

COMMUNITY DEVELOPMENT DEPARTMENT

45175 Ten Mile Road Novi, MI 48375 (248) 347-0415 Phone (248) 735-5600 Facsimile www.cityofnovi.org

ZONING BOARD OF APPEALS STAFF REPORT

FOR: City of Novi Zoning Board of Appeals MEETING DATE: January 14, 2025

REGARDING: 46500 Humboldt Drive # 50-22-09-176-019 (PZ24-0062)

BY: Alan Hall, Deputy Director Community Development

. GENERAL INFORMATION:

Applicant

Lineage Logistics

Variance Type

Dimensional Variance

Property Characteristics

Zoning District: This property is zoned General Industrial (I-2)

Location: south of West Road and west of West Park Road

Parcel #: 50-22-09-176-019

Request

The applicant is requesting variances from the City of Novi Zoning Ordinance Section 5.15.12.b to allow 52.5 ft wide carports (40 ft allowed, variance of 12.5 ft) and to increase the maximum allowed height by 5 ft (12 ft maximum, variance of 5 ft).

II. STAFF COMMENTS:

The applicant, Lineage Logistics, is seeking (2) dimensional variances.

- 1) Requesting a 12.5-foot width increase for their carports
 (The increase is to allow a covered pedestrian walkway and solar panel configuration)
- 2) Requesting a 5-foot height increase for the same carports. (The increase is to allow solar panel configuration)

There is a minimum angle for the solar panels to be effective which would affect the roof pitch.

III. RECOMMENDATION:

The Zoning Board of Appeals may to	ake one of the	followina	actions
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_	
	(a) Without the variance Petitioner will be unreasonably prevented or limited with respect to use of the property because
	(b) The property is unique because
	(c) Petitioner did not create the condition because
	(d)The relief granted will not unreasonably interfere with adjacent o surrounding properties because
	(e) The relief if consistent with the spirit and intent of the ordinance because
	(f) The variance granted is subject to:
	1

	move that we <u>deny</u> the variance in Case No. PZ24-0062 , sought by, for
b _	, for, for
_	(a) The circumstances and features of the property including
	are not unique because they exist generally throughout the City.
	(b) The circumstances and features of the property relating to the variance request are self-created because
	(c) The failure to grant relief will result in mere inconvenience or inability to attain higher economic or financial return based on Petitioners statements that
	(d)The variance would result in interference with the adjacent and surrounding properties by

Should you have any further questions with regards to the matter please feel free to contact me at (248) 347-0417.

Alan Hall – Deputy Director Community Development - City of Novi





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ZONING BOARD OF APPEALS APPLICATION

DEC 02 2024

CITY OF NOVI COMMUNITY DEVELOPMENT

APPLICATION MUST BE FILLED OUT COMPLETELY

I. PROPERTY INFORMATION (Add	ress of subject ZBA Co	ase)	Application Fee: $rac{1}{2}$	330.00
PROJECT NAME / SUBDIVISION Lineage Car Ports Addition			Meeting Date:	
ADDRESS		LOT/SIUTE/SPACE #		
46500 Humboldt Drive	May be of	btain from Assessing	ZBA Case #: PZ 2	4-0062
50-22- <u>09 - 176 - 01</u> :		ent (248) 347-0485		
CROSS ROADS OF PROPERTY North of Humboldt East of Magella	in	170		
IS THE PROPERTY WITHIN A HOMEOWNER'S ASS	SOCIATION JURISDICTION?	REQUEST IS FOR:		
☐ YES ☐ NO		-iihi	IMERCIAL VACANT PE	ROPERTY LI SIGNAGE
DOES YOUR APPEAL RESULT FROM A NOT	TICE OF VIOLATION OR C	CITATION ISSUED?	ES NO	ang disease of the same
II. APPLICANT INFORMATION	EMAIL ADDRESS		CELL PHONE NO.	
A. APPLICANT	mfahey@madisone	ei.com	_	
NAME Mike Fahey			TELEPHONE NO. 541 243 2308	
ORGANIZATION/COMPANY			FAX NO.	
Madison Energy Holdings LLC ADDRESS		CITY	STATE	ZIP CODE
8484 Westpark Drive Suite 720		McLean	VA	22102
B. PROPERTY OWNER	ERE IF APPLICANT IS ALSO	THE PROPERTY OWNER		
Identify the person or organization that owns the subject property:	email address cthurston@oneline	eage com	CELL PHONE NO.	
NAME		cage.com	TELEPHONE NO.	
Chris Thurston ORGANIZATION/COMPANY			973 997 1654	
Lineage Logistics			FAX NO.	
ADDRESS 46500 Humboldt Drive		CITY Novi	STATE MI	ZIP CODE 48377
III. ZONING INFORMATION				
A. ZONING DISTRICT		_	_	
□ R-A □ R-1 □ R-2	□ R-3 □ R-4	□ RM-1 □ RM-2	□ MH	
□ I-1 ☑ I-2 □ RC	☐ TC ☐ TC-1	OTHER	÷ 3	
B. VARIANCE REQUESTED INDICATE ORDINANCE SECTION (S) AND	VARIANCE REQUESTED:			
5 45 40 b	Variance requested	Exceed allowable width	by 12.5 feet	
E 4E 40 h	Variance requested	Exceed allowable heigh		
	Variance requested			
4. Section	variance requestea			
IV. FEES AND DRAWNINGS				
A. FEES	\	l' \	'	.075
Single Family Residential (Existing				
Multiple/Commercial/Industrial				5440
B. DRAWINGS 1-COPY & 1 DIG	□ Special Me ITAL COPY SUBMITTED	eetings (At discretion of Bo	oara) \$660	
Dimensioned Drawings and Plans			d distance to adjacer	nt property lines
Site/Plot Plan Sijeting of proposed by illelings of a second b		 Location of existin 	g & proposed signs, if	
Existing or proposed buildings or of Number & location of all on-site p			ations ion relevant to the Vo	riance application



ZONING BOARD OF APPEALS APPLICATION

V. VARIANCE	
A. VARIANCE (S) REQUESTED	
☑ DIMENSIONAL ☐ USE ☐ SIGN	
There is a five-(5) hold period before work/action can be taken on variance approvals.	
B. SIGN CASES (ONLY) Your signature on this application indicates that you agree to install a Mock-Up Sign ten-I meeting. Failure to install a mock-up sign may result in your case not being heard by the I schedule ZBA meeting, or cancelled. A mock-up sign is NOT to be actual sign. Upon appr removed within five-(5) days of the meeting. If the case is denied, the applicant is respon removal of the mock-up or actual sign (if erected under violation) within five-(5) days of t	Board, postponed to the next roval, the mock-up sign must be sible for all costs involved in the
C. ORDINANCE	
City of Novi Ordinance, Section 3107 – Miscellaneous	
No order of the Board permitting the erection of a building shall be valid for a period long building permit for such erection or alteration is obtained within such period and such ere proceeds to completion in accordance with the terms of such permit.	
No order of the Board permitting a use of a building or premises shall be valid for a period eighty-(180) days unless such use is establish within such a period; provided, however, who dependent upon the erection or alteration or a building such order shall continue in force for such erection or alteration is obtained within one-(1) year and such erection or alteration in accordance with the terms of such permit.	ere such use permitted is e and effect if a building permit
D. APPEAL THE DETERMINATION OF THE BUILDING OFFICIAL	
PLEASE TAKE NOTICE:	
The undersigned hereby appeals the determination of the Building Official / Inspector or	Ordinance made
\square construct new home/building \square addition to existing home/building \square sign	GNAGE
□ ACCESSORY BUILDING □ USE □ OTHER	
*	*
VI. APPLICANT & PROPERTY SIGNATURES	
VI. APPLICANT & PROPERTY SIGNATURES A. APPLICANT	
A. APPLICANT	Dec 2, 2024
A. APPLICANT Wichael Fahey	Dec 2, 2024
A. APPLICANT	
A. APPLICANT Wichael Fahey Applicant Signature	Dec 2, 2024
A. APPLICANT Michael Fahry Applicant Signature B. PROPERTY OWNER	Dec 2, 2024
A. APPLICANT Michael Fakey Applicant Signature B. PROPERTY OWNER If the applicant is not the owner, the property owner must read and sign below:	Dec 2, 2024 Date
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CITY OF NOVI cityofnovi.org

Community Development Department

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REVIEW STANDARDS DIMENSIONAL VARIANCE

The Zoning Board of Appeals (ZBA) will review the application package and determine if the proposed Dimensional Variance meets the required standards for approval. In the space below, and on additional paper if necessary, explain how the proposed project meets each of the following standards. (Increased costs associated with complying with the Zoning Ordinance will not be considered a basis for granting a Dimensional Variance.)

Standard #1. Circumstances or Physical Conditions.

Explain the circumstances or physical conditions that apply to the property that do not apply generally to other properties in the same zoning district or in the general vicinity. Circumstances or physical conditions may include:

22	corramona may more as.	
	effective date of the Zonin	ness or shape of a specific property ng Ordinance or amendment. If applicable, describe below:
	and/or	
other extraordinary	ditions. Exceptional topogr situations on the land, build Applicable	-
a pedestrian walkway. T and the central walkway,	he intent is to provide a continuo and to use the roof to mount so and an average height of 17.5 fo	to be placed has a center island containing ous canopy over both the parking spaces lar collectors. This will require the canopies eet, which does not fit into the length and
to the subject prop	erty would prohibit the liter ance or would involve sign	the property immediately adjacent ral enforcement of the requirements ifficant practical difficulties. If applicable, describe below:

Standard #2. Not Self-Created.

Describe the immediate practical difficulty causing the need for the Dimensional Variance, that the need for the requested variance is not the result of actions of the property owner or previous property owners (i.e., is not self-created).

5.15.12.b allows for a maximum canopy width of 40 feet and an allowable height of 12 feet. This ordinance envisioned a standard gable roof over a double row of parking with no barrier between the spaces. It does not consider the needs of a solar canopy, which requires a continuous shed roof, making for a taller structure, or allowing for a pedestrian walkway under the canopy.

Standard #3. Strict Compliance.

Explain how the Dimensional Variance in strict compliance with regulations governing area, setback, frontage, height, bulk, density or other dimensional requirements will unreasonably prevent the property owner from using the property for a permitted purpose, or will render conformity with those regulations unnecessarily burdensome.

In order to meet the ordinance requirements for the existing parking, the canopies would have to be redesigned into two separate canopies per row of parking, with no overhang to protect the pedestrian walkway. In addition, they would have to have a pitch that is not favorable for solar collection, in order to meet height and clearance requirements. This might, in fact, make solar collection impractical for this project.

Standard #4. Minimum Variance Necessary.

Explain how the Dimensional Variance requested is the minimum variance necessary to do substantial justice to the applicant as well as to other property owners in the district.

The requested variance is the minimum required in order to provide the desired shelter and surface area for solar collectors to function effectively.

Standard #5. Adverse Impact on Surrounding Area.

Explain how the Dimensional Variance will not cause an adverse impact on surrounding property, property values, or the use and enjoyment of property in the neighborhood or zoning district.

The requested variance will not cause an adverse impact to surrounding property, as it is located towards the rear of the site, and will not be visible from the building front or from nearby roadways. The character of the parking lot will remain similar to that of the surrounding properties, which are all industrial uses.

2023

U O III o

LINEAGE CAR PORTS ADDITION

46500 HUMBOLDT DRIVE CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

PERMIT / APPROVAL SUMMARY		
DATE APPROVED	PERMIT / APPROVAL	
11/13/2024	PRELIMINARY SITE PLAN APPROVAL	
	FINAL SITE PLAN APPROVAL	
	SESC PERMIT	
	DATE APPROVED	DATE APPROVED PERMIT / APPROVAL 11/13/2024 PRELIMINARY SITE PLAN APPROVAL FINAL SITE PLAN APPROVAL

WAIVER AND VARIANCE LIST

- A WAIVER IS REQUESTED FROM SECTION 5.3.12 OF NOVI ZONING ORDINANCE TO ALLOW SOME OF THE EXISTING INTERIOR LANDSCAPE TREES TO BE REMOVED FOR THE CONSTRUCTION OF SOLAR CANOPIES. REPLACEMENT TREES WILL BE PLACED AROUND THE PERIMETER OF THE PARKING AREA
- 2. A VARIANCE IS REQUESTED FROM 4.19.2.C.iii AND 5.15.12.b TO ALLOW THE CANOPIES TO EXCEED THE ALLOWABLE WIDTH OF 40 FEET BY 12.5 FEET, AND TO ALLOW THE CANOPIES TO EXCEED THE ALLOWABLE HEIGHT OF 12 FEET BY AN AVERAGE OF 5 FEET.



