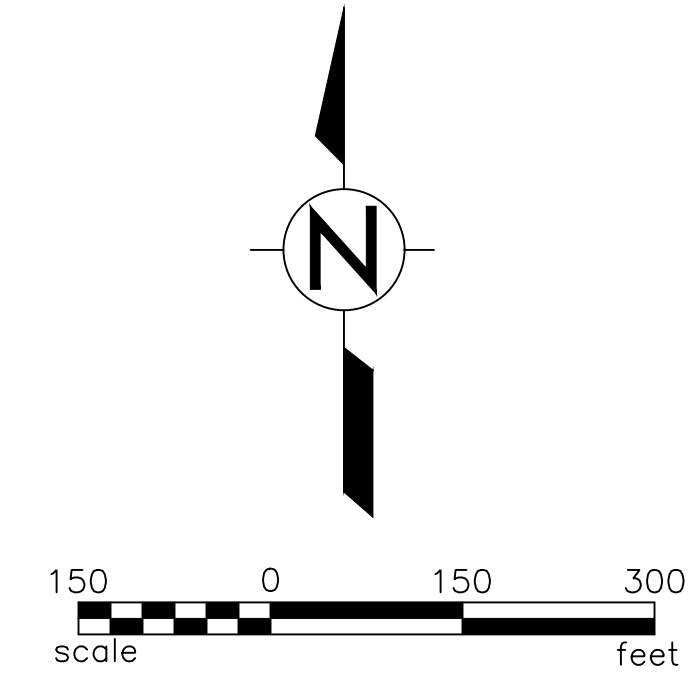


May 01, 2019 - 5:13pm
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CIVIL WORKS PERMIT PLAN SET FOR HELEN SOLAR AT 11567 BOONE ROAD PLATO, MINNESOTA 55370



BASIS OF BEARING:

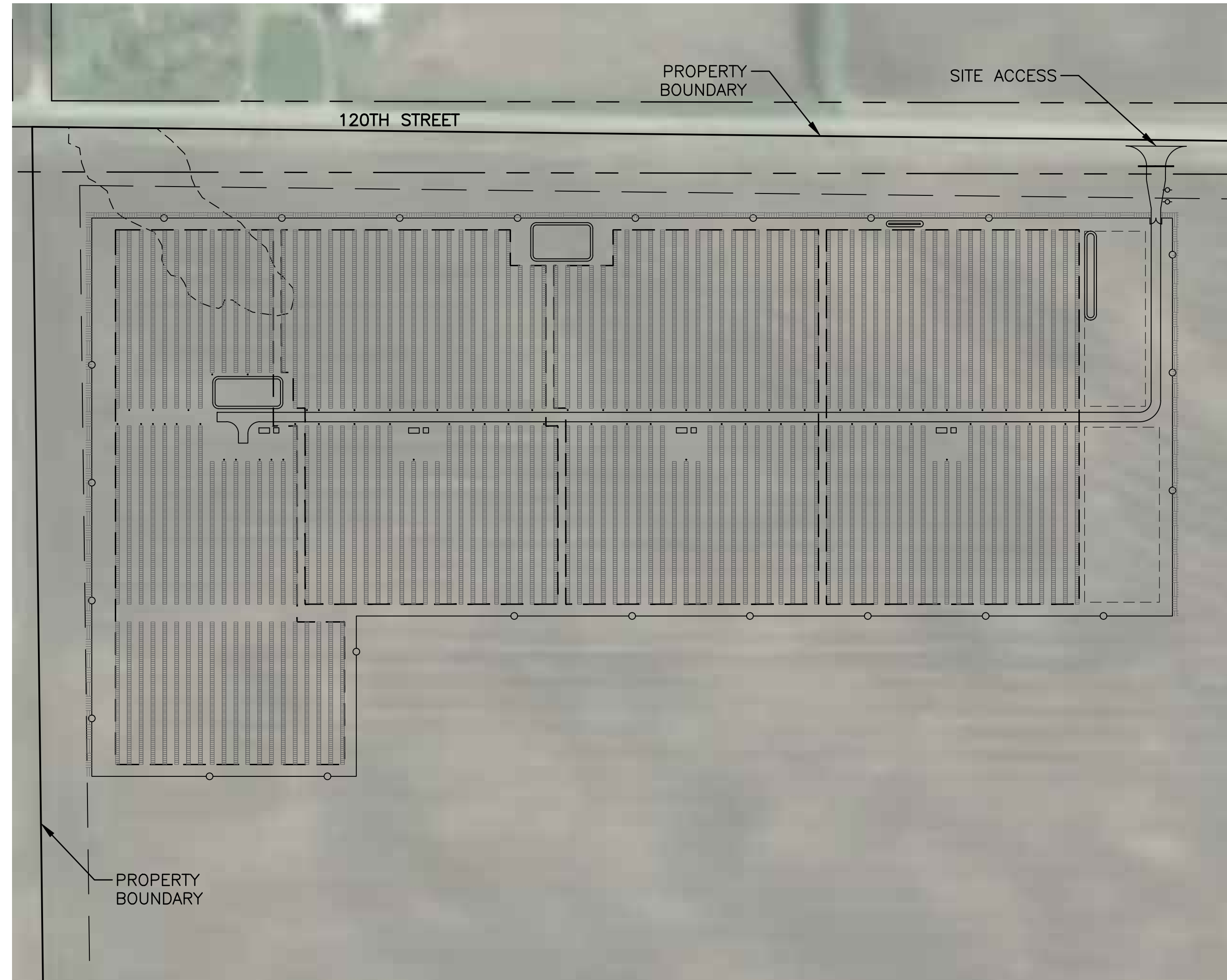
MCLEOD COUNTY COORDINATE SYSTEM NAD83, (96 ADJ.)

LEGAL DESCRIPTION:

THE NORTH 800' OF THE WEST 1700' OF THE NORTHEAST QUARTER IN SECTION 10, T 115N R27W (HELEN).

BENCHMARK:

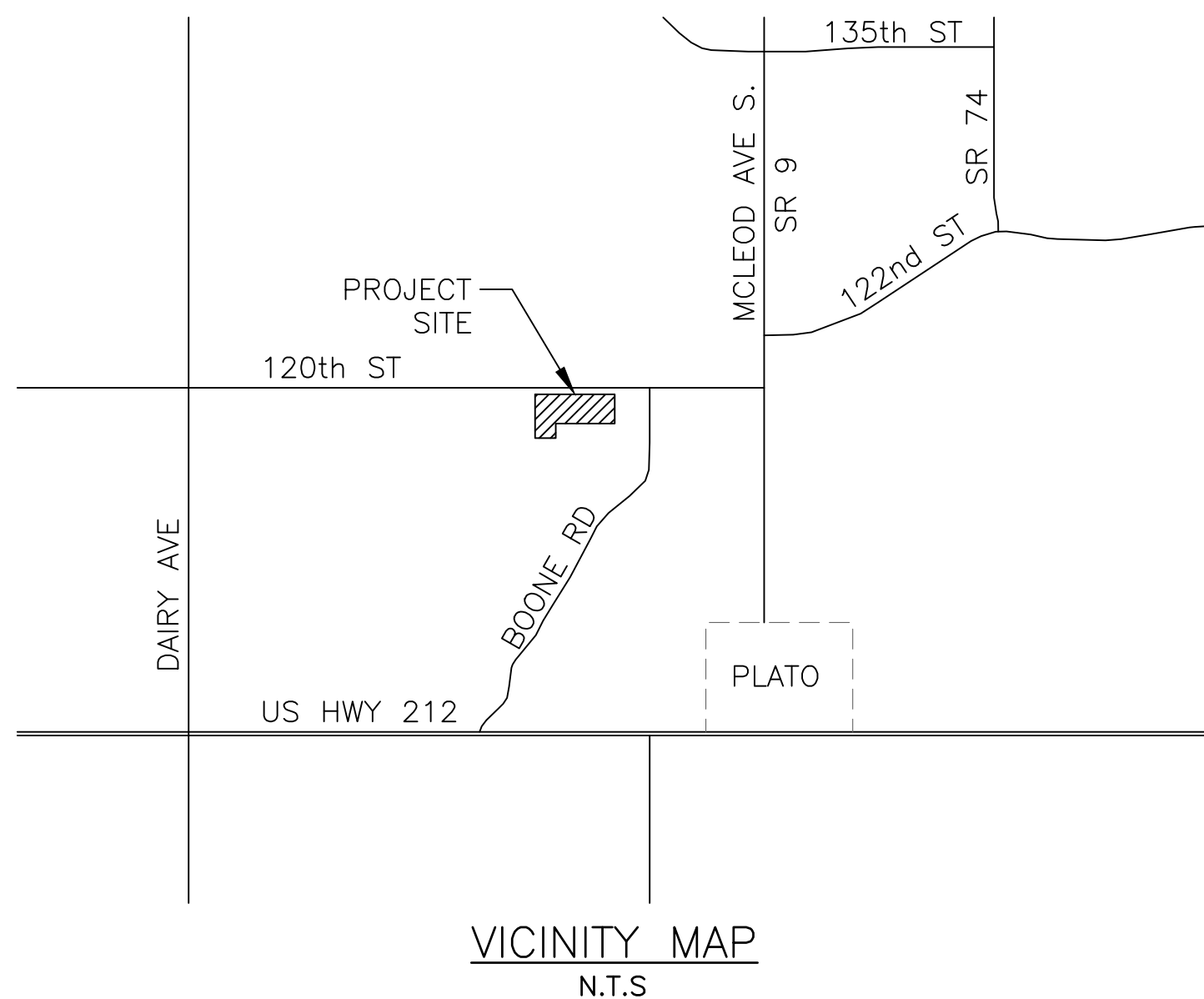
BENCHMARK: MNDOT GSID STATION # 103507
MNDOT NAME: 4310 J
ELEVATION: 997.547 NAVD88



SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C01.01	COVER SHEET
C02.01	GENERAL NOTES
C03.01	EXISTING CONDITIONS
C04.01	CIVIL SITE PLAN
C05.01	EROSION CONTROL & GRADING PLAN
C06.01	ROAD & FENCE DETAILS
C06.02	ENTRANCE & GRADING DETAIL
C06.03	BMP DETAILS

LEGEND

- — — — — SECTION LINE
- — — — — PARCEL LINE
- — — — — PROPERTY BOUNDARY
- — — — — ACCESS ROAD
- — — — — CHAINLINK FENCE
- - - - -5510- MAJOR CONTOUR
- - - - -5508- MINOR CONTOUR
- - - - - EASEMENT



CIVIL ENGINEER

AZTEC ENGINEERING GROUP, INC.
4561 E. MCDOWELL ROAD
PHOENIX, AZ 85008
(602)-454-0402

LICENSED ENGINEER:
SARAH SMEDLEY
MN PE REG# 52904

CONTRACTOR:

KNOBELSDORFF ELECTRIC
25701 370TH ST.
GOODHUE, MN 55027
(320)-587-2025

LAND SURVEYOR

E.G. RUD & SONS, INC.
990 5TH AVENUE SE, SUITE 2
HUTCHINSON, MN 55350
(320)-587-2025

REGISTERED LAND SURVEYOR:
KURT D. NELSON R.L.S. #45365

PROJECT DEVELOPER

NAUTILUS SOLAR ENERGY, LLC
396 SPRINGFIELD AVENUE, 2ND FLOOR
SUMMIT, NJ 07901
(520)-954-8811

PROJECT MANAGER
HOLLY CRABILL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.