FINA GROUP

DESIGN TEAM

APPLICANT

MADISON ENERGY INVESTMENTS 8100 BOONE BLVD, SUITE 310 VIENNA, VA 22182 CONTACT: NICK PERGE PHONE: 614-425-0315 EMAIL: NPERGE@MADISONEI.COM

CIVIL ENGINEER

PEA GROUP 58105 VAN DYKE RD. WASHINGTON TWP., MI 48094 CONTACT: BECKY KLEIN, PE, LEED AP BD+C PHONE: 844.813.2949 EMAIL: BKLEIN@PEAGROUP.COM

LANDSCAPE ARCHITECT

PEA GROUP 7927 NEMCO WAY, STE. 115 BRIGHTON, MI 48116

BRIGHTON, MI 48116 CONTACT: JANET EVANS, PLA PHONE: 844.813.2949 EMAIL: JEVANS@PEAGROUP.COM

OVERALL SITE PLAN DIMENSION AND PAVING PLAN - 1 **DIMENSION AND PAVING PLAN - 2** GRADING AND SESC PLAN - 1 **GRADING AND SESC PLAN - 2** UTILITY PLAN NOTES AND DETAILS LANDSCAPE PLAN LANDSCAPE SPECIFICATIONS LANDSCAPE SPECIFICATIONS PHOTOMETRIC SITE PLANS 1 OF 2 PHOTOMETRIC LAYOUT 2 OF 2 PHOTOMETRIC LAYOUT CARPORT CANOPY STRUCTURAL PLANS STRUCTURAL NOTES TESTING AND INSPECTION NOTES ABBREVIATIONS AND SYMBOLS **CANOPY FOUNDATION PLAN** CANOPY FRAMING PLAN TYPICAL CANOPY SECTION **DETAILS**

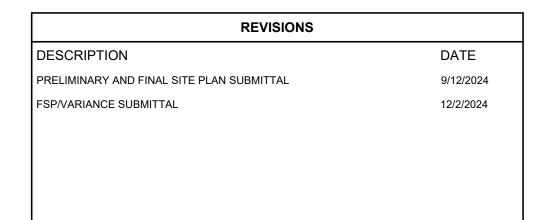
INDEX OF DRAWINGS

OVERALL EXISTING CONDITIONS PLAN

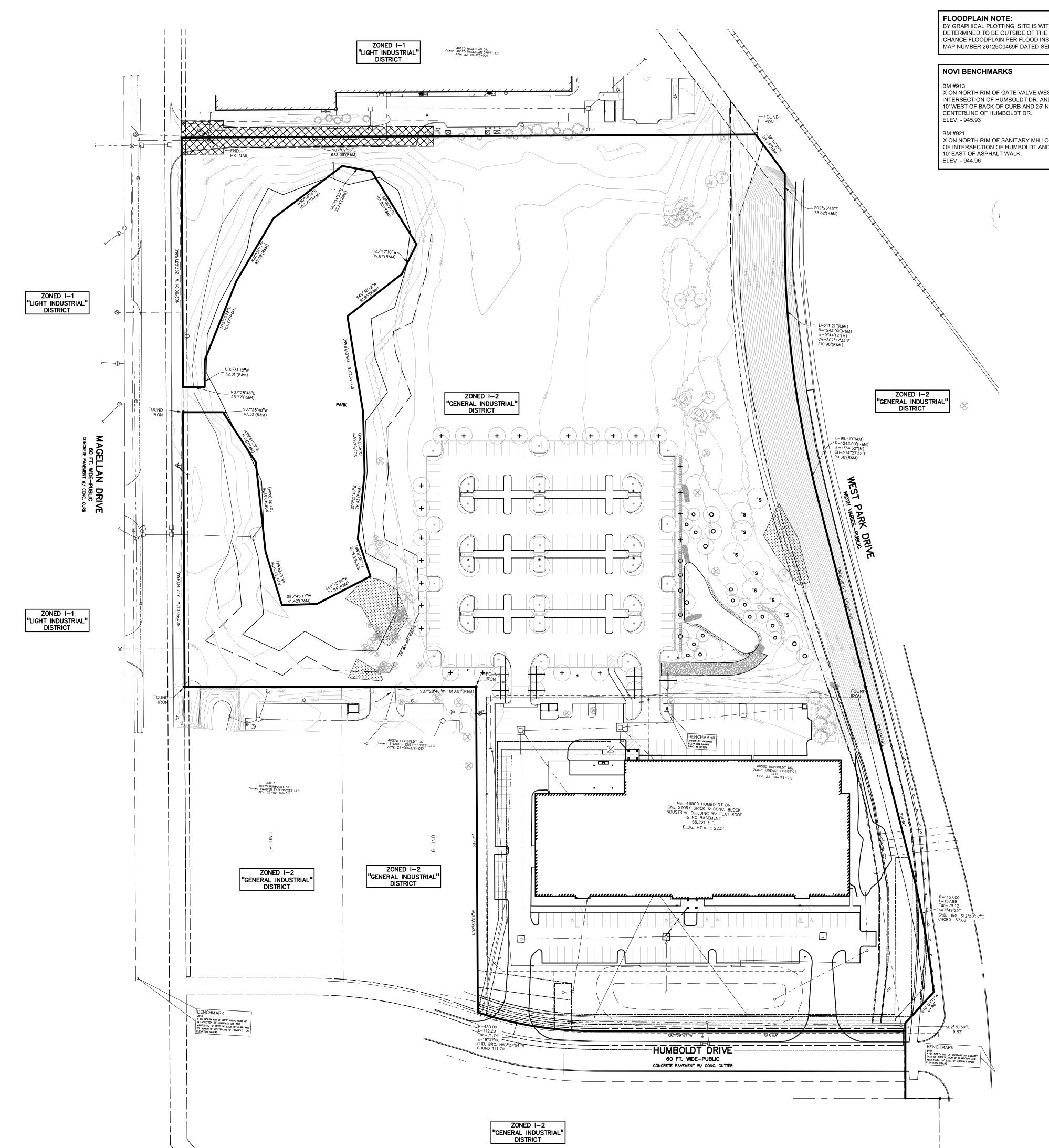
EXISTING CONDITIONS AND DEMOLITION PLAN

NUMBER TITLE

COVER SHEET







LEGEND:

BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE 'X', AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 26125C0469F DATED SEPTEMBER 29, 2006

X ON NORTH RIM OF GATE VALVE WEST OF INTERSECTION OF HUMBOLDT DR. AND MAGELLAN, 10' WEST OF BACK OF CURB AND 25' NORTH OF

X ON NORTH RIM OF SANITARY MH LOCATED EAST OF INTERSECTION OF HUMBOLDT AND WEST PARK, 10' EAST OF ASPHALT WALK.

O^{Y.D.}® ® EX. YARD DRAIN, U.G. ROOF DRAIN & DOWNSPOUT EX. UNIDENTIFIED STRUCTURE $exttt{M} o exttt{\#} o^{ exttt{GP}}$ EX. MAILBOX, SIGN, LIGHTPOLE & GUARD POST X EX. FENCE EX. GUARD RAIL

EX. DEC. TREE, CONIFEROUS TREE & SHRUB EX. TREE TAG, & TREE LINE EX. SPOT ELEVATION EX. CONTOUR EX. WETLAND

-OH-ELEC-W-O- EX. OH. ELEC, POLE & GUY WIRE

-UG-COMM---⊠-Ū- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE

♡ ⑩ - EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE

EX. COMBINED SEWER MANHOLE

EX. SQUARE, ROUND & BEEHIVE CATCH BASIN

-UG-ELEC-©EEE EX. U.G. ELEC, MANHOLE, METER & HANDHOLE

© GAS EX. GAS VALVE & GAS LINE MARKER

— - — - — EX. GAS LINE

– — — – EX. WATER MAIN

----- EX. SANITARY SEWER

—— -- EX. STORM SEWER

⊚ ⑤ EX. CLEANOUT & MANHOLE

NAIL FOUND / NAIL & CAP SET BRASS PLUG SET MONUMENT FOUND / SET

SECTION CORNER FOUND R M C RECORDED / MEASURED / CALCULATED GLOBAL NAVIGATION SATELLITE SYSTEM

TOPOGRAPHIC AND BOUNDARY SURVEY DISCLAIMER:

TOPOGRAPHIC AND BOUNDARY SURVEY ELEMENTS OF THIS EXISTING CONDITIONS PLAN, INCLUDING PROPERTY LINES, LEGAL DESCRIPTION, EXISTING UTILITIES, EXISTING ELEVATIONS, EXISTING PHYSICAL FEATURES, AND EXISTING STRUCTURES ARE REFERENCED FROM THE FOLLOWING NOWAK AND FRAUS SURVEYS:

ALTA/NSPS LAND TITLE SURVEY, BY NOWAK AND FRAUS, DATED 03-27-2017 ALTA/NSPS LAND TITLE SURVEY, BY NOWAK AND FRAUS, DATED 08-29-2019 BOUNDARY/TOPOGRAPHIC/WETLAND SURVEY, BY NOWAK AND FRAUS, DATED 08-29-2019

PEA GROUP WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE SURVEY OR FOR DESIGN ERRORS/OMISSIONS RESULTING FROM SURVEY INACCURACIES.

LEGAL DESCRIPTION:

CURRENT PARCEL ID: 22-09-176-019

PER "5TH AMENDMENT TO CONSOLIDATING MASTER DEED BECK WEST CORPORATE PARK-NOVI CONDOMINIUM" AS RECORDED IN LIBER 53608. PAGE 798, OAKLAND COUNTY RECORDS:

LAND IN THE NORTHWEST CORNER OF TOWNSHIP 1 NORTH, RANGE 8 EAST, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS:

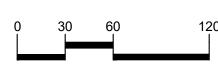
UNIT 41 OF "BECK WEST CORPORATE PARK - NOVI CONDOMINIUMS" AS RECORDED IN OAKLAND COUNTY RECORDS, SUBDIVISION NO. 1265.

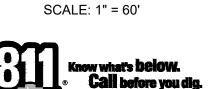
GROUP

t: 844.813.2949 www.peagroup.com

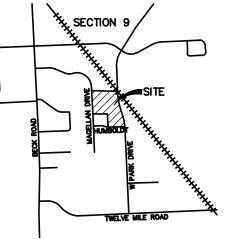








CAUTION!! THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINION THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



MADISON ENERGY INVESTMENTS 8100 BOONE BLVD, STE 310 VIENNA, VIRGINIA

PROJECT TITLE

REVISIONS

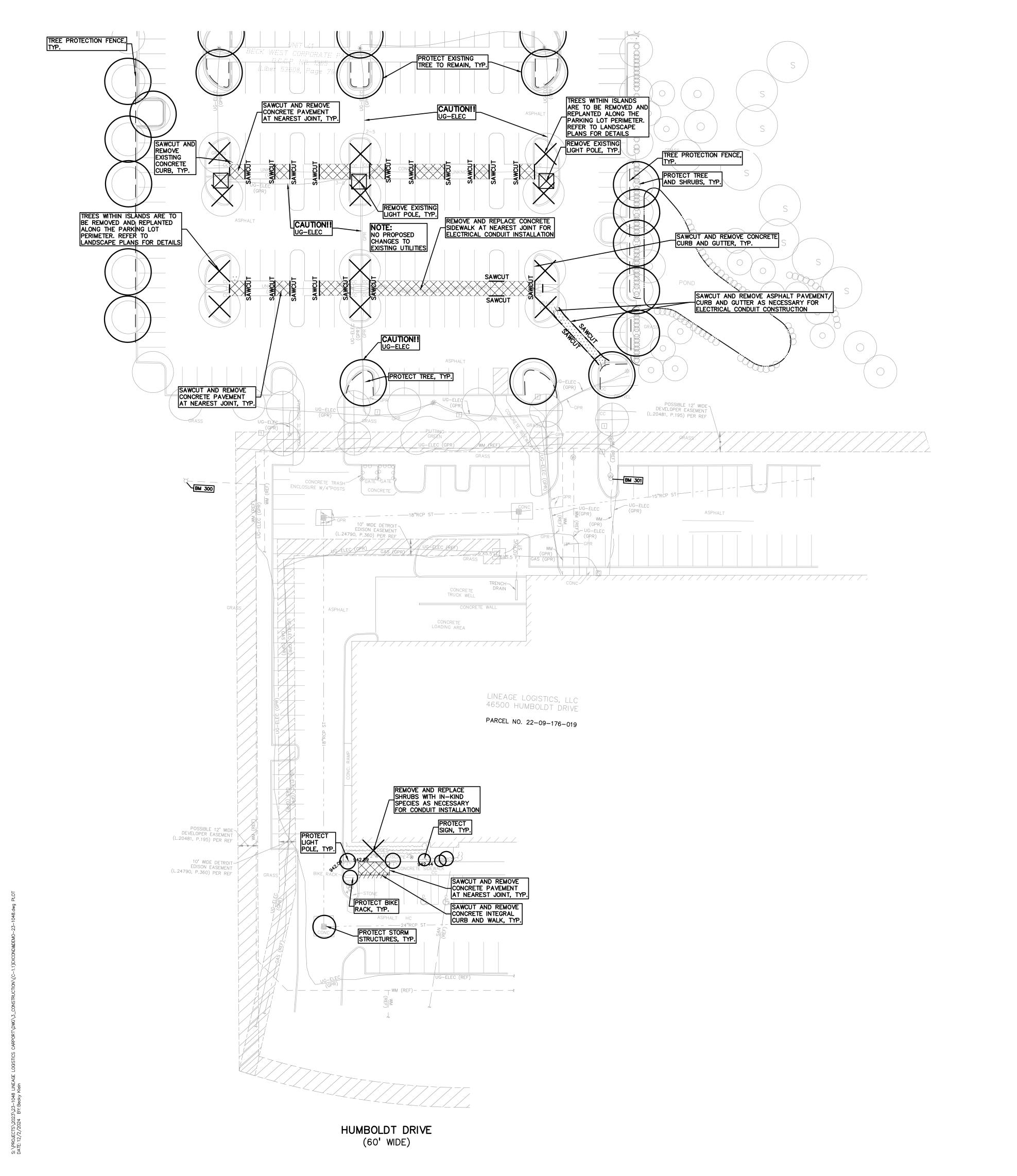
LINEAGE CAR PORTS ADDITION 46500 HUMBOLDT DRIVE NOVI, MICHIGAN

PSP AND FSP SUBMITTAL	9/12/202
FSP/VARIANCE SUBMITTAL	12/2/202

ORIGINAL ISSUE DATE: AUGUST 16, 2024 DRAWING TITLE

OVERALL EXISTING CONDITIONS **PLAN**

PEA JOB NO.	2023-1048
P.M.	BK
DN.	MT
DES.	MT
DRAWING NUMBE	R:



FLOODPLAIN NOTE: BY GRAPHICAL PLOTTING,

BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE 'X', AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 26125C0469F DATED SEPTEMBER 29, 2006.

NOVI BENCHMARKS

BM #913
X ON NORTH RIM OF GATE VALVE WEST OF
INTERSECTION OF HUMBOLDT DR. AND MAGELLAN,
10' WEST OF BACK OF CURB AND 25' NORTH OF
CENTERLINE OF HUMBOLDT DR.
ELEV. - 945.93

BM #921
X ON NORTH RIM OF SANITARY MH LOCATED EAST
OF INTERSECTION OF HUMBOLDT AND WEST PARK,
10' EAST OF ASPHALT WALK.
ELEV. - 944.96

DEMOLITION LEGEND:

ITEM TO BE PROTECTED

CURB REMOVAL

CONCRETE PAVEMENT AND SIDEWALK REMOVAL

ASPHALT REMOVAL

TREE REMOVAL

SAWCUT

TREE FENCE

GENERAL DEMOLITION NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT:

- 1. ALL MATERIAL TO BE REMOVED, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS SHALL BE ALLOWED.
- 2. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES.
- 3. STAGING/PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 4. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID.
- . REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES CONCRETE, ASPHALT, TREES, ETC.
- 6. REFER TO SHEET LANDSCAPE PLANS FOR TREE PROTECTION DETAILS.
- 7. THE CONTRACTOR SHALL, AS A MINIMUM, PROVIDE TREE PROTECTION FENCING AROUND EXISTING TREES TO BE SAVED THAT ARE WITHIN 15 FEET OF CONSTRUCTION ACTIVITIES AND AS INDICATED IN THE PLANS OR PER LOCAL AGENCY REQUIREMENTS.
- . THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES.
- 9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY
 BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER
 TRAFFIC CONTROL DEVICES TO PROTECT THE WORK ZONE
 AND SAFELY MAINTAIN TRAFFIC PER AGENCY
 REQUIREMENTS AND IN ACCORDANCE WITH THE LATEST
 EDITION OF THE STATE MANUAL OF UNIFORM TRAFFIC
 CONTROL DEVICES.
- IO. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO FACILITATE CONSTRUCTION.
 SIGNS SHALL BE PROTECTED OR STOCKPILED FOR REUSE AS SPECIFIED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER.
- 11. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

LEGEND:

-OH-ELEC-W-O-C EX. OH. ELEC, POLE & GUY WIRE
-UG-CATV-TV- EX. U.G. CABLE TV & PEDESTAL

-UG-COMM——☑-①— EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
-UG-ELEC-©-E\Ê\Ê\— EX. U.G. ELEC,MANHOLE, METER & HANDHOLE
— - — EX. GAS LINE

© EX. GAS VALVE & GAS LINE MARKER

□ □ EX. TRANSFORMER & IRRIGATION VALVE

- — — EX. WATER MAIN

○ W - EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE

○ W EX. WATER VALVE BOX & SHUTOFF

EX. SANITARY SEWER

○ S EX. SANITARY CLEANOUT & MANHOLE

○ EX. COMBINED SEWER MANHOLE

- - EX. STORM SEWER

EX. STORM SEWER

EX. CLEANOUT & MANHOLE

EX. SQUARE, ROUND & BEEHIVE CATCH BASIN

O'.D. © © EX. YARD DRAIN, U.G. ROOF DRAIN & DOWNSPOUT

EX. UNIDENTIFIED STRUCTURE

EX. MAILBOX, SIGN, LIGHTPOLE & GUARD POST

EX. FENCE

EX. GUARD RAIL

EX. DEC. TREE, CONIFEROUS TREE & SHRUB

EX. TREE TAG, & TREE LINE

EX. SPOT ELEVATION

EX. CONTOUR

● 図 IRON FOUND / SET

■ Ø NAIL FOUND / NAIL & CAP SET

■ BRASS PLUG SET

■ MONUMENT FOUND / SET

SECTION CORNER FOUND

R M C RECORDED / MEASURED / CALCULATED

GLOBAL NAVIGATION SATELLITE SYSTEM

REFERENCE DRAWINGS: TOPOGRAPHIC SURVEY, PEA JOB NO. 2019-436

EX. WETLAND

BENCHMARKS:

(GPS DERIVED - NAVD88)

ARROW ON A HYDRANT LOCATED APPROX. 107' WEST OF THE TRASH ENCLOSURE AREA, NORTHWEST OF THE TRUCK LOADING AREA.

.ELEV. - 947.10

BM #301 (PER PEA JOB NO. 2019-436)
ARROW ON A HYDRANT LOCATED APPROX. 58' NORTH OF THE BUILDING, NORTHEAST OF THE TRUCK LOADING AREA.
ELEV. - 944.62

TOPOGRAPHIC AND BOUNDARY SURVEY DISCLAIMER:
TOPOGRAPHIC AND BOUNDARY SURVEY ELEMENTS OF THIS
EXISTING CONDITIONS PLAN, INCLUDING PROPERTY LINES, LEGAL
DESCRIPTION, EXISTING UTILITIES, EXISTING ELEVATIONS, EXISTING
PHYSICAL FEATURES, AND EXISTING STRUCTURES ARE
REFERENCED FROM THE FOLLOWING NOWAK AND FRAUS SURVEYS:

ALTA/NSPS LAND TITLE SURVEY, BY NOWAK AND FRAUS, DATED 03-27-2017
ALTA/NSPS LAND TITLE SURVEY, BY NOWAK AND FRAUS, DATED 08-29-2019
BOUNDARY/TOPOGRAPHIC/WETLAND SURVEY, BY NOWAK AND

FRAUS, DATED 08-29-2019

PEA GROUP WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE SURVEY OR FOR DESIGN ERRORS/OMISSIONS RESULTING

LEGAL DESCRIPTION:

FROM SURVEY INACCURACIES.

CURRENT PARCEL ID: 22-09-176-019

PER "5TH AMENDMENT TO CONSOLIDATING MASTER DEED BECK WEST CORPORATE PARK-NOVI CONDOMINIUM" AS RECORDED IN LIBER 53608. PAGE 798, OAKLAND COUNTY RECORDS:

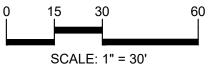
LAND IN THE NORTHWEST CORNER OF TOWNSHIP 1 NORTH, RANGE 8 EAST, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS:

UNIT 41 OF "BECK WEST CORPORATE PARK - NOVI CONDOMINIUMS" AS RECORDED IN OAKLAND COUNTY RECORDS, SUBDIVISION NO. 1265.











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CLIENT

MADISON ENERGY INVESTMENTS 8100 BOONE BLVD, STE 310 VIENNA. VIRGINIA

REVISIONS

PROJECT TITLE

LINEAGE CAR
PORTS ADDITION
46500 HUMBOLDT DRIVE

PSP AND FSP SUBMITTAL 9/12/2024

FSP/VARIANCE SUBMITTAL 12/2/2024

	TREE PROTECTION WILL BE ERECTED PRIOR TO START OF CONSTRUCTION ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE
	NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN; INCLUDING, BUT NOT LIMITED TO PLACING SOLVENTS, BUILDING MATERIAL, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN DRIP LINES
	GRADE CHANGES MAY NOT OCCUR WITHIN THE DRIP LINE OF PROTECTED TREES
	DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY REMAINING TREE
	ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING
	TREES LOCATED ON ADJACENT PROPERTY THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED
	TREES TO BE PRESERVED SHALL BE IDENTIFIED WITH FLAGGING PRIOR TO THE TREE CLEARING OPERATIONS
CRITICAL	PROVIDE FENCE AROUND CRITICAL ROOT ZONE OF TREE
ROOT ZONE	FENCE SHALL BE PLACED IN A CIRCLE WITH A MINIMUM RADIUS OF 1' PER 1" DIAMETER OF THE TREE MEASURED AT 4.5' ABOVE GROUND
	4'HIGH PROTECTIVE FENCING WITH STEEL POSTS – 10' O.C.
	EXISTING SOIL
TRFF PRO	TECTION DETAIL

TREE PROTECTION DETAIL

NOT TO SCALE

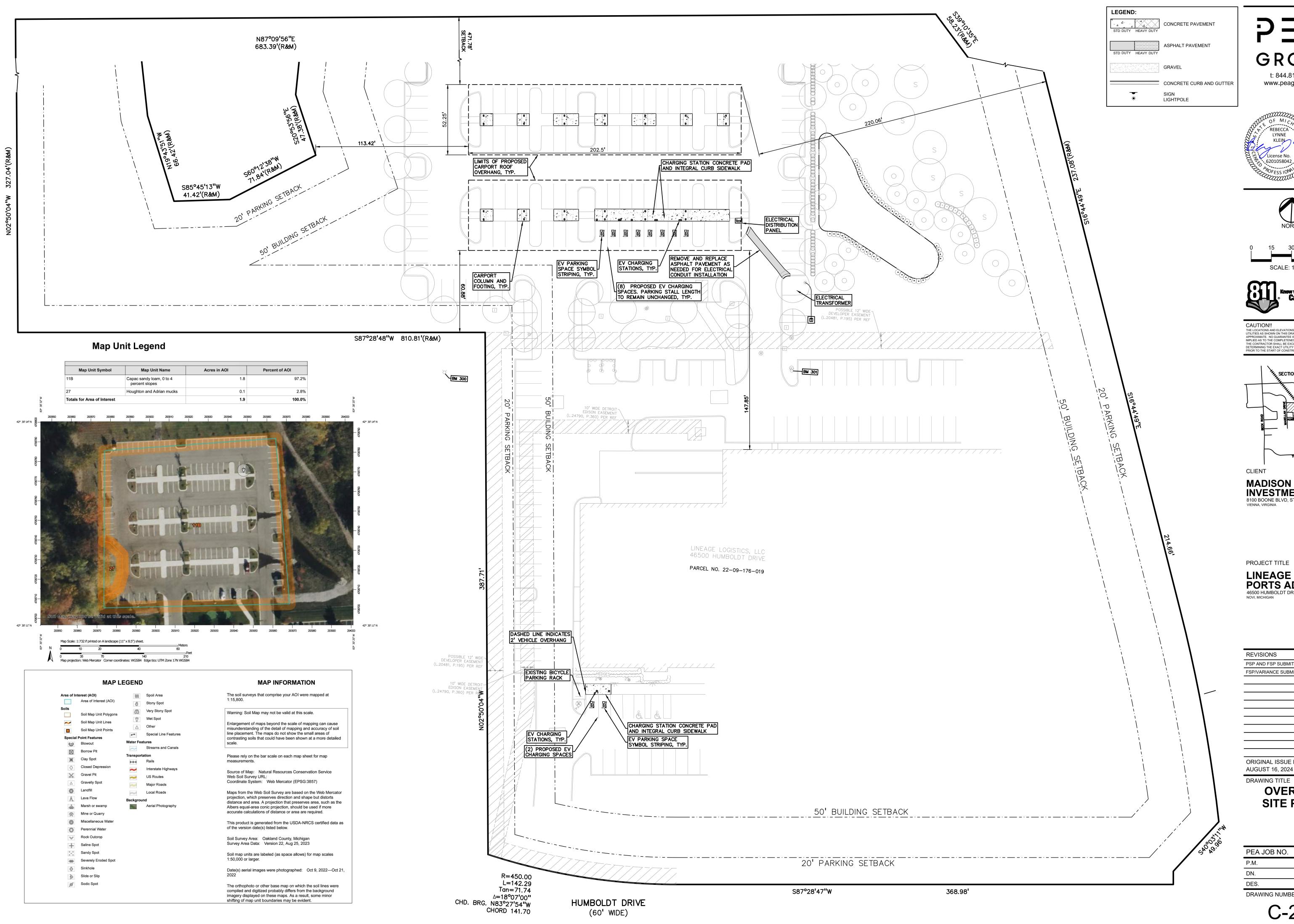
DRAWING TITLE

EXISTING
CONDITIONS
AND
DEMOLITION

PLAN
PEA JOB NO. 2023-1048
P.M. BK
DN. MT
DES. MT

DRAWING NUMBER:

C-1.1

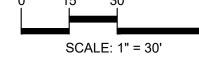


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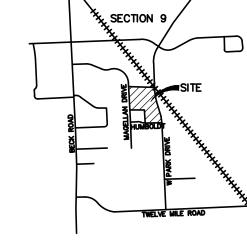