Sarah Smedley
SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: MAY 01, 2019

ENGINEER
AZTEC
TYPESA Group

OWNER
NautilusSolar

CONTRACTOR
KNOBELSDORFF ELECTRIC INC

REV	DATE	DESCRIPTION	DRW	CK	APV	ISSUED FOR PERMIT
			NAB	TFR	SAS	
0	05/01/19					

SCALE: 1"=150'
SIZE: 22"x34"
PROJECT#: AZENE1907-01

PROJECT: HELEN SOLAR
11567 BOONE ROAD, PLATO, MN 55370

TITLE: CIVIL WORKS COVER SHEET

SHEET: C01.01
REV: 0

GENERAL NOTES

- ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT. WHERE INDICATED, STATE AND/OR LOCAL STANDARD SPECIFICATIONS SHALL APPLY.
- THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AGAINST THE PROVIDED SURVEY INCLUDING THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL OBSTRUCTIONS INCLUDING ALL UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE FOR THE LOCATION OF EXISTING UTILITIES TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION.
- ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION SHALL BE COORDINATED WITH THAT UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAY OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE CONTRACTOR MAY BE REQUIRED TO RESCHEDULE HIS ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- CONSTRUCTION SHALL NOT OCCUR IN ANY PUBLIC RIGHTS OF WAY, PUBLIC OR PRIVATE EASEMENTS, BEYOND THE LIMITS OF DISTURBANCE, OR OUTSIDE THE PROPERTY LIMITS WITHOUT A PERMIT. ANY PUBLIC OR PRIVATE PROPERTY OR IMPROVEMENTS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE COST OF THE CONTRACTOR.
- OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS OR DESIGNATED TRAFFIC LANES. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY. OVERNIGHT PARKING OF CONSTRUCTION VEHICLES ON PRIVATE PROPERTY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION.
- ALL PROPERTY MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ALL DISTURBED PROPERTY MARKERS MUST BE RESET BY A REGISTERED LAND SURVEYOR.
- THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS CONTROLLING POLLUTION OF THE ENVIRONMENT PRIOR TO THE START OF PROJECT CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE AGENCIES RESPONSIBLE FOR AIR, NOISE, AND WATER QUALITY CONTROL REGULATIONS TO DETERMINE THE STANDARDS WHICH SHALL ADHERE DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL OBTAIN, PREPARE, SUBMIT ALL FORMS, APPLICATIONS PERMITS, AND/OR PLANS REQUIRED TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS CONTROLLING POLLUTION OF THE ENVIRONMENT. THE CONTRACTOR SHALL ALSO MODIFY ALL PLANS, PERMITS, FORMS, APPLICATIONS AS REQUIRED, AS SITE CONDITIONS CHANGE TO STAY IN COMPLIANCE WITH THESE LAWS AND REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RECORD KEEPING AND/OR INSPECTIONS ASSOCIATED WITH THESE LAWS AND REGULATIONS. THE CONTRACTOR SHALL PROVIDE THE OWNER ONE ADDITIONAL COPY OF EACH REQUIRED PLAN, SUBMITTED FORM OR APPLICATION, AND PLAN UPDATE AS THEY ARE SUBMITTED. THE CONTRACTOR SHALL ALSO MODIFY THE "STORM WATER POLLUTION PREVENTION PLAN" (SWPPP) AS REQUIRED. PERFORMANCE OF THESE RESPONSIBILITIES ARE INCIDENTAL TO CONSTRUCTION OF THE PROJECT AND NO SEPARATE PAYMENT WILL BE MADE.
- BEFORE COMMENCING CONSTRUCTION, CONTRACTOR SHALL LOCATE, POTHOLE AND MEASURE DEPTH TO TOP OF ALL EXISTING, UNDERGROUND WET & DRY UTILITIES AT PROPOSED CROSSING LOCATIONS, ACCORDING TO THE CONTRACT DOCUMENTS OR AS SPECIFIED BY THE UTILITY OWNER. CONTRACTOR SHALL PROVIDE ENGINEER AND OWNER WITH AN "AS-BUILT" PLAN OF ALL INFORMATION, AND RECEIVE FORMAL APPROVAL BEFORE STARTING WORK.
- CONTRACTOR TO ENSURE ALL WORK PERFORMED IS IN ACCORDANCE WITH EXISTING PROJECT PERMITS, STUDIES AND REPORTS PROVIDED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL DETERMINE THE SOURCE OF AND SECURE APPROVAL OF CONSTRUCTION WATER AS NECESSARY TO COMPLETE THE PROJECT.
- CONTRACTOR SHALL MANAGE DUST, DIRT, MUD, SNOW, ETC. DURING THE CONSTRUCTION PHASE IN SUITABLE MANNER SO AS TO NOT IMPACT THE COMMISSIONING, PERFORMANCE, INSPECTION, OR RELIABILITY OF ANY EQUIPMENT SUCH AS BUT NOT LIMITED TO: MODULES, COMBINERS, INVERTERS, TRANSFORMERS, DISCONNECTS, SWITCHGEAR, SCADA / SEEDS, WEATHER STATIONS, CONDUCTORS AND TERMINATIONS, AND TRACKERS.
- PANELS SHALL BE CLEANED BY CONTRACTOR TO REMOVE ALL DUST WITHIN THE 48 HOUR WINDOW PROCEEDING PERFORMANCE TESTING. CLEANING PLAN SHALL BE APPROVED BY OWNER, AND NO SEPARATE PAYMENT SHALL BE MADE TO CONTRACTOR FOR SUCH ACTIVITIES.

EROSION CONTROL NOTES:

- SOIL AND WATER MANAGEMENT MEASURES SHALL BE USED DURING THE CONSTRUCTION OF THE PLANT TO MINIMIZE SOIL EROSION AND THE DISCHARGE OF SEDIMENT AND OTHER CONTAMINANTS INTO THE SOIL AND/OR WATERS.
- ALL EROSION AND SEDIMENTATION CONTROL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SWPPP AND CONSTRUCTED IN A MANNER CONSISTENT WITH STORM WATER MANAGEMENT.
- ALL SUBCONTRACTORS SHALL BE INFORMED OF THEIR RESPONSIBILITIES TO REDUCE THE POTENTIAL FOR SOIL EROSION AND SEDIMENT CONTAMINATION.
- THE TOP LAYER OF THE EXCAVATED SOIL WILL BE STORED SEPARATELY FROM THE SUBSOIL AND WILL BE REPLACED SUCH THAT IT WILL REPLICATE THE ORIGINAL PROFILE AS CLOSELY AS POSSIBLE TO ASSIST IN RAPID RE-VEGETATION.
- SITE STABILIZATION, REHABILITATION AND RE-VEGETATION WILL BE CARRIED OUT PROGRESSIVELY DURING THE OPERATION TO ENSURE THAT THE SOILS STABILIZE AS SOON AS POSSIBLE. THIS WILL MINIMIZE THE INFESTATION OF WEEDS, SEDIMENTATION, AND EROSION, WHICH DEGRADE THE HABITAT.
- ALTERED AREAS WILL BE IDENTIFIED AND USED PREFERABLY FOR ACCESS TO VEHICLES AND MACHINERY, STORAGE OF MATERIALS, AND STORAGE OF CLEAN VEGETATION.
- WHEN DITCHES ARE TO BE DUG AND FILLED IN AREAS WITH GOOD VEGETATION, THE ORGANIC MATTER SHOULD BE REMOVED AND STORED IN WET, SHADED CONDITIONS AND REPLACED WITH THE PROGRESS OF THE WORK. THE STORAGE TIME SHOULD BE MINIMIZED SUCH THAT RESTORATION OR THE SOIL IS MAXIMIZED.
- EXCESS VEGETATION SHALL BE MAINTAINED AND USED FOR THE REHABILITATION OF THE SITE.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED AND MODIFIED AS NECESSARY THROUGHOUT THE COURSE OF THE PROJECT IN ORDER TO MINIMIZE SOIL AND WATER IMPACTS. ANY DISCHARGES FROM THE SITE SHALL BE MANAGED TO ENSURE THAT THE WATER QUALITY CRITERIA ARE MET ACCORDING TO THE APPLICABLE REGULATIONS.
- A WATER TRUCK SHALL BE USED ROUTINELY TO WET ALL ACCESS ROADS, STOCK PILED DIRT, AND DISTURBED AREAS AS APPROPRIATE TO CONTROL DUST AND PREVENT SOIL LOSS.
- ENVIRONMENTALLY ACCEPTABLE STABILIZATION AND/OR DUST MITIGATION TECHNIQUES SHALL BE USED IF SURFACE WETTING PROVES TO BE INEFFECTIVE.
- EXCESS SUBSOIL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN AN APPROPRIATE BACKFILL STORAGE SITE.
- TEMPORARY STABILIZATION SHOULD BE CARRIED OUT IN ALTERED AREAS WHICH ARE LIKELY TO REMAIN UNATTENDED FOR MORE THAN 30 DAYS DURING CONSTRUCTION.
- AFTER COMPLETION OF CONSTRUCTION, PERMANENT REHABILITATION IN DISTURBED AREAS SHALL BE COMPLETED AS SOON AS POSSIBLE IN ACCORDANCE WITH THE FOLLOWING:
 - THE CONTRACTOR MUST IMPLEMENT RE-VEGETATION AND REHABILITATION FOR ALL AREAS WITHIN THE SITE FOOTPRINT THAT ARE DISTURBED DURING CONSTRUCTION, EXCEPT FOR AREAS OF CONTINUOUS OPERATION.
 - THE CONTRACTOR SHALL ENSURE THAT ALL RE-VEGETATION MEASURES ARE PROGRESSIVELY IMPLEMENTED WHERE POSSIBLE AND IN ALL CASES WITHIN SIX MONTHS AFTER CESSATION OF CONSTRUCTION ACTIVITIES.
 - UNLESS OTHERWISE AGREED BY THE DIRECTOR GENERAL, THE CONTRACTOR MUST MONITOR AND MAINTAIN THE HEALTH OF ALL RE-VEGETATED AREAS UNTIL THE PLANTATIONS HAVE BEEN VERIFIED BY AN INDEPENDENT EXPERT WHOSE APPOINTMENT HAS BEEN ACCEPTED BY THE DIRECTOR GENERAL.
- ANY FUEL OR CHEMICAL STORED ON SITE MUST BE IN ACCORDANCE WITH THE ENVIRONMENTAL AWARENESS OF WORKERS AND CATEC COMPLIANCE TRAINING AND APPLICABLE STANDARDS ACCORDING TO THE FOLLOWING TOPICS:
 - THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS, CORROSIVE SUBSTANCES, TOXIC SUBSTANCES, AND LIQUIDS.
 - ENVIRONMENTAL COMPLIANCE REPORT: ADMINISTRATION, STORAGE, HANDLING AND SPILLAGE OF CHEMICAL LIQUIDS.
- A COMPACTED GRAVEL ACCESS ROAD WILL BE CONSTRUCTED TO THE ENTRANCE OF THE STABILIZED SITE IN ORDER TO AVOID DUST GENERATION IN THE LOCATION SHOWN IN THE ATTACHED PLANS.
- STOCKPILES WILL BE CONSTRUCTED IN ACCORDANCE WITH STORM WATER MANAGEMENT AND INDUSTRY BEST PRACTICES. ALL STOCKPILES WILL BE DELINEATED WITH SEDIMENT FENCES.
- SEPARATE STOCKPILES SHOULD BE USED FOR THE TOPSOIL AND SUBSOIL (IF APPLICABLE). THE STRUCTURES FOR THE DIVERSION OF RAINWATER WILL BE INSTALLED UPHILL FROM THE STORAGE LOCATION AS NECESSARY. THE DIVERSION STRUCTURES WILL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THE STORM WATER MANAGEMENT PLAN (SWPPP).
- SILT FENCES OR OTHER APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED ON THE DOWNWARD SIDE OF THE PILES. STORM WATER DRAINS ON AN UPWARD SLOPE WILL BE INSTALLED AS NEEDED.
- CLEARLY VISIBLE "SILT FENCE" GEOTEXTILE BARRIERS OR APPROPRIATE ZONE MARKERS WILL BE INSTALLED AS SHOWN IN THE PLANS, AND IN ANY OTHER PLACE WITHIN THE SOLAR PLANT AT THE DISCRETION OF THE CONTRACTOR (IN CONSULTATION WITH THE ENVIRONMENTAL ADVISOR), TO ENSURE TRAFFIC CONTROL AND RESTRICT UNNECESSARY ALTERATIONS TO THE SITE.
- THE LENGTH OF THE SLOPE IN THE ALTERED AREAS WILL BE KEPT AS SHORT AS NECESSARY TO MINIMIZE THE RISK OF SOIL LOSS. THE APPROPRIATE LENGTH OF THE SLOPE WILL BE REGULATED BY CONSTRUCTING TEMPORARY DEVIATION THROUGH ALTERED AREAS, BY USING SILT FENCES/STRAW WADDLES OR BERMS AS NEEDED OR BY USING ANOTHER APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICE.
- TEMPORARY DIVERSION DRAINS WILL BE COMPLETED AS REQUIRED AT THE END OF EACH WORKING DAY OR WHEN HEAVY RAIN IS IMMINENT. THESE WILL BE DESIGNED TO CONTROL STORM WATER RUNOFF, WHICH INCLUDES DIVERTING CLEAN RUNOFF FROM DISTURBED AREAS AS MUCH AS POSSIBLE.
- THE MAINTENANCE OF EROSION AND SEDIMENT CONTROL STRUCTURES IS ESSENTIAL FOR ITS CONTINUOUS OPERATION. PROPER MAINTENANCE REDUCES THE POTENTIAL RISK OF SOIL EROSION AT THE SITE, AND THE CONSEQUENT CONTAMINATION OF THE SEDIMENTS TO THE DOWNHILL AREAS.
- THE CONTRACTOR WILL REGULARLY MAINTAIN THE REHABILITATED AREAS DURING THE CONSTRUCTION PHASE (IN ACCORDANCE WITH THE REHABILITATION AND REVEGETATION MANAGEMENT PLAN). AT THE END OF THE CONSTRUCTION PHASE, THE REHABILITATED AREAS WILL BE MANAGED BY THE OWNER / OPERATOR IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN UNTIL SUCH TIME AS THE PLANTATION HAS BEEN VERIFIED BY AN INDEPENDENT AND ADEQUATELY QUALIFIED EXPERT.
- THE REHABILITATION OF THE FINAL SITE WILL BE CARRIED OUT AS SOON AS POSSIBLE AFTER THE COMPLETION OF THE WORK.
- TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES WILL BE REMOVED ONLY AFTER REHABILITATION WORK HAS BEEN COMPLETED IN MORE THAN 90% OF THE CATCHMENT CONTRIBUTION OR WHERE STABILIZATION OF THE SITE HAS ACHIEVED A STANDARD WHERE EROSION RISK IS ELIMINATED AS FAR AS POSSIBLE.
- MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN AN OPERATING CONDITION UNTIL ALL EARTHMOVING ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED AT THE LEVEL DESCRIBED IN SWPPP.