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CLIENT

MADISON ENERGY INVESTMENTS 8100 BOONE BLVD, STE 310

PROJECT TITLE

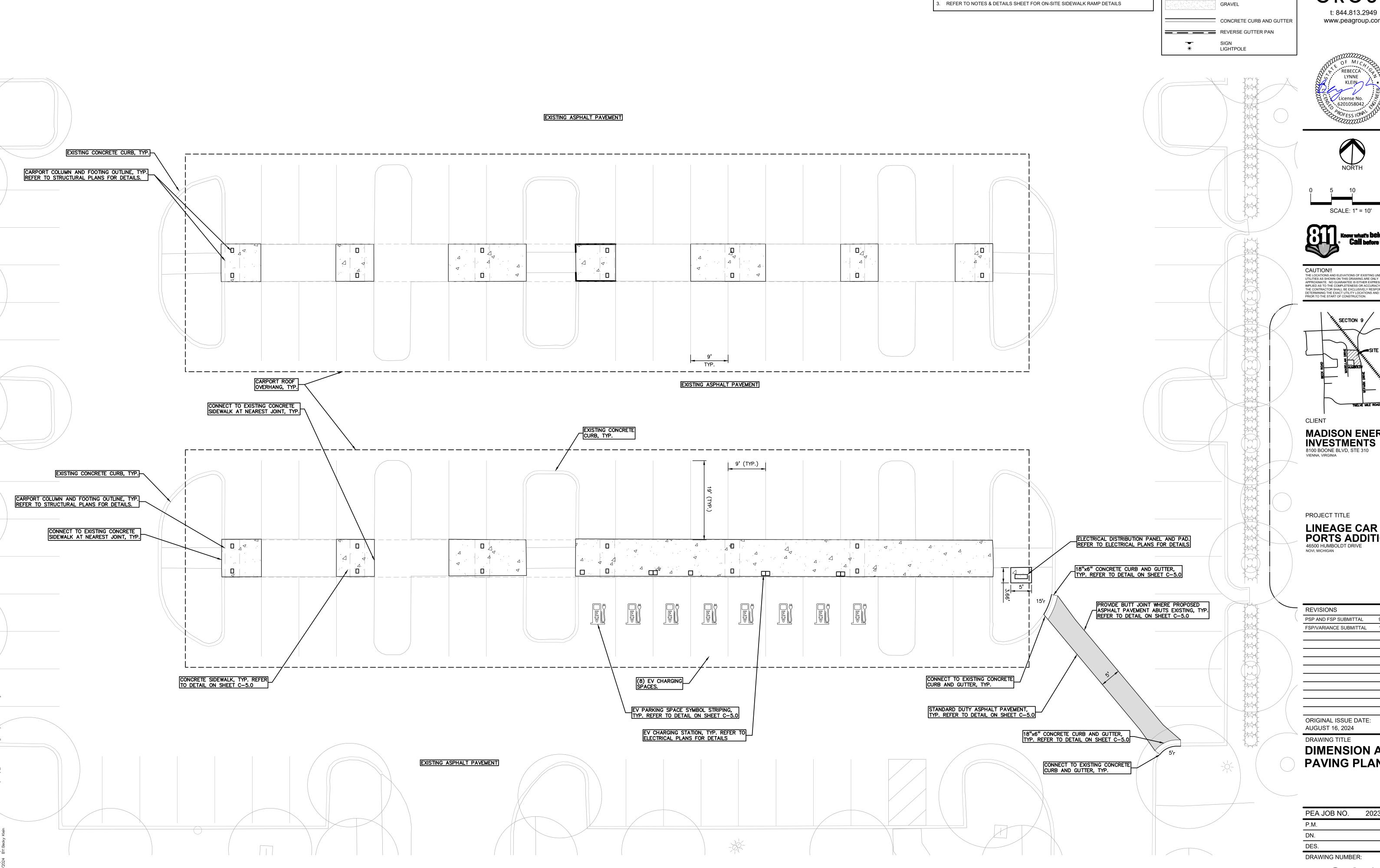
LINEAGE CAR **PORTS ADDITION** NOVI, MICHIGAN

REVISIONS PSP AND FSP SUBMITTAL 9/12/2024 FSP/VARIANCE SUBMITTAL 12/2/2024

ORIGINAL ISSUE DATE: AUGUST 16, 2024

> **OVERALL SITE PLAN**

PEA JOB NO. 2023-1048 DES. DRAWING NUMBER:



LEGEND: STD DUTY HEAVY DUTY

CONCRETE PAVEMENT ASPHALT PAVEMENT

GENERAL NOTES:

PIPE UNLESS OTHERWISE NOTED.

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.

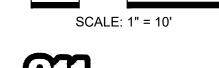
ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF

t: 844.813.2949 www.peagroup.com



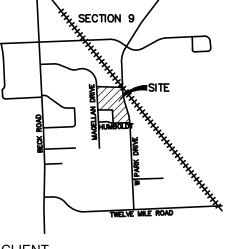








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MADISON ENERGY

PORTS ADDITION

PSP AND FSP SUBMITTAL 9/12/2024 FSP/VARIANCE SUBMITTAL 12/2/2024

ORIGINAL ISSUE DATE:

DIMENSION AND PAVING PLAN - 1

2023-1048 PEA JOB NO.

GENERAL N

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

- I. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
- REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
- REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

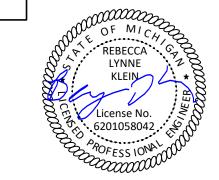
NOTES:	
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LEGEND: STD DUTY HEAVY DUTY