SITE PREPARATION AND GRADING NOTES:

- THE CONTRACTOR SHALL BE REQUIRED TO CLEAR AND GRUB AREAS DESIGNATED ON THE PLANS. REMOVE ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN PROJECT AREAS INCLUDING THE ARRAYS, TRAILER/PARKING AREA, EQUIPMENT/SUBSTATION AREA, AND ROADWAY AREAS. ALL EXCAVATIONS DUE TO CLEARING AND GRUBBING ACTIVITIES SHOULD BE BACKFILLED WITH COMPACTED ENGINEERED FILL.
- THE CONTRACTOR SHALL PRESERVE OTHER EXISTING VEGETATION TO BE SAVED 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 CARE AROUND EXISTING VEGETATION TO BE SAVED. CONSTRUCTION FENCING MAY BE INSTALLED TO PROTECT AREAS THAT ARE NOT TO BE DISTURBED.
- STRIP AND REMOVE EXISTING VEGETATION AND OTHER DELETERIOUS MATERIALS FROM ALL ROADWAY, AREAS OF FILL, PARKING AND TRAILER AREAS THROUGH THE ROOT ZONE. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED CLEARING AND GRUBBING AREAS. STRIPPED MATERIALS CONSISTING OF VEGETATION AND ORGANIC MATERIALS SHOULD BE WASTED FROM THE SITE 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 SHOULD BE PLACED IN NON-STRUCTURAL AREAS.
- EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF ENGINEERED FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF FOUR FEET HORIZONTAL TO ONE FOOT VERTICAL OR AS IDENTIFIED ON THE GRADING PLANS. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12".
- ALL SLOPES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GRADING SHOWN ON THE PLANS.
- EXPOSED SURFACES SHOULD BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION.
- NO BURNING OF DEBRIS IS ALLOWED WITHOUT THE NECESSARY PERMITS FROM AUTHORITIES HAVING JURISDICTION (AHJ) AND APPROVAL BY THE OWNER.
- EXPOSED AREAS WHICH WILL RECEIVE STRUCTURAL FILL, ONCE PROPERLY CLEARED, SHOULD BE INSPECTED BY GEOTECHNICAL ENGINEER OR AUTHORIZED REPRESENTATIVE TO ENSURE THE NATIVE SOIL IS FREE OF GROUNDWATER, ORGANICS, SOFT/LOOSE SOIL, DEBRIS (FILL), LOOSE ROCK OR SOIL CLODS GREATER THAN 3 INCHES IN MAXIMUM DIMENSION, AND OTHER DELETERIOUS MATERIALS.
- PRIOR TO PLACING FILL, SURFACE COMPACT SUBGRADE USING A VIBRATORY SMOOTH-DRUM ROLLER OR WALK-BEHIND PLATE COMPACTOR. SUBGRADE SHALL BE MOISTURE CONDITIONED AS NEEDED AND COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) TO A DEPTH OF 1 FOOT.
- WITHIN PV ARRAY FILL AREAS, UNSUITABLE SUBGRADE MUST BE OVER-EXCAVATED AND REPLACED WITH SUITABLE ENGINEERED FILL OR NATIVE GRANULAR SOIL.
- MINIMUM DEPTH OF OVER-EXCAVATION SHOULD EXTEND TO THE DEPTH OF THE UNSUITABLE SUBGRADE MATERIAL ENCOUNTERED.
- THE OVER-EXCAVATION SHOULD BE BACKFILLED UP TO THE REQUIRED ELEVATION PER GRADING PLANS WITH SUITABLE ENGINEERED FILL OR NATIVE GRANULAR SOIL, PLACED IN 12 INCH LOOSE LIFTS. BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY AND BETWEEN -3% AND +3% OF OPTIMUM MOISTURE CONTENT, AS DETERMINED BY THE STANDARD PROCTOR MAXIMUM DRY DENSITY TEST (ASTM D628).
- THE MOISTURE CONTENT AND COMPACTION OF SUBGRADE SOILS SHOULD BE MAINTAINED UNTIL FILL PLACEMENT.
- ONSITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS SUBGRADE MATERIAL FOR SITE GRADING.
- ENGINEERED FILL SHALL CONSIST OF GRANULAR SOIL WITH LESS THAN 10% PASSING THE NO. 200 SIEVE. CLAYEY SAND, LEAN CLAY OR FAT CLAY SHOULD NOT BE USED FOR ENGINEERED FILL DUE TO MOISTURE SENSITIVITY. ONSITE SOIL MEETING THIS CRITERIA MAY BE USED AS ENGINEERED FILL PROVIDED THE MATERIAL IS FREE OF ORGANICS AND PARTICLES LARGER THAN 3 INCHES. SELECT IMPORTED GRANULAR FILL MAY BE USED AS ENGINEERED FILL PROVIDED THAT IT IS WELL GRADED AND CONTAINS NO CLAY BALLS, ROOTS, ORGANIC MATTER OR OTHER DELETERIOUS MATERIALS, AND MEETS THE FOREMENTIONED SPECIFICATIONS.
- ENGINEERED FILL SHOULD BE PLACED AND COMPACTED IN HORIZONTAL LIFTS, USING EQUIPMENT AND PROCEDURES THAT WILL PRODUCE RECOMMENDED MOISTURE CONTENTS AND DENSITIES THROUGHOUT THE LIFT. FILL LIFTS SHOULD NOT EXCEED 8 INCHES LOOSE THICKNESS. ENGINEERED FILL SHALL BE COMPACTED TO 90% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY WITH MOISTURE CONDITIONING RANGE OF -3% TO +3%.
- TESTING AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW.

QUANTITIES

LEASE AREA = 161.23 AC
 FENCE AREA = 30.89 AC
 AREA OF DISTURBANCE = 9.58 AC
 LINEAR DISTANCE OF ACCESS ROAD = 2,074 LF
 VOLUME OF AGGREGATE BASE = 1,086 CY
 VOLUME OF 3" COARSE AGGREGATE (VTC) = 39.0 CY
 LENGTH OF FENCE = 5,512 LF
 LENGTH OF SILT FENCE (SF) = 2,182 LF
 NUMBER OF CONCRETE WASTE AREAS (CWA) = 1 EA.
 NUMBER OF GATES = 1 DRIVE

EARTHWORK

CUT: 3,672 CU YD
 FULL: 2,763 CU YD
 NET: 909 CU YD (CUT)



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sarah Smedley
 SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
 DATE OF SIGNATURE: MAY 01, 2019

ENGINEER



OWNER



CONTRACTOR



REVISIONS

REV	DATE	DESCRIPTION	DRW	CK	APV	SAS
0	05/01/19	ISSUED FOR PERMIT	NAB	TFR		

SCALE: N/A
 SIZE: 22"x34"
 PROJECT#: AZENE1907-01

PROJECT
 HELEN SOLAR
 11567 BOONE ROAD, PLATO, MN 55370

TITLE
 GENERAL NOTES

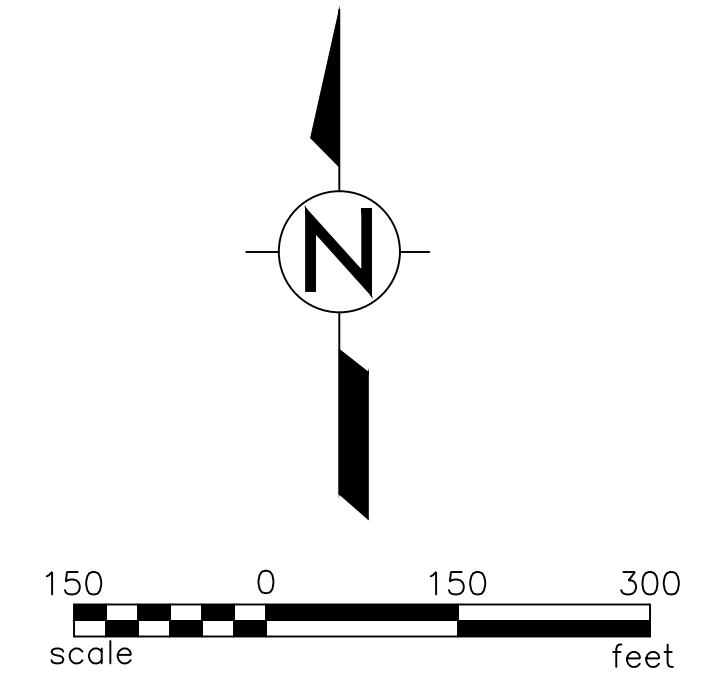
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ENGINEER
AZTEC TYP SA Group
 OWNER
NautilusSolar
 CONTRACTOR
Knobelsdorff Electric Inc