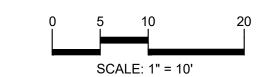
ASPHALT PAVEMENT

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CONCRETE CURB AND GUTTER REVERSE GUTTER PAN SIGN LIGHTPOLE

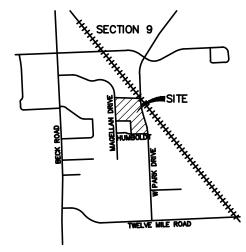








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CLIENT

MADISON ENERGY INVESTMENTS
8100 BOONE BLVD, STE 310
VIENNA, VIRGINIA

PROJECT TITLE

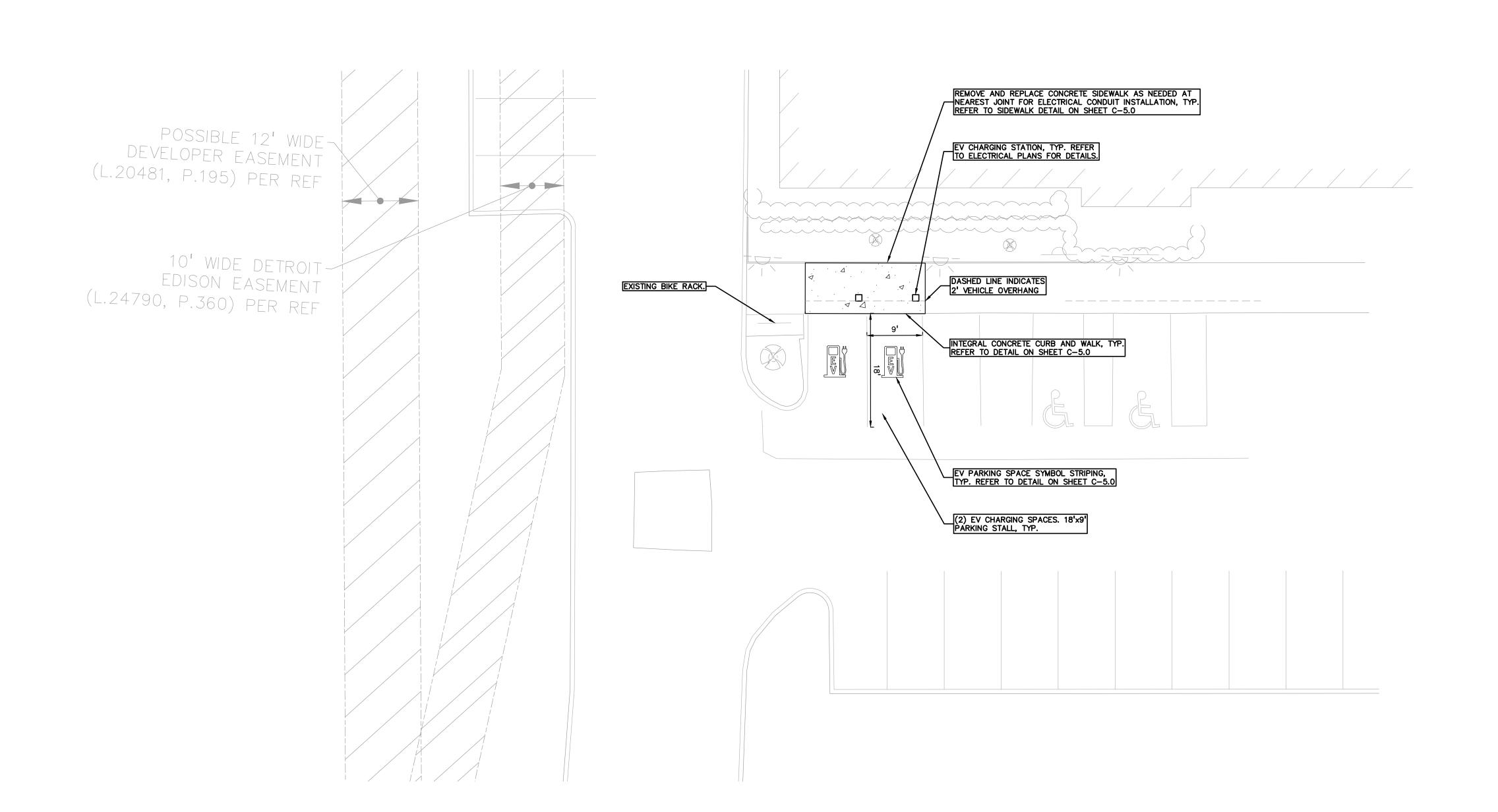
LINEAGE CAR PORTS ADDITION 46500 HUMBOLDT DRIVE NOVI, MICHIGAN

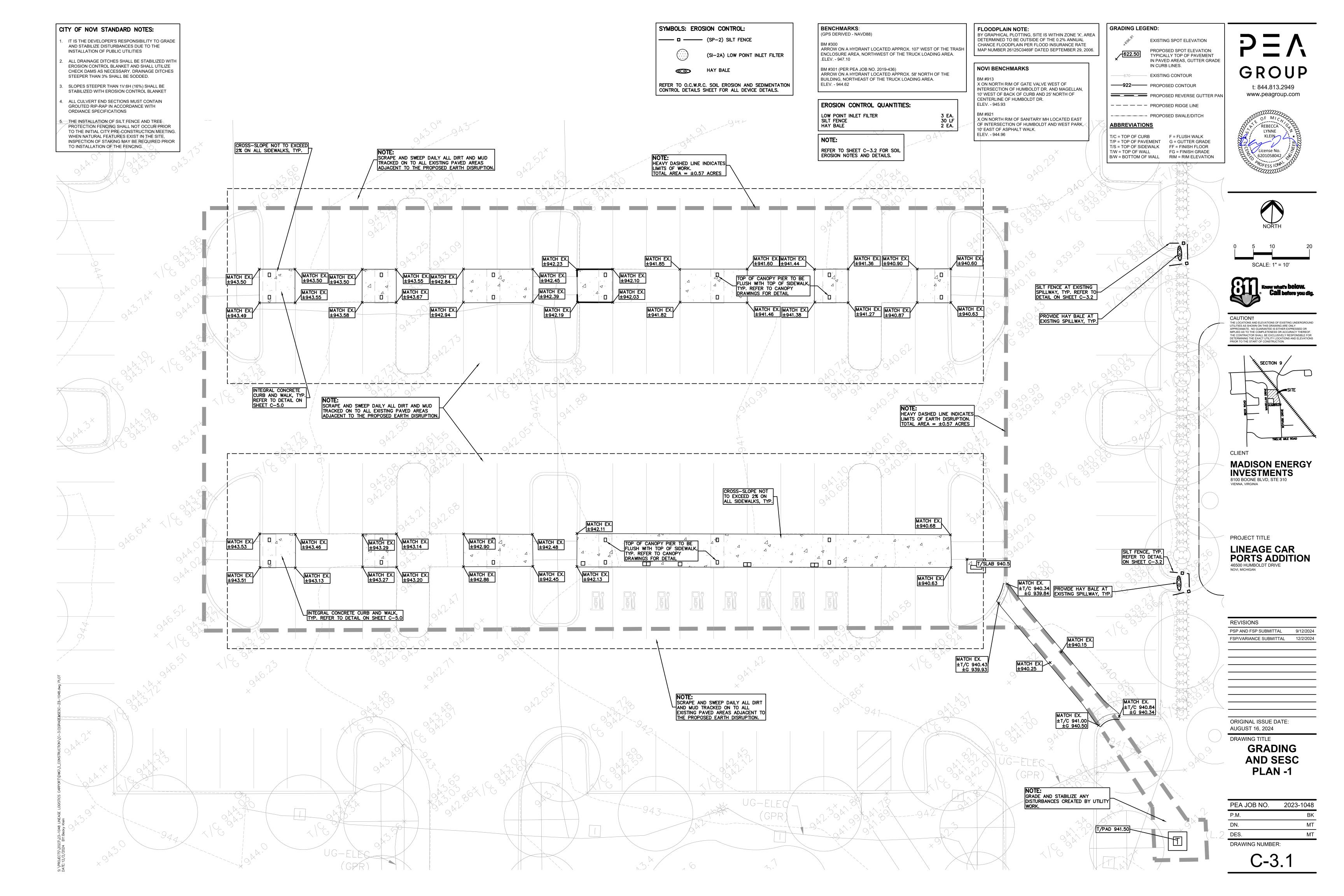
REVISIONS	
PSP AND FSP SUBMITTAL	9/12/2024
FSP/VARIANCE SUBMITTAL	12/2/2024
	•

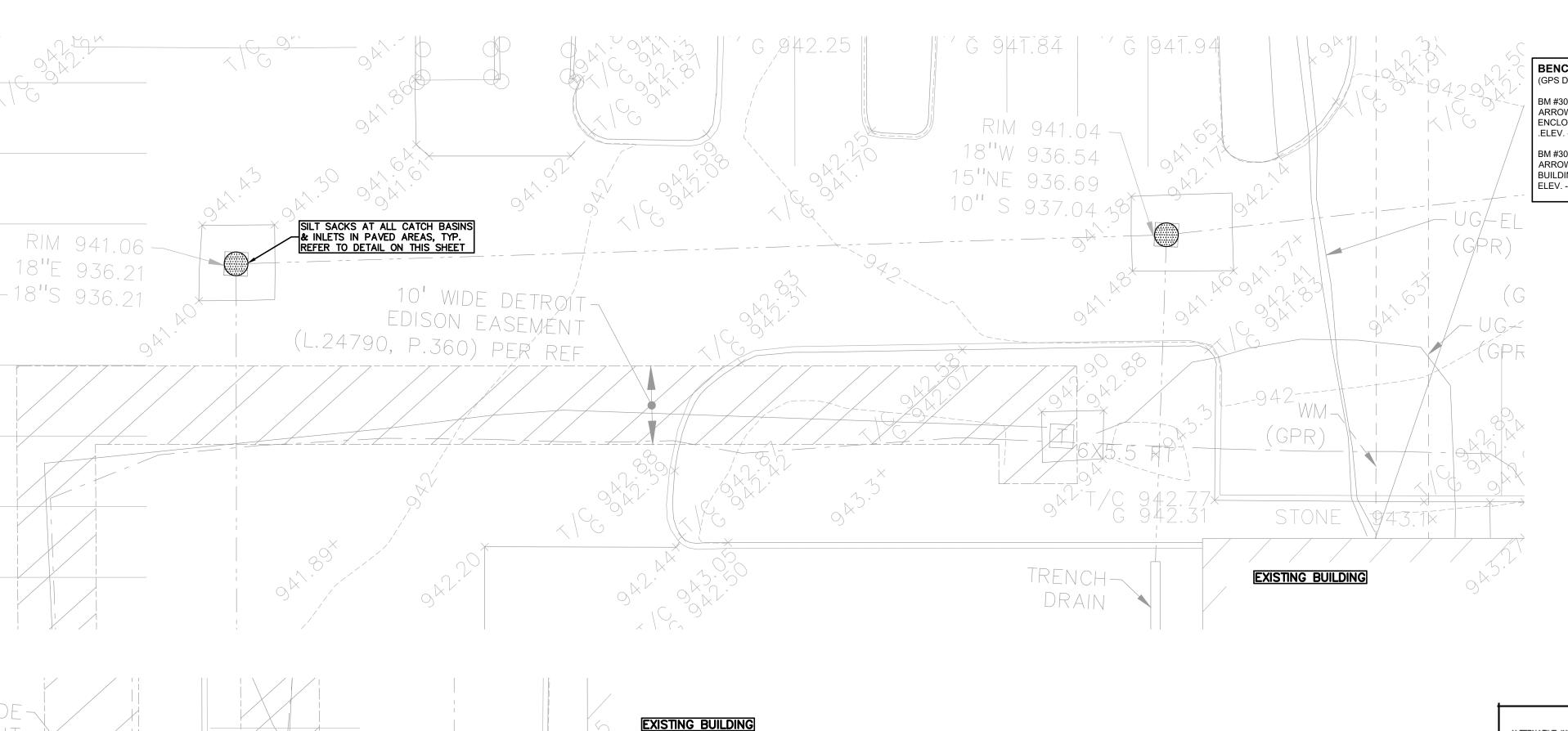
ORIGINAL ISSUE DATE: AUGUST 16, 2024 DRAWING TITLE

DIMENSION AND PAVING PLAN - 2

PEA JOB NO.	2023-1048
P.M.	BK
DN.	MT
DES.	MT
DRAWING NUMBER	₹:







±942.44

CROSS-SLOPE NOT TO EXCEED 2% ON ALL SIDEWALKS, TYP.

INTEGRAL CONCRETE

CURB AND WALK, TYP.

REFER TO DETAIL ON SHEET C-5.0

BENCHMARKS: (GPS DERIVED - NAVD88)

BM #300
ARROW ON A HYDRANT LOCATED APPROX. 107' WEST OF THE TRASH ENCLOSURE AREA, NORTHWEST OF THE TRUCK LOADING AREA.
.ELEV. - 947.10

BM #301 (PER PEA JOB NO. 2019-436)
ARROW ON A HYDRANT LOCATED APPROX. 58' NORTH OF THE BUILDING, NORTHEAST OF THE TRUCK LOADING AREA.
ELEV. - 944.62

FLOODPLAIN NOTE:
BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE 'X', AREA
DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL
CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE

MAP NUMBER 26125C0469F DATED SEPTEMBER 29, 2006.

NOVI BENCHMARKS

BM #913

X ON NORTH RIM OF GATE VALVE WEST OF
INTERSECTION OF HUMBOLDT DR. AND MAGELLAN,
10' WEST OF BACK OF CURB AND 25' NORTH OF
CENTERLINE OF HUMBOLDT DR.
ELEV. - 945.93

BM #921
X ON NORTH RIM OF SANITARY MH LOCATED EAST
OF INTERSECTION OF HUMBOLDT AND WEST PARK,
10' EAST OF ASPHALT WALK.
ELEV. - 944.96

GRADING LEGEND:

EXISTING SPOT ELEVATION

PROPOSED SPOT ELEVATION:
TYPICALLY TOP OF PAVEMENT
IN PAVED AREAS, GUTTER GRA

TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES.

EXISTING CONTOUR

PROPOSED CONTOUR

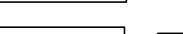
PROPOSED REVERSE GUTTER PAN

PROPOSED RIDGE LINE

PROPOSED SWALE/DITCH

ABBREVIATIONS

 $\begin{array}{lll} \text{T/C} = \text{TOP OF CURB} & \text{F} = \text{FLUSH WALK} \\ \text{T/P} = \text{TOP OF PAVEMENT} & \text{G} = \text{GUTTER GRADE} \\ \text{T/S} = \text{TOP OF SIDEWALK} & \text{FF} = \text{FINISH FLOOR} \\ \text{T/W} = \text{TOP OF WALL} & \text{FG} = \text{FINISH GRADE} \\ \text{B/W} = \text{BOTTOM OF WALL} & \text{RIM} = \text{RIM ELEVATION} \\ \end{array}$



SYMBOLS: EROSION CONTROL:

(SI-2A) LOW POINT INLET FILTER

REFER TO O.C.W.R.C. SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL DEVICE DETAILS.



- . SEE OAKLAND COUNTY W.R.C. SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL SOIL EROSION CONTROL RELATED DETAILS.
- 2. PLACE SILT FENCE & INSTALL INLET FILTERS ON EXISTING STORM SEWER
- STRUCTURES, ACCORDING TO PLANS.

 3. INSTALL TEMPORARY CRUSHED CONCRETE ACCESS DRIVE AT ALL CONSTRUCTION ENTRANCES. (80'x24'x8" W/MINIMUM OF 1"-3" CRUSHED
- CONCRETE NO FINES).

 4. REMOVE CURB, PAVEMENT, TREES, ETC. AS DIRECTED ON THE DEMOLITION
- 5. STRIP AND STOCKPILE TOPSOIL FOR RESTORATION REQUIREMENTS.
- 6. DISPOSE OF ALL EXCESS, UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO BURN OR BURY PITS ALLOWED.
- 7. UNSUITABLE MATERIALS CONSIST OF, BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING: CONCRETE, ASPHALT, TREES, BRUSH, STUMPS, ROOTS, OR OTHER MISCELLANEOUS DEBRIS OR TRASH.
- 8. MASS GRADE THE SITE IN ACCORDANCE WITH THE PLANS.
- 9. INSTALL SEED, MULCH AND EROSION CONTROL BLANKETS AS SHOWN ON THI PLAN WITHIN 5 DAYS OF COMPLETION OF MASS GRADING OR WHENEVER DISTURBED AREAS WILL REMAIN UNCHANGED FOR 30 DAYS OR GREATER. 3-4" TOPSOIL WILL BE USED WHERE VEGETATION IS REQUIRED.
- 10. COMPLETE ROUGH GRADING OF SITE AND INSTALL UTILITIES. PLACE INLET FILTERS AT ALL INLETS AND CATCH BASINS, AS SHOWN.
- 11. FINISH GRADE AND PAVE SITE AS PROPOSED TO DRAIN TO STORM SEWER SYSTEM. REPAIR INLET FILTERS AS REQUIRED.
- 12. APPLY TOPSOIL, SEED AND MULCH/SOD TO ALL DISTURBED AREAS UPON COMPLETION OF GRADING. THE CONTRACTOR SHALL STAGE CONSTRUCTION ACTIVITIES IN ORDER TO MINIMIZE THE EXPOSURE OF UNSTABILIZED AREAS.
- 13. CLEAN PAVEMENT AND STORM SEWERS. REMOVE SILT FENCE, AND INLET FILTERS ONCE VEGETATION HAS BEEN ESTABLISHED.
- 14. CLEAN DETENTION BASIN AND OVERFLOW SPILLWAYS AND REPAIR RIPRAP AS
- 15. ALL DIRT AND MUD TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED
- 16. STREET CATCH BASINS TO BE PERIODICALLY CLEANED AND FILTER CLOTH CHANGED AND MAINTAINED.

GENERAL SITE CONDITIONS:

- ACCORDING TO THE OAKLAND COUNTY USDA WEB SOIL SURVEY, THE SITE GENERALLY CONSISTS OF THE FOLLOWING SOIL TYPES:

 11B CAPAC SANDY LOAMS
- 27 HOUGHTON AND ADRIAN MUCKS2. TOTAL DISTURBED AREA = ±0.57 ACRES
- 3. N.P.D.E.S. NOTICE OF COVERAGE IS NOT REQUIRED

SOIL EROSION MAINTENANCE SCHEDULE AND NOTES:

1. THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY:

2. IF ANY DAMAGE HAS OCCURRED AS A RESULT OF STORM WATER DISCHARGE FROM THE SITE, THE FOLLOWING STEPS SHALL BE IMPLEMENTED.

3. ANY DEBRIS OR DIRT ON ANY PAVED AREA RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED IN A PROMPT MANNER BY THE CONTRACTOR. THE CONSTRUCTION DRIVE SHALL BE CLEANED AT THE END OF EACH DAY.

4. ALL DIRT AND MUD TRACKED ONTO PAVED AREAS SHALL BE REMOVED BY THE CONTRACTOR DAILY BY SCRAPING. STREET SWEEPING IS REQUIRED WEEKLY.

- 5. SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR REBACKFILL THE SILTATION FENCE SHOULD IT FALL OR BE DAMAGED DURING CONSTRUCTION.
- 6. INLET FILTER MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY ACCUMULATED SILT OR OTHER DEBRIS. THE REMOVAL OF SILT SHOULD BE WITH THE USE OF A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTERS CAN NOT BE CLEANED OR ARE DAMAGED, THEN THE FABRIC MUST BE REPLACED.
- 7. CONTRACTOR SHALL PROVIDE WATER TRUCK TO WATER DOWN THE SITE ON A DAILY BASIS AS REQUIRED TO MAINTAIN DUST CONTROL.

8. IF HIGH GROUNDWATER IS ANTICIPATED OR ENCOUNTERED DURING CONSTRUCTION A DEWATERING PLAN MUST BE SUBMITTED TO THE CITY ENGINEERING DIVISION FOR REVIEW.

REBECCA CY LYNNE KLEIN License No. 6201058042

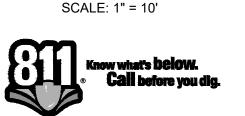
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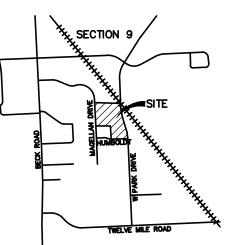






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CLIENT

MADISON ENERGY
INVESTMENTS

REVISIONS

8100 BOONE BLVD. STE 310

PROJECT TITLE

LINEAGE CAR
PORTS ADDITION
46500 HUMBOLDT DRIVE
NOVI, MICHIGAN

PSP AND FSP SUBMITTAL	9/12/202
FSP/VARIANCE SUBMITTAL	12/2/202

ORIGINAL ISSUE DATE: AUGUST 16, 2024

DRAWING TITLE

GRADING AND SESC PLAN - 2

PEA JOB NO. 2023-1048

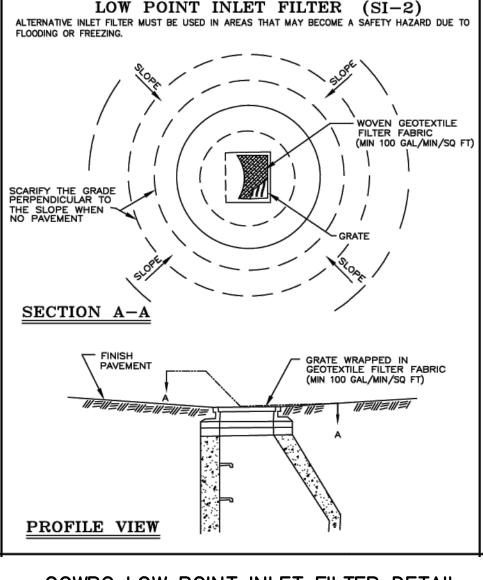
P.M. BK

DN. MT

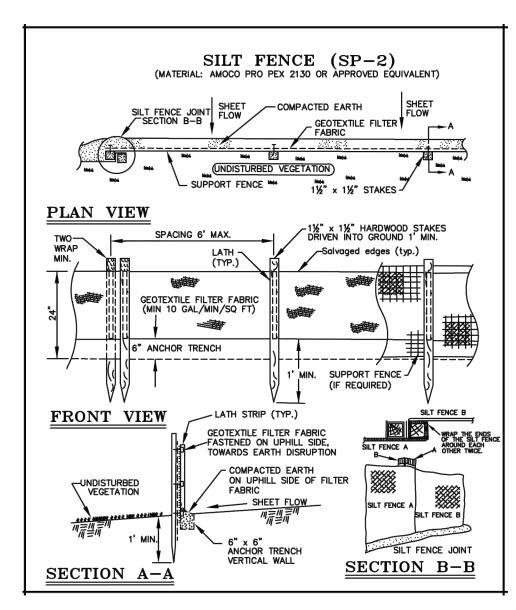
DES. MT

DRAWING NUMBER:

C-3.2



OCWRC LOW POINT INLET FILTER DETAIL



OCWRC SILT FENCE DETAIL

NOT TO SCALE

SEQUENCE OF CONSTRUCTION:

|HEAVY DASHED LINE INDICATES |_ /

SCRAPE AND SWEEP DAILY ALL DIRT

EXISTING PAVED AREAS ADJACENT TO THE PROPOSED EARTH DISRUPTION.