REVISIONS

REV	DATE	DESCRIPTION	DRW	CK	APV
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Sarah Smedley

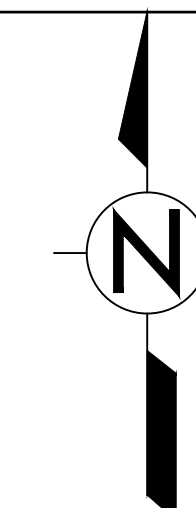
SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
 DATE OF SIGNATURE: MAY 01, 2019

SHEET	REV
C03.01	0

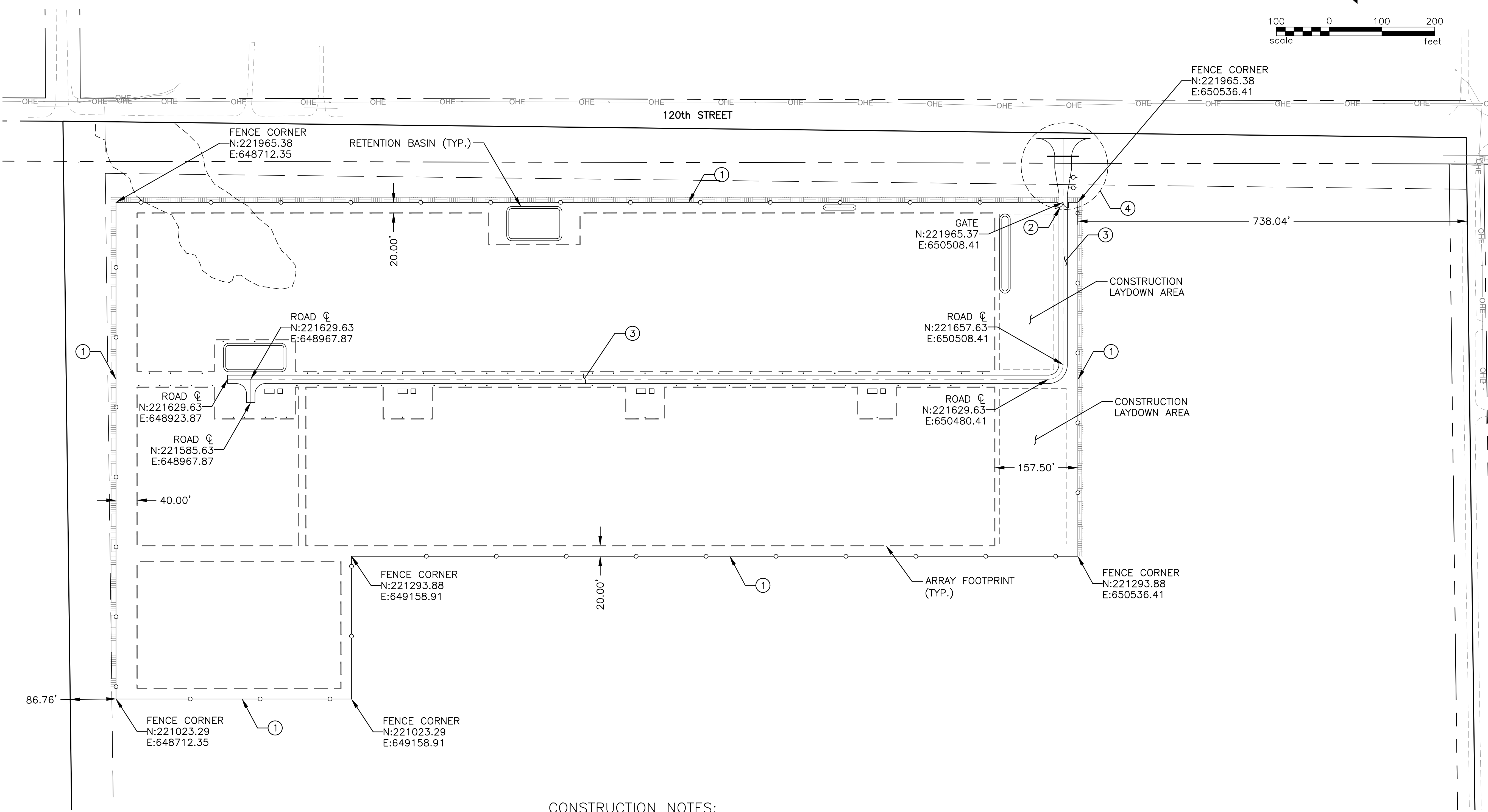
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100 0 100 200
scale feet



CONSTRUCTION NOTES:

- ① CONSTRUCT 7' TALL GAME FENCE PER DETAIL 1 ON SHEET C06.01
- ② CONSTRUCT 16' WIDE DRIVE GATE PER DETAIL 2 ON SHEET C06.01
- ③ CONSTRUCT 16' WIDE STRAIGHT GRADE ACCESS ROAD PER DETAILS 3 & 4 ON SHEET C06.01
- ④ CONSTRUCT ENTRANCE PER ENTRANCE DETAIL ON SHEET C06.02

NOTES:

- 1. FOR FOUNDATION DESIGN DETAILS AND LOCATION SEE THE STRUCTURAL PLAN SET UNDER A SEPARATE COVER.



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			NAB	TFR	SAS
0	05/01/19	ISSUED FOR PERMIT			

SCALE: 1"=100'
 SIZE: 22"x34"
 PROJECT#: AZENE1907-01

PROJECT: HELEN SOLAR
 11567 BOONE ROAD, PLATO, MN 55370

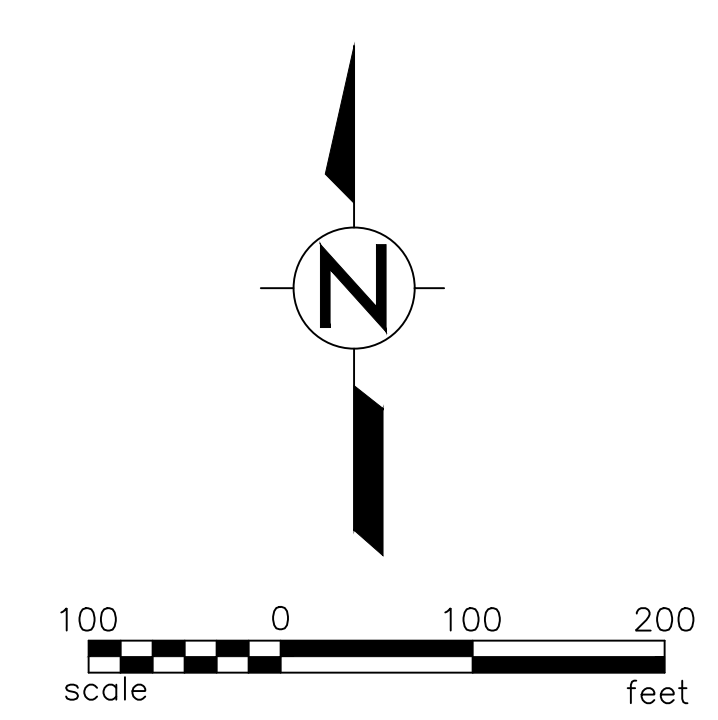
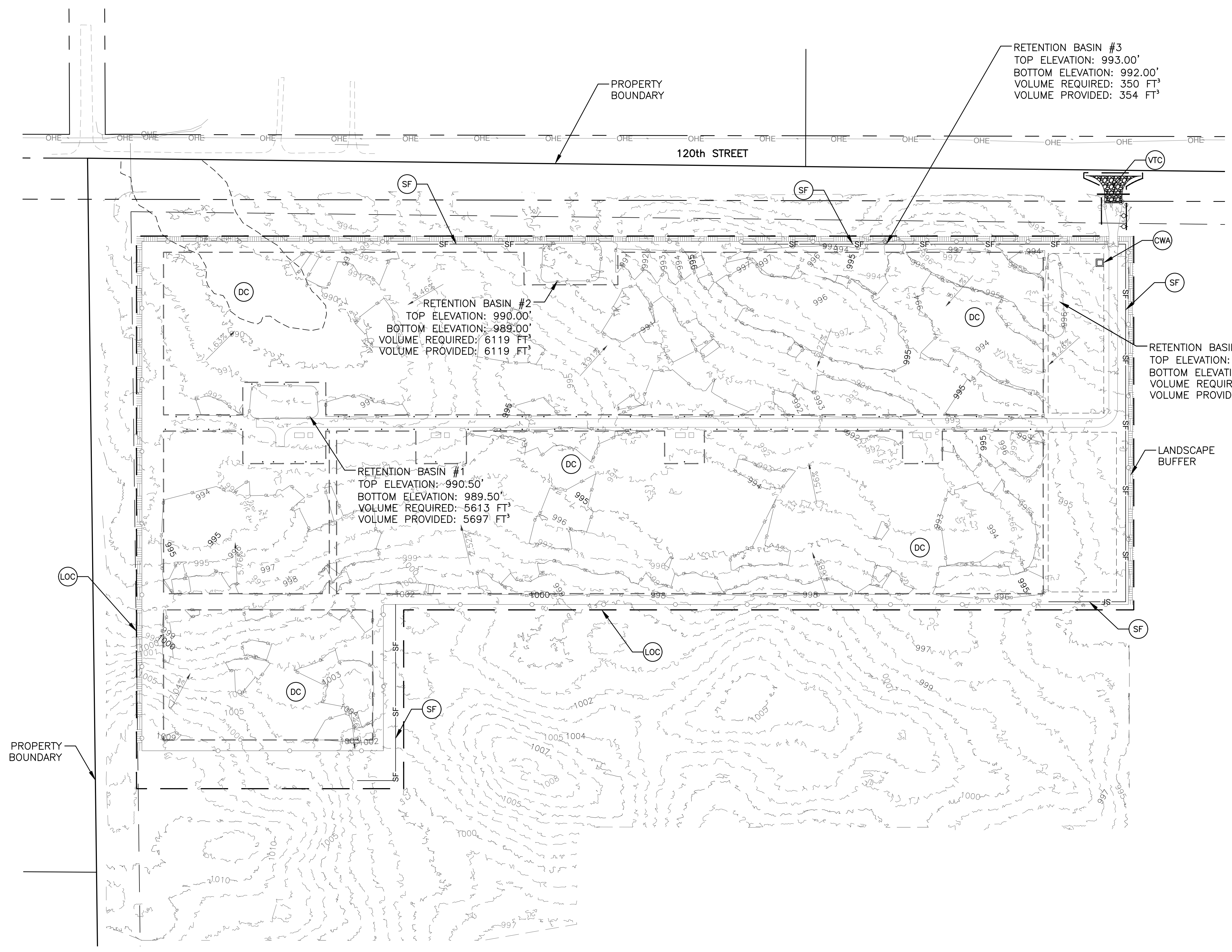
TITLE: CIVIL SITE PLAN