SILT SACKS AT ALL CATCH BASINS

& INLETS IN PAVED AREAS. TYP.

REFER TO DETAIL ON THIS SHEET

HAND MUD TRACKED ON TO ALL

TOTAL AREA = ± 0.57 ACRES

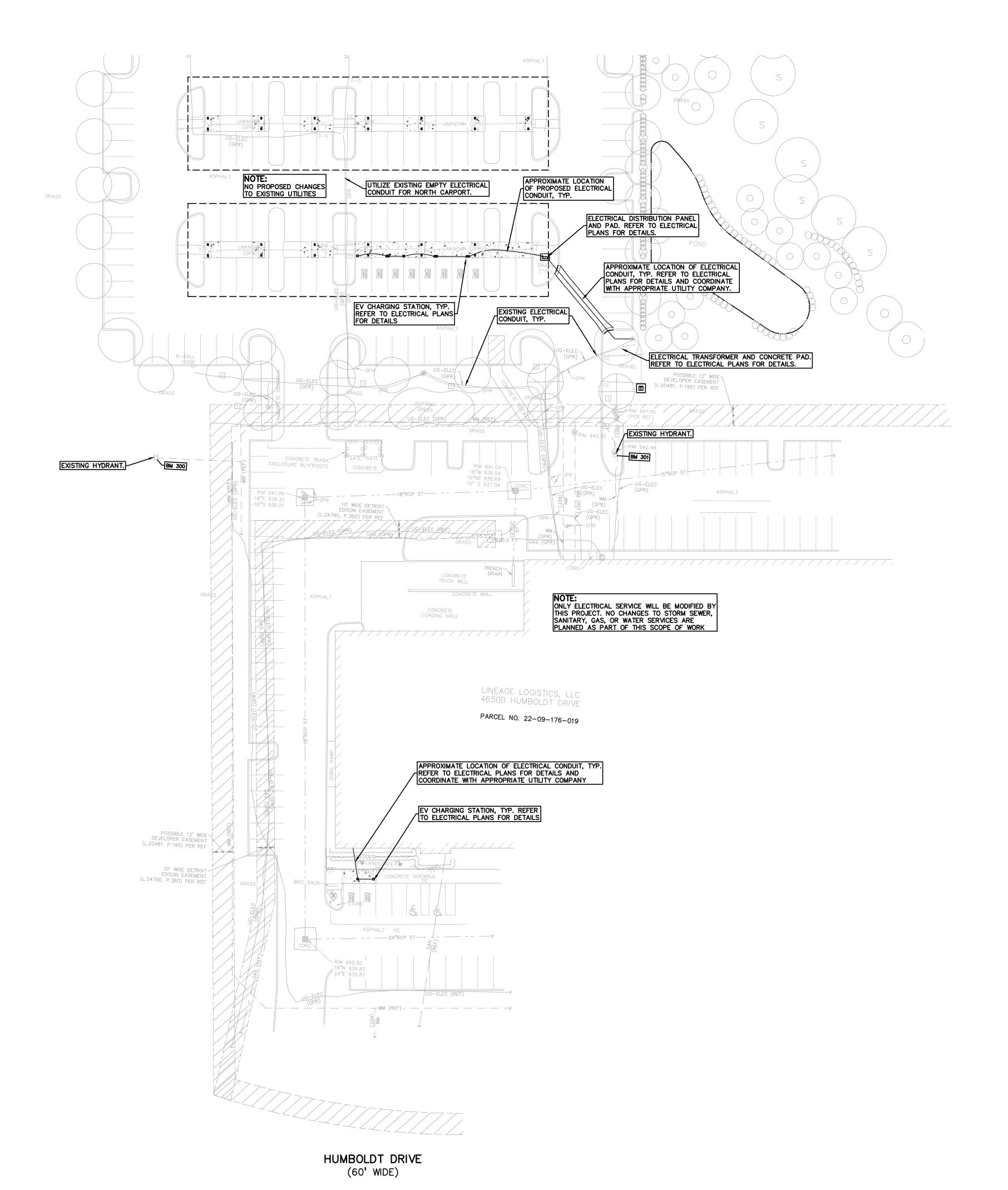
LIMITS OF WORK.

START END DAY

- 1 90 INSTALL TEMPORARY SOIL EROSION CONTROL MEASURES, INLET PROTECTION, ETC. AS NECESSARY.
 - 90 MAINTAIN A 25' BUFFER OF VEGETATION AROUND PERIMETER OF SITE WHERE POSSIBLE.
- 1 15 REMOVE ALL VEGETATION, TREES AND BRUSH FROM THE PROPOSED CONSTRUCTION AREA UNLESS MARKED TO REMAIN. STRIP AND STOCKPILE TOPSOIL AS REQUIRED. ALL STOCKPILES MUST BE GRADED AND SEEDED.
- 5 14 REMOVE ALL PAVEMENT, CURB, ETC. AS REQUIRED TO INSTALL THE PROPOSED WORK AS SHOWN ON THE TOPOGRAPHIC SURVEY AND DEMOLITION PLAN.

T/WALK

- 5 14 DISPOSE OF ALL EXCESS/UNSUITABLE MATERIALS OFF SITE IN A LEGAL MANNER. NO ON-SITE BURN OR BURY PITS ALLOWED.
- 28 40 TEMPORARY SEEDING MUST BE PROVIDED IN AREAS NOT TO BE WORKED ON FOR 15 DAYS OR LONGER.
- 40 50 FINE GRADE SITE AND PREPARE FOR SITE PAVING OPERATIONS.
- 50 60 INSTALL ALL PAVEMENT, SIDEWALKS, CURBING AS PROPOSED. IF PERMANENT LANDSCAPING IS NOT TO BE INSTALLED SOON AFTER PAVING IS COMPLETE, ALL AREAS WITHIN 20 FEET OF BACK OF CURB MUST BE TEMPORARILY SEEDED. REPAIR INLET PROTECTION, SILT FENCE AND ANY OTHER DAMAGED SOIL EROSION CONTROL MEASURES AS NECESSARY.
- 60 70 FINAL GRADE, REDISTRIBUTE STOCKPILED TOPSOIL, ESTABLISH VEGETATION AND INSTALL ALL PERMANENT LANDSCAPING IN ALL DISTURBED AREAS NOT BUILT.
- 70 80 CLEAN PAVEMENT AND REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES. RE-ESTABLISH VEGETATION AS
- 90 90 REMOVE SEDIMENTATION CONTROLS ONCE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED.



UTILITY LEGEND:

OH-ELEC-V-O EX. OH. ELEC, POLE & GUY WIRE

OG-CATV V EX. U.G. CABLE TV & PEDESTAL

OG-COMM SO TO EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE

OG-ELEC-€ EX. U.G. ELEC, MANHOLE, METER & HANDHOLE

OG EX. GAS LINE

OG EX. GAS VALVE & GAS LINE MARKER

© □ EX. GAS VALVE & GAS LINE MARKER

□ □ EX. TRANSFORMER & IRRIGATION VALVE

- - - - EX. WATER MAIN

□ □ EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE

□ □ EX. WATER VALVE BOX & SHUTOFF

- EX. SANITARY SEWER

□ S EX. SANITARY CLEANOUT & MANHOLE

© EX. SANITARY CLEANOUT & MANHOLE

© EX. COMBINED SEWER MANHOLE

EX. STORM SEWER

© © EX. CLEANOUT & MANHOLE

EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN

OY.D. © EX. YARD DRAIN & ROOF DRAIN

EX. UNIDENTIFIED STRUCTURE

PROPOSED WATER MAIN

PROPOSED HYDRANT AND GATE VALVE

PROPOSED TAPPING SLEEVE, VALVE & WELL

PROPOSED POST INDICATOR VALVE

PROPOSED SANITARY SEWER

PROPOSED SANITARY CLEANOUT & MANHOLE

PROPOSED STORM SEWER

C.O. PROPOSED STORM SEWER CLEANOUT & MANHOLE

PROPOSED STORM SEWER

O C.O. PROPOSED STORM SEWER CLEANOUT & MANHOLE

PROPOSED CATCH BASIN, INLET & YARD DRAIN

REBECCA CALYNNE KLEIN License No. 6201058042

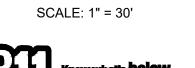
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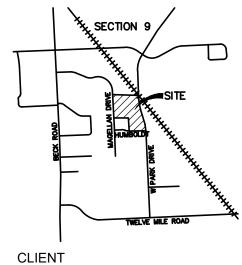








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MADISON ENERGY

MADISON ENERGY INVESTMENTS 8100 BOONE BLVD, STE 310

PROJECT TITLE

LINEAGE CAR PORTS ADDITION 46500 HUMBOLDT DRIVE NOVI, MICHIGAN

REVISIONS	
PSP AND FSP SUBMITTAL	9/12/2024
FSP/VARIANCE SUBMITTAL	12/2/2024

ORIGINAL ISSUE DATE: AUGUST 16, 2024

DRAWING TITLE

UTILITY PLAN

PEA JOB NO.	2023-1048
P.M.	ВК
DN.	MT
DES.	MT
DRAWING NUMBER:	

C-4.0

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

- 1. ALL CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT OSHA, MDOT AND MUNICIPALITY STANDARDS AND REGULATIONS.
- 2. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- 3. THE CONTRACTOR SHALL CONTACT THE ENGINEER SHOULD THEY ENCOUNTER ANY DESIGN ISSUES DURING CONSTRUCTION. IF THE CONTRACTOR MAKES DESIGN MODIFICATIONS WITHOUT THE WRITTEN DIRECTION OF THE DESIGN ENGINEER, THE CONTRACTOR DOES SO
- 4. ALL NECESSARY PERMITS, TESTING, BONDS AND INSURANCES ETC., SHALL BE PAID FOR BY THE CONTRACTOR. THE OWNER SHALL PAY FOR ALL CITY INSPECTION FEES.
- 5. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION. IF NO NOTIFICATION IS GIVEN AND DAMAGE RESULTS, SAID DAMAGE WILL BE REPAIRED AT SOLE EXPENSE OF THE CONTRACTOR. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.
- 6. CONTRACTOR SHALL VERIFY THAT THE PLANS AND SPECIFICATIONS ARE THE VERY LATEST PLANS AND SPECIFICATIONS AND FURTHERMORE, VERIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN APPROVED. ALL ITEMS CONSTRUCTED BY THE CONTRACTOR PRIOR TO RECEIVING FINAL APPROVAL, HAVING TO BE ADJUSTED OR RE—DONE, SHALL BE AT THE CONTRACTORS EXPENSE. SHOULD THE CONTRACTOR ENCOUNTER A CONFLICT BETWEEN THESE PLANS AND/OR SPECIFICATIONS, THEY SHALL SEEK CLARIFICATION IN WRITING FROM THE ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT SOLE EXPENSE TO THE CONTRACTOR.
- 7. ANY WORK WITHIN THE STREET OR HIGHWAY RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
- 8. ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DISTURBED DUE TO CONSTRUCTION, SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR.
- 9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADING, SIGNAGE, LIGHTS AND TRAFFIC CONTROL DEVICES TO PROTECT THE WORK AND SAFELY MAINTAIN TRAFFIC IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION). THE DESIGN ENGINEER, OWNER, CITY AND STATE SHALL NOT BE HELD LIABLE FOR ANY CLAIMS RESULTING FROM ACCIDENTS OR DAMAGES CAUSED BY THE CONTRACTOR'S FAILURE TO COMPLY WITH TRAFFIC AND PUBLIC SAFETY REGULATIONS DURING THE CONSTRUCTION PERIOD.
- 10. THE USE OF CRUSHED CONCRETE IS PROHIBITED ON THE PROJECT WITHIN 100 FEET OF ANY WATER COURSE (STREAM, RIVER, COUNTY DRAIN, ETC.) AND LAKE, REGARDLESS OF THE APPLICATION OR LOCATION OF THE WATER COURSE OR LAKE RELATIVE TO THE
- 11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND /OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.