SHEET	REV
C04.01	0

May 01, 2019 - 5:14pm

M.Simon

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RETENTION BASIN #3
 TOP ELEVATION: 993.00'
 BOTTOM ELEVATION: 992.00'
 VOLUME REQUIRED: 350 FT³
 VOLUME PROVIDED: 354 FT³

RETENTION BASIN #2
 TOP ELEVATION: 990.00'
 BOTTOM ELEVATION: 989.00'
 VOLUME REQUIRED: 6119 FT³
 VOLUME PROVIDED: 6119 FT³

RETENTION BASIN #1
 TOP ELEVATION: 990.50'
 BOTTOM ELEVATION: 989.50'
 VOLUME REQUIRED: 5613 FT³
 VOLUME PROVIDED: 5697 FT³

RETENTION BASIN #4
 TOP ELEVATION: 993.70'
 BOTTOM ELEVATION: 992.70'
 VOLUME REQUIRED: 2065 FT³
 VOLUME PROVIDED: 2294 FT³

BMP LEGEND

- SF — (SF) SILT FENCE PER DETAIL 1 ON SHEET C06.03
- (VTC) VEHICLE TRACKING CONTROL PER DETAIL 2 ON SHEET C06.03
- (CWA) CONCRETE WASHOUT AREA PER DETAIL 3 ON SHEET C06.03
- (DC) WIND EROSION/DUST CONTROL
- LOC — (LOC) LIMITS OF CONSTRUCTION
- EXISTING FLOW DIRECTION ARROW
- PROPOSED FLOW DIRECTION ARROW
- - - 5510 - - - EXISTING MAJOR CONTOUR
- - - 5508 - - - EXISTING MINOR CONTOUR
- 5506 — PROPOSED MAJOR CONTOUR
- 5504 — PROPOSED MINOR CONTOUR

ENGINEER
AZTEC
 TYP SA Group

OWNER
NautilusSolar

CONTRACTOR
KNOBELSDORFF ELECTRIC INC

REV	DATE	DESCRIPTION	DRW	CK	APPV	NAB	TFR	SAS
0	05/01/19	ISSUED FOR PERMIT						

SCALE: 1"=100'
 SIZE: 22"x34"
 PROJECT#: AZENE1907-01

PROJECT: HELEN SOLAR
 11567 BOONE ROAD, PLATO, MN 55370

TITLE: EROSION CONTROL & GRADING PLAN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.



Sarah Smedley

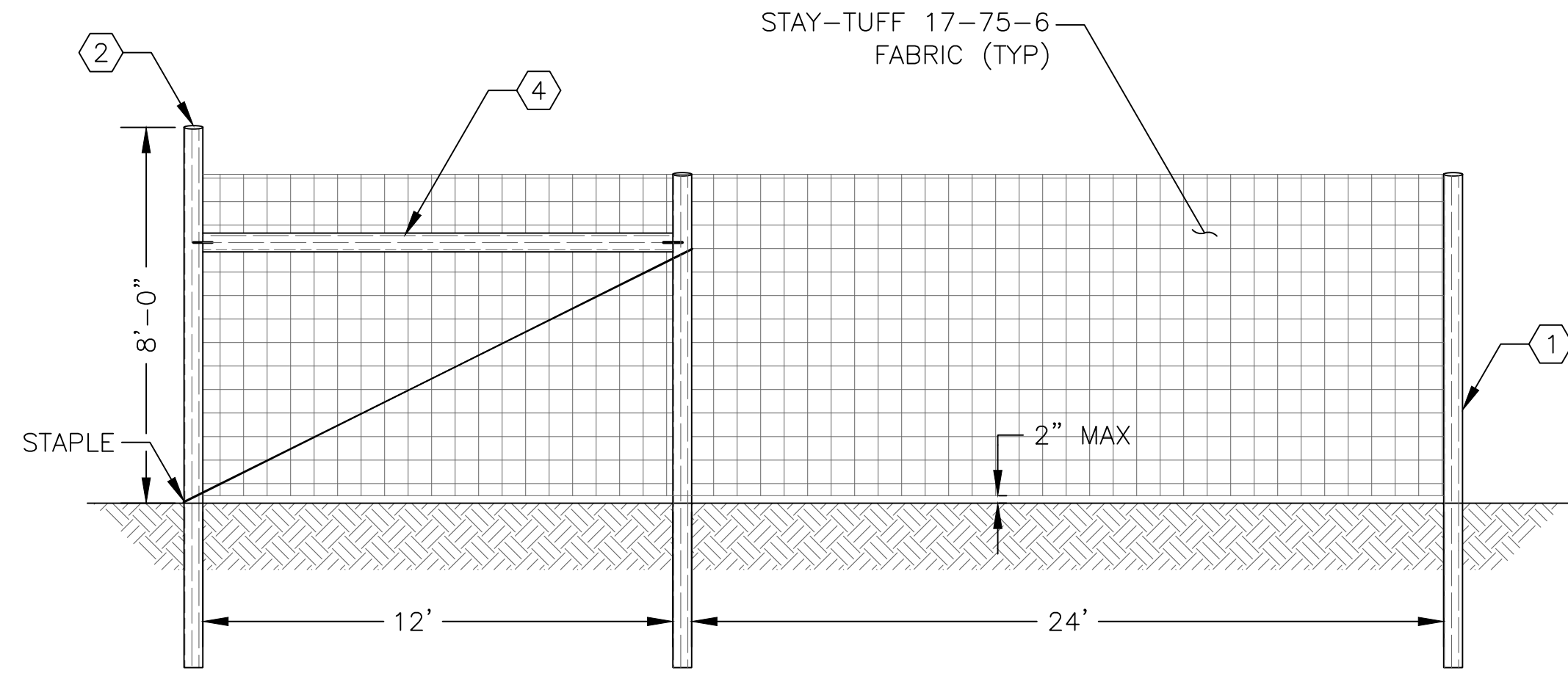
SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
 DATE OF SIGNATURE: MAY 01, 2019

SHEET: C05.01
 REV: 0

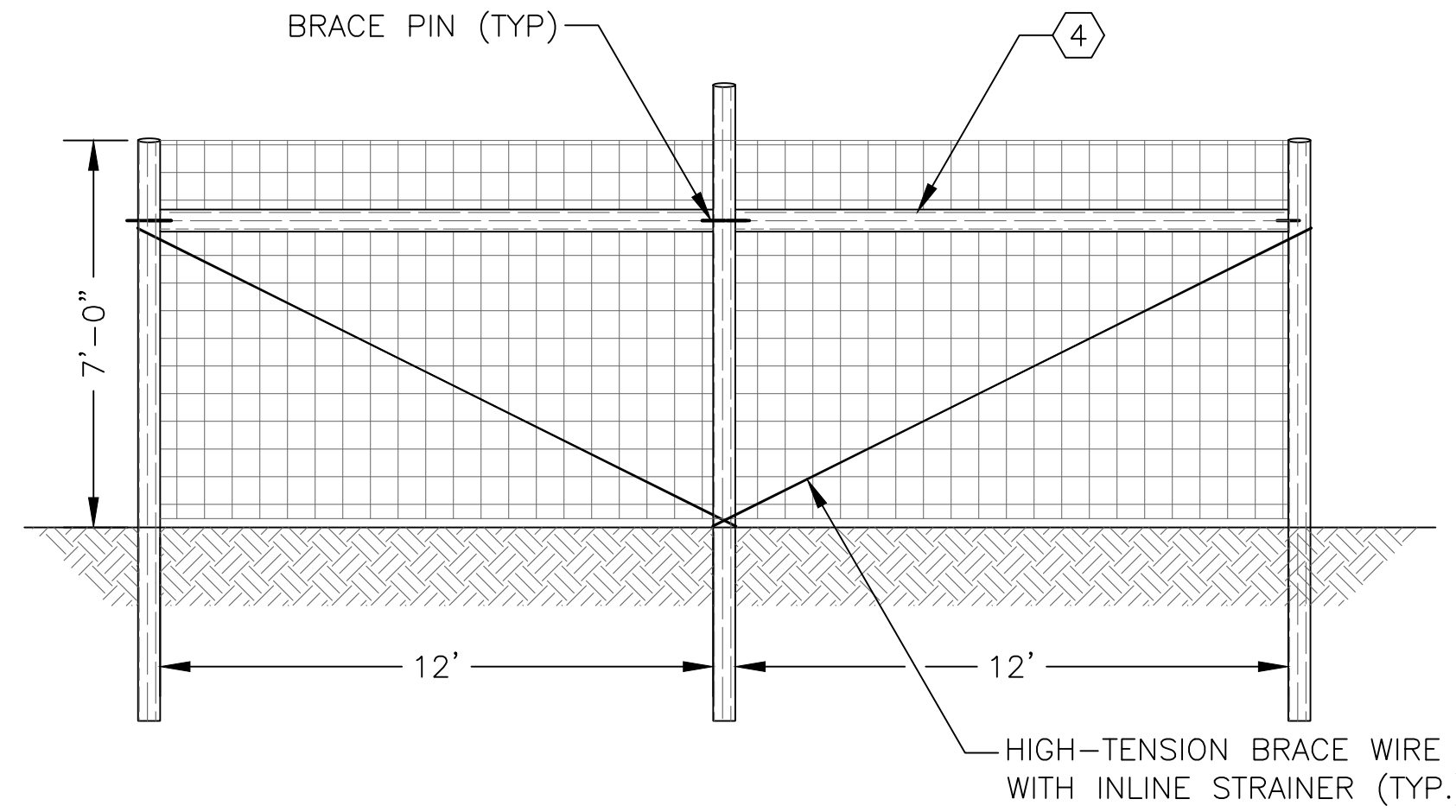
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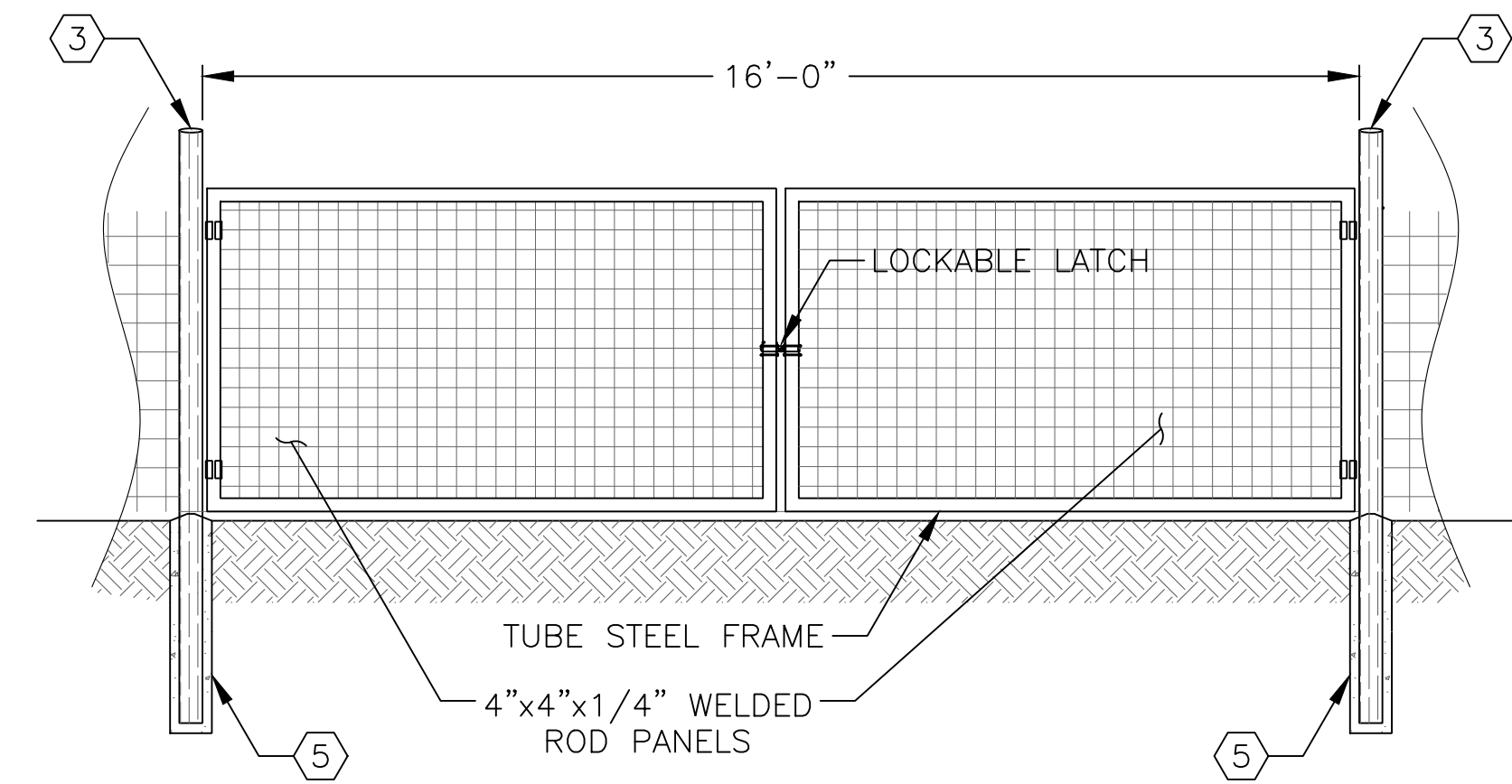
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1 GAME FENCE - CORNER & LINE POSTS
SCALE: N.T.S. VIEW: ELEVATION



2 GAME FENCE - BRACE PANEL
SCALE: N.T.S. VIEW: ELEVATION

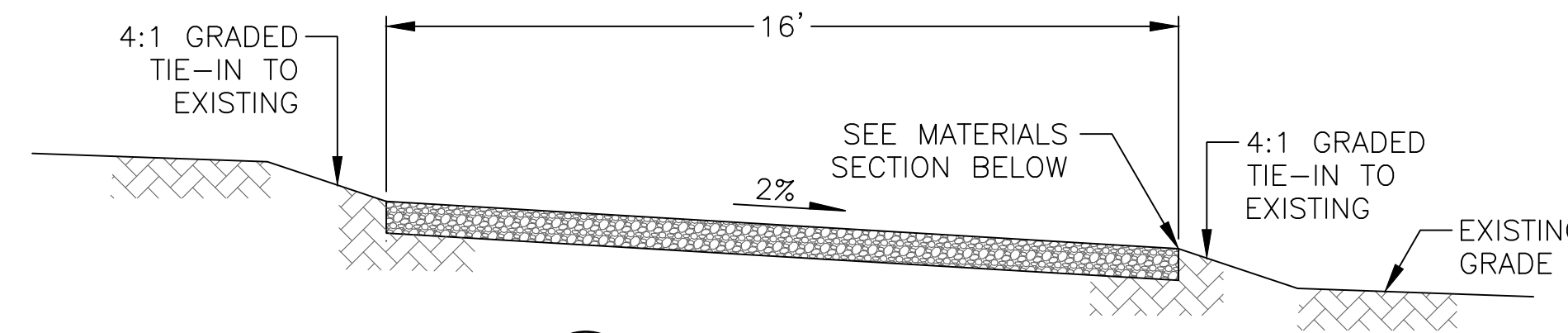


3 GAME FENCE - DRIVE GATE
SCALE: N.T.S. VIEW: ELEVATION

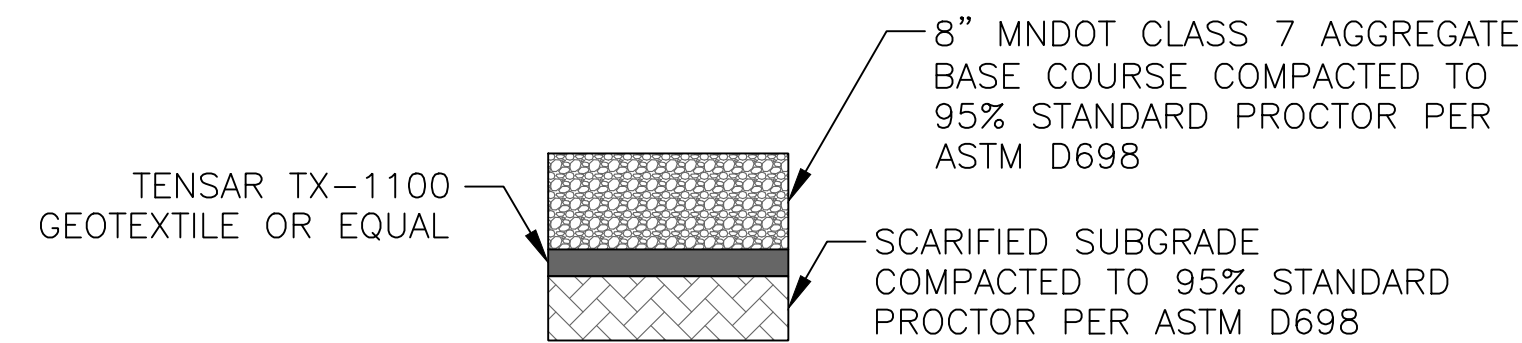
FENCING KEY NOTES	
①	LINE POST
②	CORNER POST
③	GATE POST
④	TOP SUPPORT
⑤	GATE POST FOUNDATION

GAME FENCE NOTES:

1. ALL STEEL OR MALLEABLE IRON PARTS AND ACCESSORIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION.
2. FENCE FABRIC: 12 GAUGE GALVANIZED HIGH TENSILE WIRE WITH 4" WELDED MESH OPENINGS
3. FENCE, GATE & TERMINAL POSTS: (12') TREATED WOOD POSTS WITH A (5") TOP DIAMETER. INSTALLED USING 10" GALVANIZED STEEL SPIKES.
4. STAPLES: (2") GALVANIZED BARBED STAPLES SPACED 12" MAX.
5. BRACE WIRE: 12 GAUGE GALVANIZED HIGH TENSILE WIRE.
6. TIE WIRES: 12-1/2 GAUGE GALVANIZED STEEL WIRE



4 SLOPED ACCESS ROAD
SCALE: N.T.S. VIEW: SECTION



5 ROAD MATERIALS
SCALE: N.T.S. VIEW: SECTION

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AZTEC
TYP/SA Group

OWNER
NautilusSolar

CONTRACTOR
KNOBELSDORFF ELECTRIC INC

REV	DATE	DESCRIPTION	DRW	CK	APPV	NAB	TFR	SAS
0	05/01/19	ISSUED FOR PERMIT						

SCALE: AS SHOWN
SIZE: 22"x34"
PROJECT#: AZENE1907-01

PROJECT
HELEN SOLAR
11567 BOONE ROAD, PLATO, MN 55370

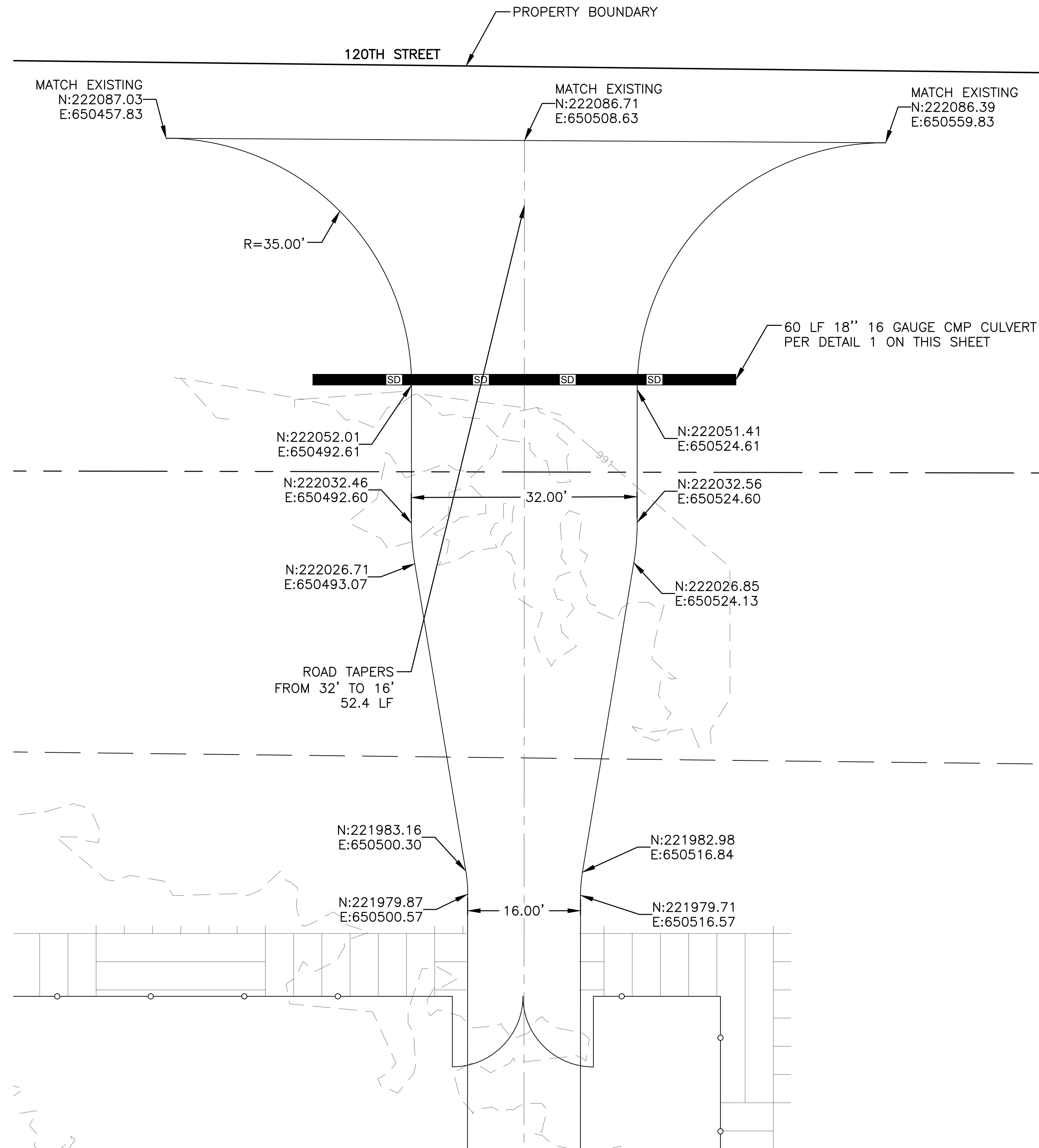
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ROAD & FENCE DETAILS