PAVING NOTES:

- . IN AREAS WHERE NEW PAVEMENTS ARE BEING CONSTRUCTED, THE TOPSOIL AND SOIL CONTAINING ORGANIC MATTER SHALL BE REMOVED PRIOR TO PAVEMENT CONSTRUCTION.
- 2. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF FROST SLAB AT EXTERIOR BUILDING DOORS.
- 3. CONSTRUCTION TRAFFIC SHOULD BE MINIMIZED ON THE NEW PAVEMENT. IF CONSTRUCTION TRAFFIC IS ANTICIPATED ON THE PAVEMENT STRUCTURE, THE INITIAL LIFT THICKNESS COULD BE INCREASED AND PLACEMENT OF THE FINAL LIFT COULD BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. THIS ACTION WILL ALLOW REPAIR OF LOCALIZED FAILURE, IF ANY DOES OCCUR, AS WELL AS REDUCE LOAD DAMAGE ON THE PAVEMENT SYSTEM.
- 4. ALL EXPANSION JOINTS AND CONCRETE PAVEMENT JOINTS TO BE SEALED.
- 5. CONCRETE PAVEMENT JOINTING UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION; 5.1. WHERE PROPOSED CONCRETE ABUTS A STRUCTURE, PROVIDE A MINIMUM 1/2" EXPANSION JOINT. THE JOINT FILLER BOARD MUST BE AT LEAST THE FULL DEPTH OF THE CONCRETE AND HELD DOWN A 1/2" TO ALLOW FOR SEALING.
- 5.2. WHERE PROPOSED CONCRETE ABUTS EXISTING CONCRETE OR IN BETWEEN POURS OF PROPOSED CONCRETE (CONSTRUCTION JOINT), PROVIDE 5/8" DOWELS EVERY 30" CENTER TO CENTER HALF WAY ALONG THE THICKNESS OF THE PROPOSED PAVEMENT. ALTERNATE DOWELS SIZES AND SPACING MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
- 5.3. WHERE PROPOSED CONCRETE ABUTS EXISTING OR PROPOSED SIDEWALK OR CURBING, PROVIDE A MINIMUM 1/2" EXPANSION JOINT. 5.4. CONTROL, LONGITUDINAL AND/OR TRANSVERSE JOINTS SHALL BE PLACED TO PROVIDE PANELS WITHIN THE PAVEMENT AS SQUARE AS POSSIBLE WITH THE FOLLOWING MAXIMUM SPACING PARAMETERS: 5.4.1. 6-INCH THICK CONCRETE PAVEMENT: 12' X 12'
- 5.4.2. 8—INCH THICK CONCRETE PAVEMENT: 15' X 15'
 5.5. IRREGULAR—SHAPED PANELS MAY REQUIRE THE USE OF REINFORCING MESH OR FIBER MESH AS DETERMINED BY THE ENGINEER.
 THE USE OF MESH MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
- THE USE OF MESH MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.

 5.6. IF A JOINT PLAN IS NOT PROVIDED IN THE PLANS, THE CONTRACTOR SHALL SUBMIT ONE TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
- 6. CONCRETE CURBING JOINTING UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION 6.1. JOINTS WHEN ADJACENT TO ASPHALT PAVEMENT
- 6.1.1. PLACE CONTRACTION JOINTS AT 10' INTERVALS
 6.1.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
- 6.1.3. PLACE 1" EXPANSION JOINT: 6.1.3.1. AT SPRING POINTS OF INTERSECTIONS OR ONE OF THE END OF RADIUS LOCATIONS IN A CURVE
- 6.1.3.2. AT 400' MAXIMUM INTERVALS ON STRAIGHT RUNS
 6.1.3.3. AT THE END OF RADIUS AT OPPOSITE ENDS IN A CURBED LANDSCAPE ISLAND
- 6.2. JOINTS WHEN TIED TO CONCRETE PAVEMENT
 6.2.1. PLACE CONTRACTION JOINTS OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN PAVEMENT
- 6.2.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
 6.2.3. PLACE 1"EXPANSION JOINT OPPOSITE ALL TRANSVERSE EXPANSION JOINTS IN PAVEMENT
- 6.2.4. CURB AND GUTTER AND CONCRETE SHALL BE TIED TOGETHER SIMILAR TO A LONGITUDINAL LANE TIE JOINT (MDOT B1 JOINT)
 6.3. IN BETWEEN POURS OF PROPOSED CONCRETE CURBING (CONSTRUCTION JOINT):
 6.3.1. CARRY THE REBAR CONTINUOUSLY BETWEEN POURS
 6.3.2. IF THE REBAR IS NOT LONG ENOUGH TO CARRY CONTINUOUSLY, THEN TIE TWO PIECES OF REBAR PER THE LATEST MDOT
- SPECIFICATIONS

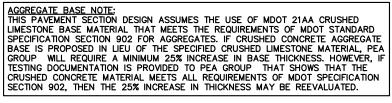
 7. CONCRETE SIDEWALK JOINTING UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION
- 7.1. PLACE TRANSVERSE CONTRACTION JOINTS EQUAL TO THE WIDTH OF THE WALK WHEN WIDTH IS LESS THAN 8'
- 7.2. PLACE TRANSVERSE AND LONGITUDINAL CONTRACTION JOINTS EQUAL TO 1/2 THE WIDTH OF THE WALK WHEN WIDTH IS EQUAL TO OR GREATER THAN 8'
- 7.3. PLACE 1" EXPANSION JOINT WHERE ABUTTING SIDEWALK RAMP AND/OR RADIUS IN INTERSECTION 7.4. PLACE TRANSVERSE 1/2" EXPANSION JOINT AT MAXIMUM OF 100' SPACING
- 7.5. PLACE 1/2" EXPANSION JOINT WHEN ABUTTING A FIXED STRUCTURE, OTHER PAVEMENT (CONCRETE PAVEMENT AND DRIVE APPROACHES), UTILITY STRUCTURES, LIGHT POLE BASES AND COLUMNS

CONSTRUCTION MATERIAL SUBMITTALS

UNLESS REQUIRED OTHERWISE IN THE PROJECT SPECIFICATIONS, THE CONTRACTOR SHALL ONLY SUBMIT THE FOLLOWING CONSTRUCTION MATERIAL SUBMITTALS, AS APPLICABLE TO THE PLANS, FOR REVIEW BY THE ENGINEER. UNLESS APPROVED IN ADVANCE AND IN WRITING BY THE ENGINEER, ANY MATERIAL SUBMITTALS PROVIDED TO THE ENGINEER FOR REVIEW IN ADDITION TO THIS LIST SHALL BE RETURNED TO THE CONTRACTOR WITHOUT A REVIEW BEING PERFORMED.

- 1. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
- 2. PAVEMENT AGGREGATE BASE MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
- 3. PAVEMENT MIX DESIGNS SUBMITTED FOR REVIEW BY THE ENGINEER MUST FOLLOW THE CURRENT MDOT REVIEW CHECKLISTS AS SUMMARIZED BELOW AND ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER:

 •8.1. CONCRETE MIX DESIGN REVIEW CHECKLIST (FORM 2000)
 - SUPERPAVE MIX DESIGN CHECKLIST (FORM 1862)
 S.3. MARSHALL MIX DESIGN CHECKLIST (FORM 1849)
- ANY SPECIALITY ITEMS SHOWN IN THE PLANS OR DETAIL SHEETS THAT SPECIFICALLY DO NOT STATE FOR THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING TO THE ENGINEER FOR REVIEW BUT THE CONTRACTOR REQUESTS TO BE REVIEWED. THE CONTRACTOR'S REQUEST FOR REVIEW MUST BE IN WRITING AND APPROVED BY THE ENGINEER PRIOR TO SUBMITTING THE



ASPHALT MATERIAL NOTES:
HOT-MIX ASPHALT MIXTURES UTILIZING RECYCLED ASPHALT PAVEMENT (RAP) MUST MEET MDOT SPECIAL PROVISION 12SP501(E). THE BINDER GRADE FOR THIS WORK IS PG64-28. IF ASPHALT MIXES CONTAINING RAP ARE TO BE SUPPLIED FOR THIS PROJECT, THE ASPHALT BINDER MUST BE REVISED PER MDOT 'TIER 1' OR 'TIER 2' REQUIREMENTS (RAP CONTENT UP TO 27% MAXIMUM). TIER 3 MIXES ARE NOT ACCEPTABLE ON THIS PROJECT. AN ASPHALT MIX DESIGN FOR ALL SPECIFIED MIXES SHOULD BE FORWARDED TO PEA GROUP FOR REVIEW PRIOR TO CONSTRUCTION

1.5" MDOT 5EML ASPHALT

(SS-1H at 0.05 GALS/S.Y.)

2.5" MDOT 4EML ASPHALT

(27% MAX. R.A.P. CONTENT)

8" MDOT 21AA CRUSHED LIMESTONE BASE COURSE COMPACTED TO 95% MAX. DRY

PROOF-ROLLED/COMPACTED SUBGRADE OR ENGINEERED FILL COMPACTED TO 95% OF MAX. DRY UNIT WEIGHT PER ASTM D-1557.

AS INDICATED ON PLANS

CONTRACTION JOINTS TO BE T/4 DEEP. SPACED AT INTERVALS TO MATCH SIDEWALK

WDTH (SAWCUT). 1/2-INCH PRE-MOLDED FILLER EXPANSION JOINTS WITH JOINT

INTEGRAL CURB AND SIDEWALK

34"

EV PARKING SYMBOL

SEALANT SHALL BE PLACED ONLY WHERE SIDEWALK ABUTS A STRUCTURE.

CONCRETE

4" MDOT CLASS II SAND BASE COURSE COMPACTED _ TO 95% MAX. DRY UNIT

WEIGHT PER ASTM D-1557

PROOF-ROLLED/COMPACTED

FILL COMPACTED TO 95% OF -MAX. DRY UNIT WEIGHT PER ASTM D-1557.

SUBGRADE OR ÉNGINEERE

SLOPE AS NECESSARY TO STABILIZE SUBGRADE

2% MAX SLOPE

UNIT WEIGHT PER ASTM D-1557

(17% MAX. R.A.P. CONTENT)

STANDARD DUTY ASPHALT DETAIL

✓ 1" RADIUS

GREEN PAINTED E.V. PARKING SYMBOL

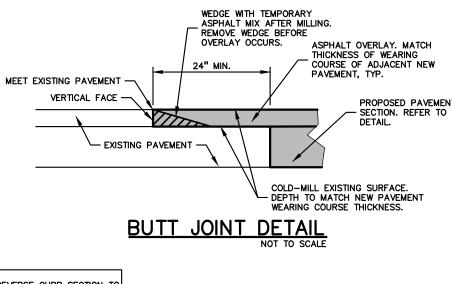
WHITE PAINT

- FILLING IN LETTERS

ASPHALT MIX DESIGN CHART						
COMMERCIAL ADT 0-300	COMMERCIAL ADT 301-1000	COMMERCIAL ADT 1001-3400	COMMERCIAL ADT ≥3401	APPLICATION RATE (LB/YD²), MINIMUM – MAXIMUM	COURSE APPLICATION	
2EL	2EML	2EMH	2EH	435-550	BASE	
3EL	3EML	ЗЕМН	3EH	330-410	BASE AND/OR LEVELING	
4EL	4EML	4EMH	4EH	220-275	LEVELING AND/OR TOP	
5EL	5EML	5EMH	5EH	165-220	TOP	
PG 58-28	PG 64-28	PG 64-28	PG 70-28P			









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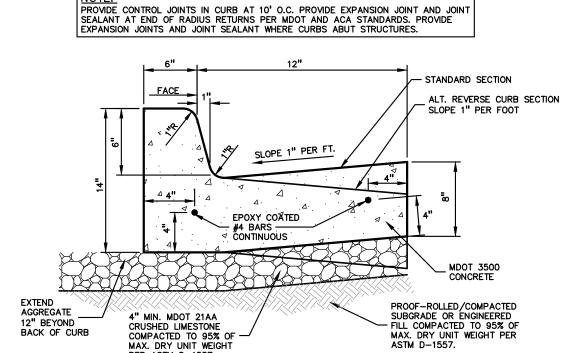
DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CAUTION

ALTERNATE REVERSE CURB SECTION TO BE USED ONLY WHEN DRAINING AWAY FROM CURB. SEE PLAN FOR LOCATION.

ALL SPECIFIED THICKNESSES ARE FINAL COMPACTED THICKNESSES, TYP.

ASPHALT PAVING





MADISON ENERGY INVESTMENTS

8100 BOONE BLVD, STE 310

12" BEYOND
BACK OF CURB

CRUSHED LIMESTONE
COMPACTED TO 95% OF
MAX. DRY UNIT WEIGHT PER
ASTM D-1557.

18"x6" STANDARD CONCRETE CURB AND GUTTER

PROJECT TITLE

LINEAGE CAR

PORTS ADDITION

NOVI, MICHIGAN

NOTE:
CROSS—SLOPE OF SIDEWALK MUST NOT
EXCEED 2.0%, EXCEPT IN TRANSITION AREA
MATCHING INTO EXISTING SIDEWALK

WIDTH VARIES — SEE PLAN

WIDTH VARIES — SEE PLAN

1 ON 1 SLOPE

PROVIDE 1" DEPTH SAWCUT CONTROL JOINTS
AT INTERVALS EQUAL TO THE WIDTH OF THE
SIDEWALK (NOT TO EXCEED 8' INTERVAL).