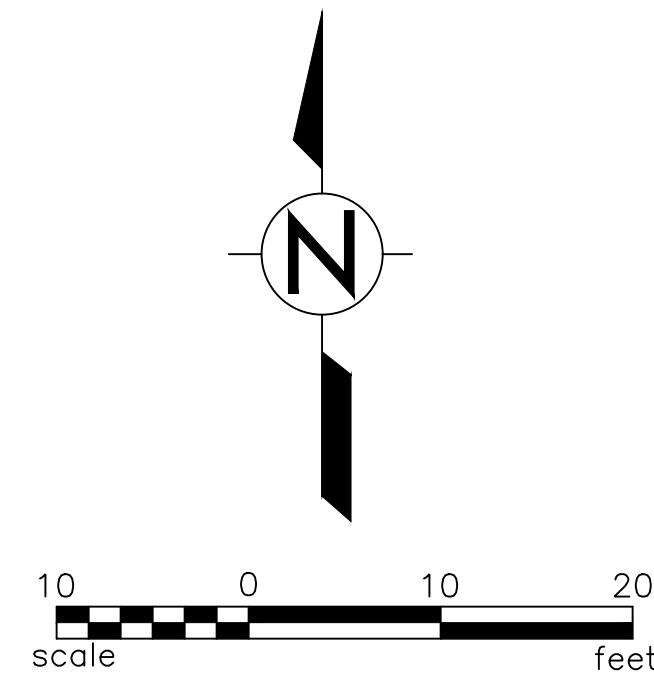
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Sarah Smedley
SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: MAY 01, 2019

SHEET	REV
C06.01	0

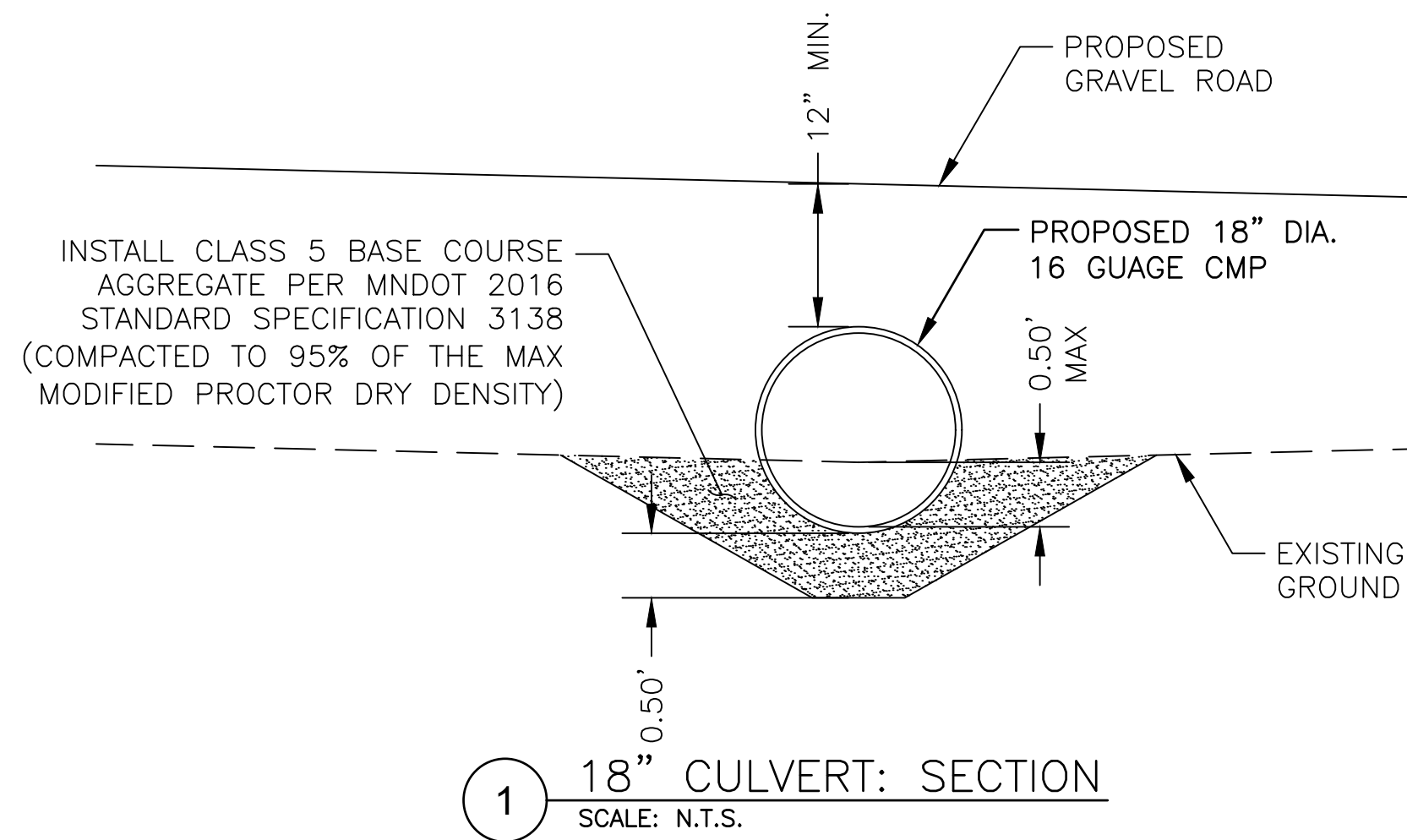


1 ENTRANCE DETAIL
SCALE: 1"=10' VIEW: PLAN



GRADING NOTES:

1. BACKFILL MATERIAL MUST BE FREE OF VEGETATION, ORGANICS, OR OTHER DELETERIOUS MATERIAL.
2. FILL MATERIAL SHOULD BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY UNIT WEIGHT OBTAINED FROM ASTM D698 (STANDARD PROCTORED). MOISTURE CONTENT AT THE TIME OF COMPACTION SHOULD BE CONTROLLED TO WITHIN 3% +/- FROM OPTIMUM MOISTURE CONTENT.



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Sarah Smedley

SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: MAY 01, 2019

REV	DATE	DESCRIPTION	DRW	CK	APPV	NAB	TFR	SAS
0	05/01/19	ISSUED FOR PERMIT						

SCALE: 1"=10'
SIZE: 22"x34"
PROJECT#: AZENE1907-01

PROJECT
HELEN SOLAR
11567 BOONE ROAD, PLATO, MN 55370

TITLE
ENTRANCE & GRADING DETAIL

SILT FENCE NOTES:

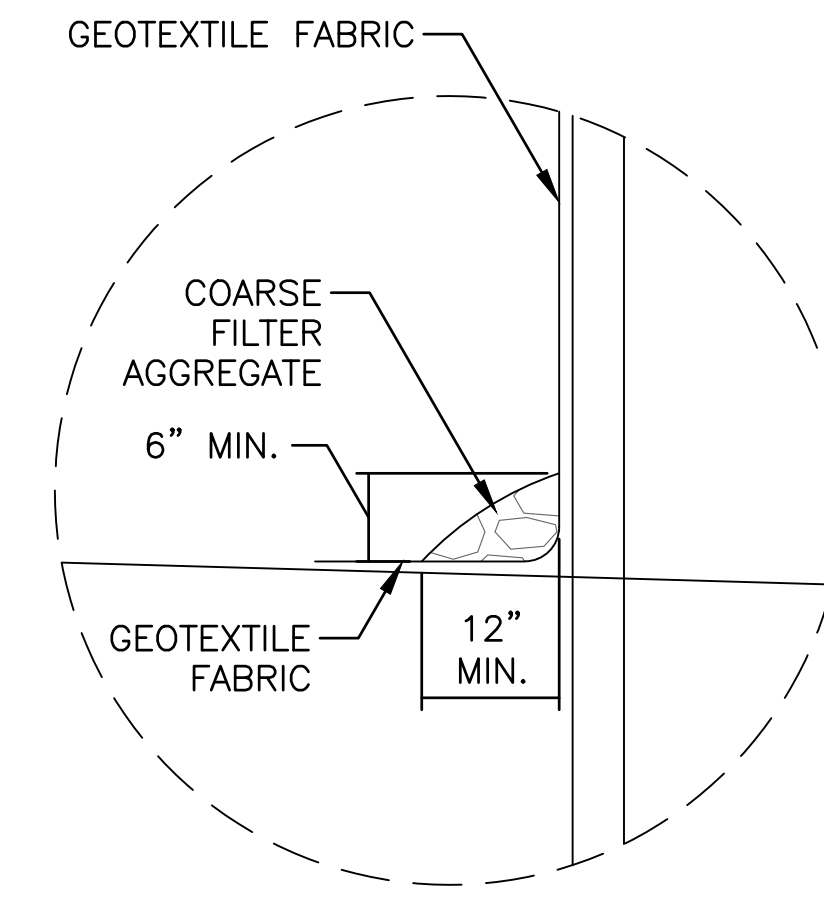
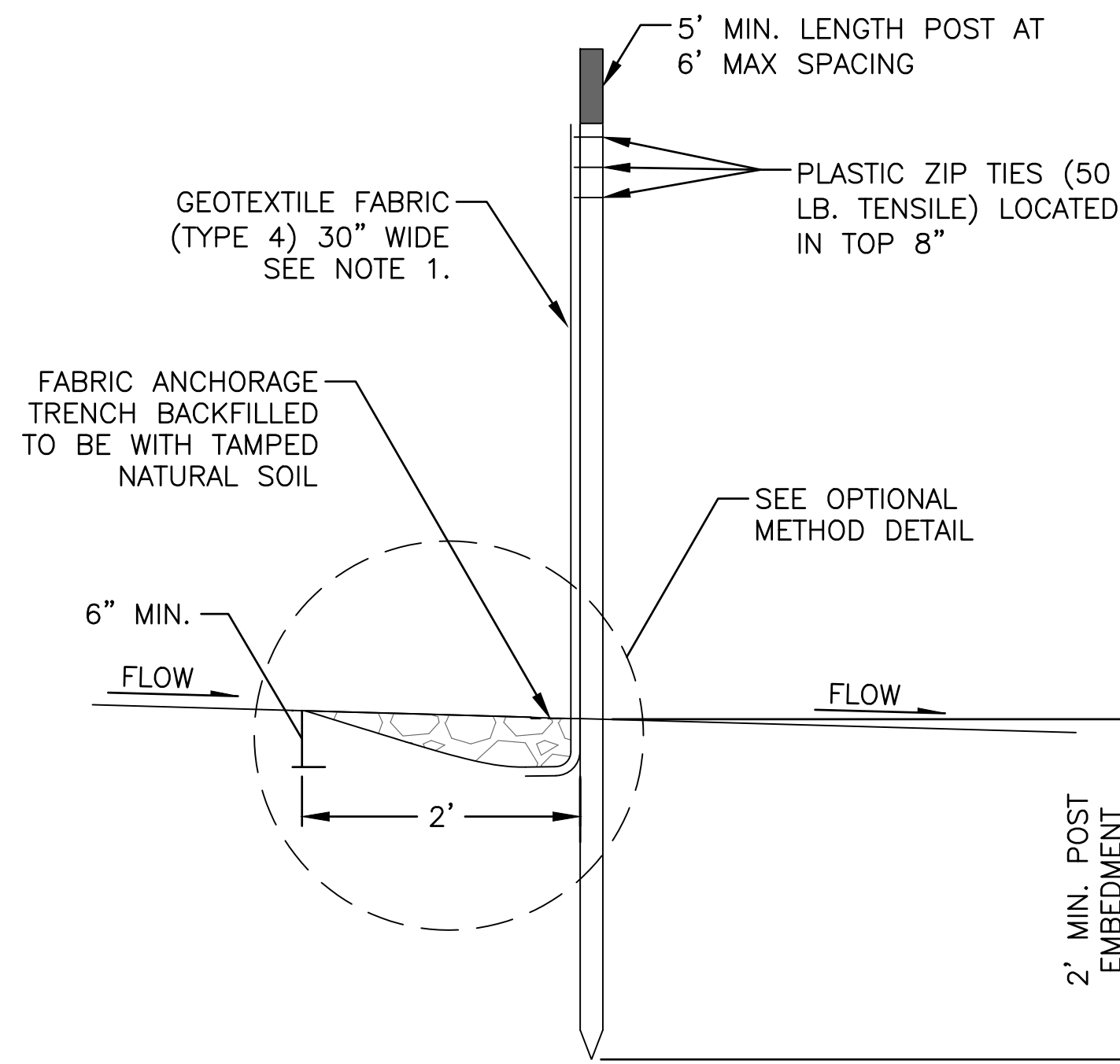
1. GEOTEXTILE FABRIC SHALL BE A WOVEN OR NONWOVEN SYNTHETIC FIBER FABRIC COMPLYING WITH AASHTO M 288.
2. GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD.
3. THE FENCE SHOULD FOLLOW THE CONTOUR OF THE SLOPE TO THE MAXIMUM AMOUNT PRACTICABLE AND HAVE NO DIPS OR LOW AREAS WHERE WATER WILL ACCUMULATE AND POOL. POOLED WATER IS A MAJOR CAUSE OF FAILURE BECAUSE OF THE HIGH PRESSURE IT PLACES ON THE FENCE.
4. ENDS OF THE FENCE SHOULD ALWAYS BE ANGLED UP SLOPE SO WATER CANNOT FLOW AROUND THEM.
5. THE MAXIMUM UP SLOPE GRADE PERPENDICULAR TO THE FENCE LINE SHOULD NOT EXCEED 1:1.
6. INSPECT BMP'S ACCORDING TO NORMAL MAINTENANCE SCHEDULE.
7. INSPECTION SHOULD INCLUDE ENSURING FABRIC IS PROPERLY TRENCHED INTO THE GROUND AND FABRIC IS NOT TORN OR SAGGING.
8. SEDIMENT REMOVAL AND DISPOSAL IS REQUIRED WHEN SEDIMENT COVERS $\frac{1}{3}$ OF THE HEIGHT OF THE FENCE.

VEHICLE TRACKING CONTROL NOTES:

1. MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
2. IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
3. MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS. FILTER CLOTH SHOULD BE USED BELOW COARSE AGGREGATE.
4. THE RADIUS SHALL BE CONSTRUCTED LARGE ENOUGH SUCH THAT NO TIRE TRACKS OFF OF THE EFFECTIVE SURFACE.

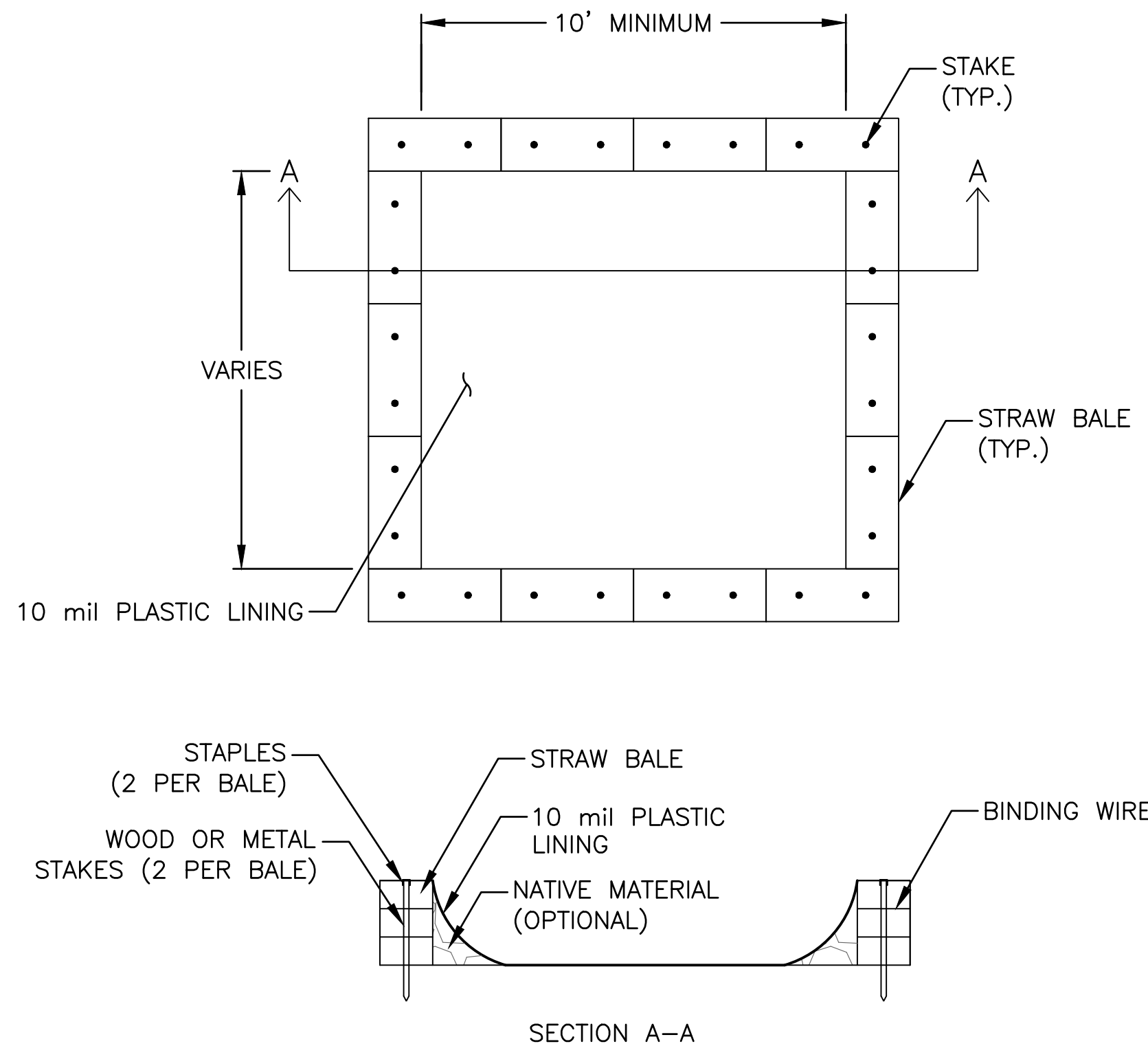
CONCRETE WASHOUT NOTES:

1. PERFORM WASHOUT OF CONCRETE MIXERS, DELIVERY TRUCKS, AND OTHER DELIVERY SYSTEMS IN DESIGNATED AREA ONLY.
2. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FEET FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERBODIES. EACH FACILITY IS TO BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING.
3. TEMPORARY CONCRETE WASHOUT FACILITIES MUST BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY. A MINIMUM FREE BOARD OR 4 INCHES FOR ABOVE GROUND FACILITIES AND 12 INCHES FOR BELOW GROUND SHALL BE MAINTAINED.
4. WASHOUT MAY BE COLLECTED IN AN IMPERMEABLE BAG OR OTHER IMPERMEABLE CONTAINMENT DEVICES FOR DISPOSAL.
5. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE MAY BE BROKEN UP, REMOVED, AND DISPOSED OF.
6. CONCENTRATED RESIDUE FROM SAW CUTTING, CORING, AND GRINDING OPERATIONS WILL BE PICKED UP BY MEANS OF A VACUUM DEVICE. THIS CONCENTRATED RESIDUE IS NOT TO BE ALLOWED TO FLOW ACROSS THE PAVEMENT AND CANNOT BE LEFT ON THE SURFACE OF THE PAVEMENT.

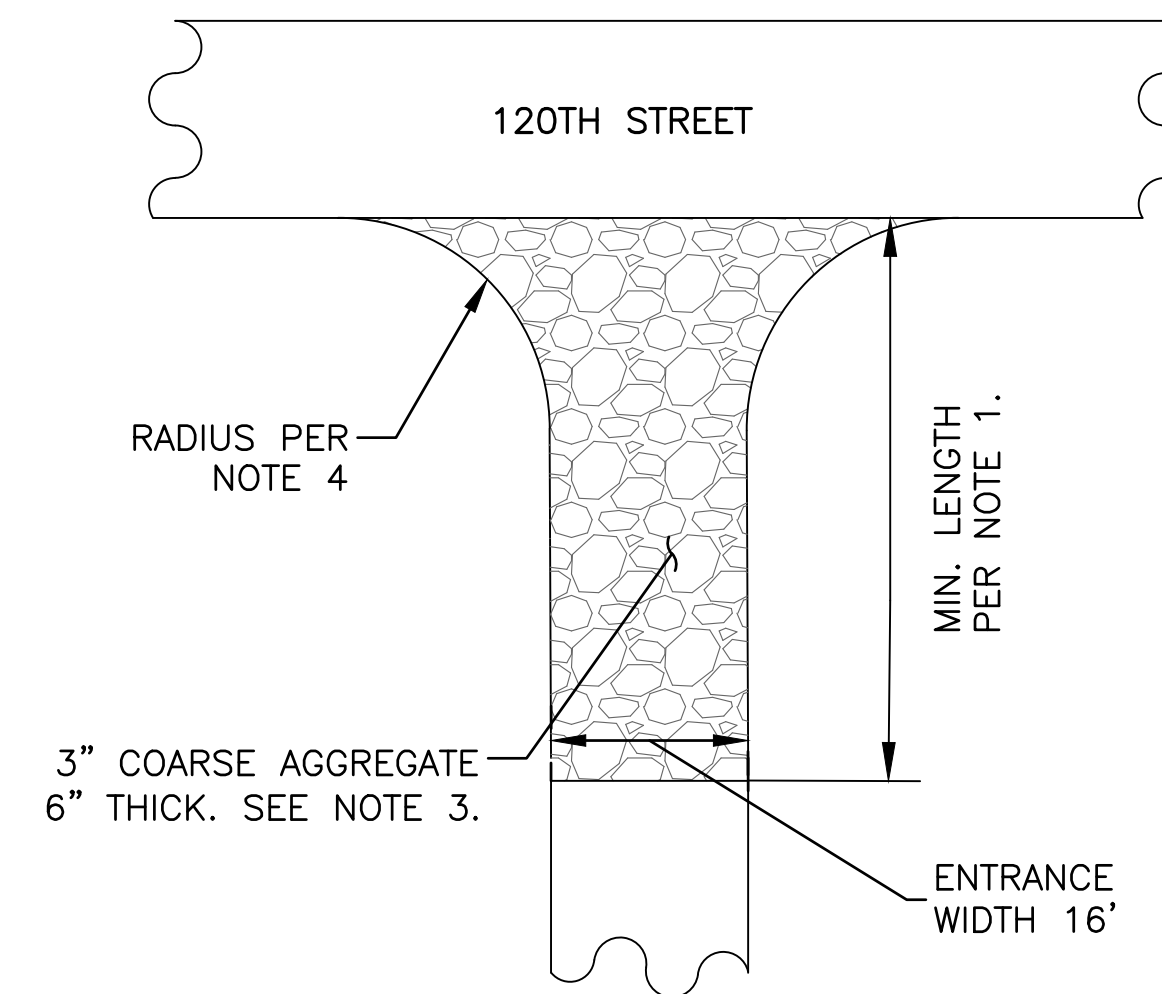


OPTIONAL METHOD

1 SILT FENCE (SF)
SCALE: N.T.S. VIEW: SECTION



3 CONCRETE WASHOUT AREA (CWA)
SCALE: N.T.S. VIEW: PLAN & SECTION



2 VEHICLE TRACKING CONTROL (VTC)
SCALE: N.T.S. VIEW: PLAN

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SIZE: 22"x34"
PROJECT#: AZENE1907-01

PROJECT: HELEN SOLAR
11567 BOONE ROAD, PLATO, MN 55370
TITLE: BMP DETAILS