4" MDOT 3500
CONCRETE
CLEAN FILL PER
CURRENT MDOT SPEC.
RESTORE AREA PER
LANDSCAPING PLANS

1 ON 1 SLOPE

PROOF—ROLLED/COMPACTED
SUBGRADE OR ENGINEERED
FILL COMPACTED TO 95% OF
MAX. DRY UNIT WEIGHT
PER ASTM D—1557.

REVISIONS
PSP AND FSP SUBMITTAL 9/12/2024
FSP/VARIANCE SUBMITTAL 12/2/2024

CONCRETE SIDEWALK

NOTES AND DETAILS

ORIGINAL ISSUE DATE: AUGUST 16, 2024

PEA JOB NO. 2023-1048

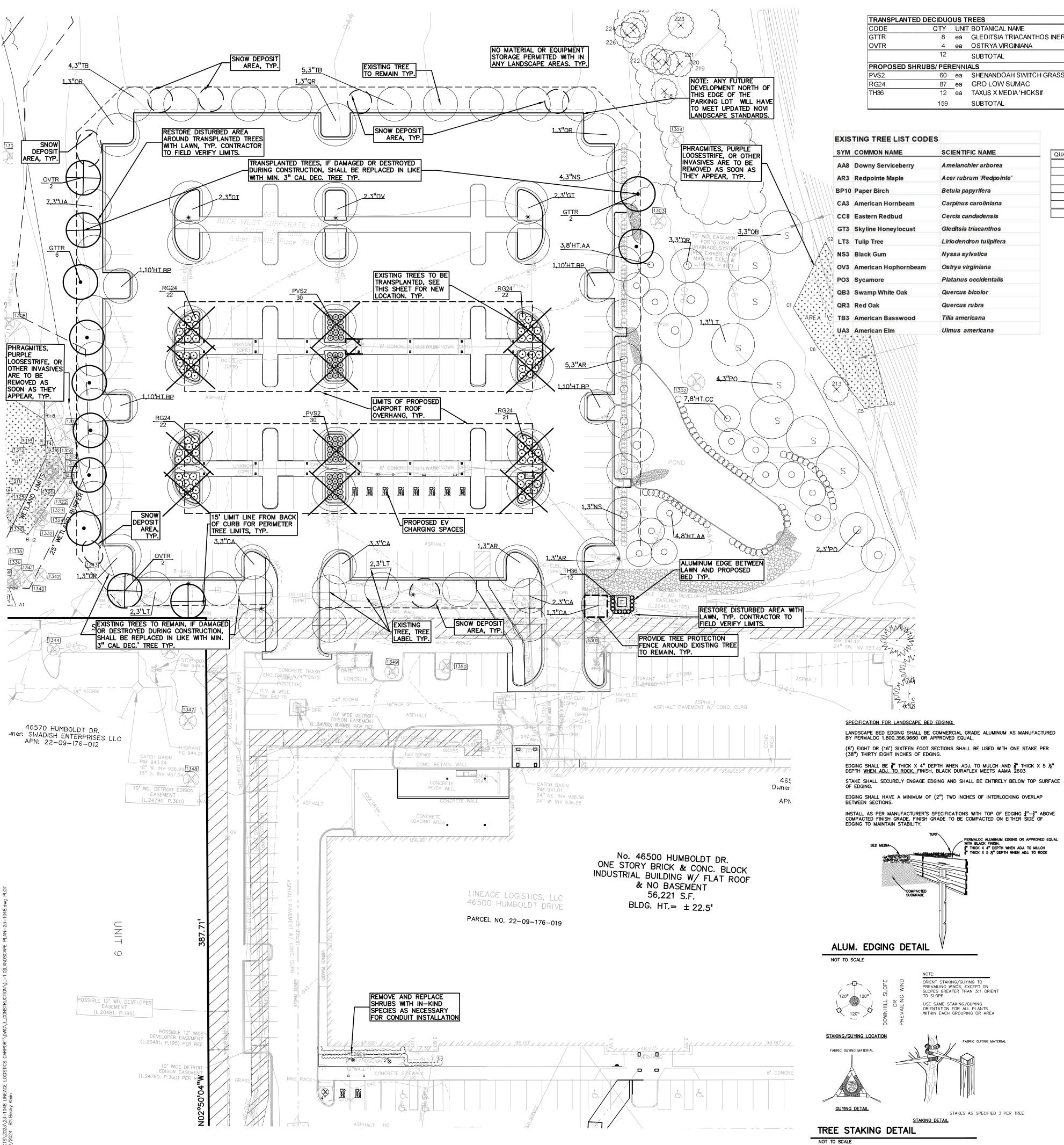
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DN. MT

DES. MT

DRAWING NUMBER:

C-5.0

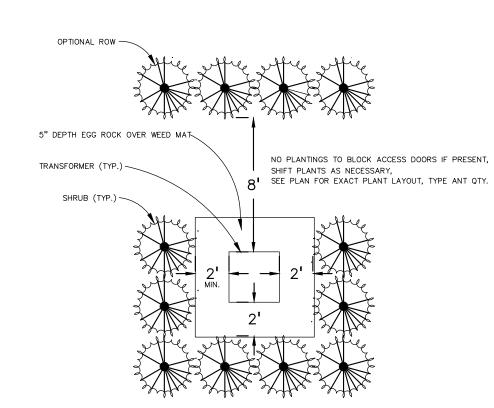


TRANSPLANTED DECIDUOUS TREES QTY UNIT BOTANICAL NAME OMMON NAME SIZE CONTAINER SPACING DESIGNATION 8 ea GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE' SKYLINE HONEY LOCUST 3" CAL TRANSPLANT PER PLAN NATIVE 4 ea OSTRYA VIRGINIANA OVTR AMERICAN HOPHORNBEAM 3" CAL TRANSPLANT PER PLAN NATIVE PROPOSED SHRUBS/ PERENNIALS PANICUM VIRGATUM 'Shenandoah' 1 GAL CONT 36" O.C. NATIVE 60 ea SHENANDOAH SWITCH GRASS 87 ea GRO LOW SUMAC RHUS AROMATICA 'Gro-Low' 2' HT. CONT 48" O.C. NATIVE 12 ea TAXUS X MEDIA 'HICKSII' HICKS ANGLO-JAPANESE YEW 3' HT. CONT. 30" O.C. NON-NATIVE 159 SUBTOTAL

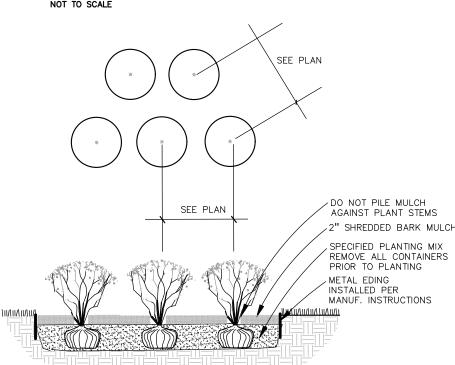
	uenama waneza	
SYM	COMMON NAME	SCIENTIFIC NAME
AA8	Downy Serviceberry	Amelanchier arborea
AR3	Redpointe Maple	Acer rubrum 'Redpointe
BP10	Paper Birch	Betula papyrifera
CA3	American Hornbeam	Carpinus caroliniana
CC8	Eastern Redbud	Cercis candadensis
GT3	Skyline Honeylocust	Gleditsia triacanthos
LT3	Tulip Tree	Liriodendron tulipifera
NS3	Black Gum	Nyssa sylvatica
OV3	American Hophornbeam	Ostrya virginiana
PO3	Sycamore	Platanus occidentalis
QB3	Swamp White Oak	Quercus bicolor
QR3	Red Oak	Quercus rubra
ТВ3	American Basswood	Tilia americana
UA3	American Elm	Ulmus americana

LANDSCAPING COST OPINION

				T
QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	ITEM PRICE
99	EA.	SHRUBS	\$50.00	\$4,950.00
60	EA.	PERENNIALS/ORNAMENTAL GRASSES	\$15.00	\$900.00
12	EA.	DECIDUOUS TREES RELOCATION	\$400.00	\$4,800.00
60	L.F.	ALUMINUM EDGING	\$5.00	\$300.00
28	C.Y.	TOPSOIL FOR SEED LAWN (3" DEPTH)	\$7.00	\$196.00
334	S.Y.	SEED LAWN	\$3.00	\$1,002.00
•	<u> </u>	TOTAL LANDSCAPING	•	\$12,308,00



TRANSFORMER SCREENING DETAIL



PERENNIAL PLANTING DETAIL

GUY DECIDUOUS TREES LARGER THAN 3" CAL., STAKE DECIDUOUS

TREE WRAP:
SECURE W/BIODEGRADABLE MATERIAL

BRANCHES WITH FABRIC GUYING MATERIAL CONNECT FROM TREE T STAKE OPPOSITE. ALLOW FOR SOME FLEXING OF THE TREE.

REMOVE AFTER ON YEAR.

MOUND TO FORM TREE

EXPOSE THE ROOT FLARE.

OF ROOTBALL

REMOVE ALL NON-BIOGRADABLE

MATERIALS FROM THE ROOTBALL. CUT DOWN WIRE BASKET AND FOLD

DOWN ALL BURLAP FROM TOP 1/3

ROOTBALL DIRT SHOULD BE PULLED AWAY FROM THE TRUNK TO

REMOVE ROPES/CABLES FROM AROUND THE BASE OF THE TREE.

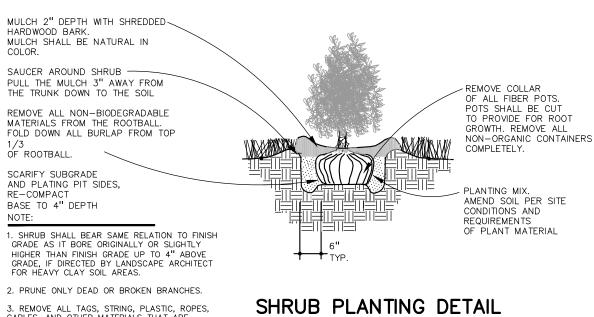
AT TOP & BOTTOM. REMOVE AFTER (1)

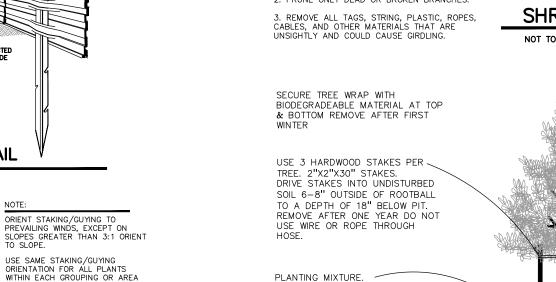
-MULCH 3" DEPTH WITH SHREDDED HARDWOOD

BARK. MULCH SHALL BE NATURAL IN COLOR.

PULL THE MULCH 3" AWAY FROM THE TRUNK

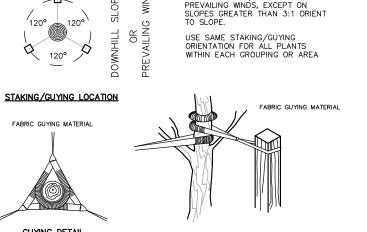
TREES SMALLER THAN 3" CAL.





PERMALOC ALUMINUM EDGING OR APPROVED EQUAL MITH BLACK FINISH.

THICK X 4" DEPTH WHEN ADJ. TO MULCH THICK X 5 ½" DEPTH WHEN ADJ. TO ROCK



STAKES AS SPECIFIED 3 PER TREE

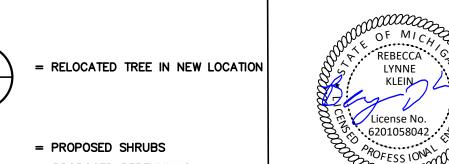
STAKING DETAIL TREE STAKING DETAIL

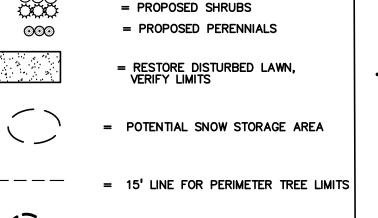
AMEND SOIL PER SITE CONDITIONS AND REQUIREMENTS OF PLANTS. SCARIFY SUBGRADE AND PLANTING PIT SIDES TO 4" DEPTH 1. TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 6" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS. 3 X ROOTBALL WIDTH

2. DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES. 3. REMOVE ALL TAGS, STRING, PLASTIC, ROPES, CABLES, AND OTHER MATERIALS THAT ARE UNSIGHTLY AND COULD CAUSE GIRDLING.

4. DIRT FROM ROOTBALL IS TO BE REMOVED TO EXPOSE ROOT FACE. DECIDUOUS TREE PLANTING DETAIL NOT TO SCALE

EXISTING TREES TO REMAIN 4.3"QR = EXISTING TREE LABEL QTY, SIZE AT TIME OF PLANTING, TYPE = TREES TO BE RELOCATED





TREE PROTECTION FENCE SEE DETAIL ON SHEET C-1.1



CITY OF NOVI REQUIREMENTS

AS PER PLAN REVIEW CENTER REPORT DATED JULY 17, 2024 NO NEW TREES ARE REQUIRED AS LONG AS THE RELOCATED TREES ARE REPLACED AROUND THE PARKING LOT TO PROVIDE SHADE.

WAIVER IS REQUESTED FROM SECTION 5.3.12 OF NOVI ZONING ORDINANCE TO ALLOW SOME OF THE EXISTING INTERIOR LANDSCAPE TREES TO BE REMOVED FOR THE CONSTRUCTION OF SOLAR CANOPIES. REPLACEMENT TREES WILL BE PLACED AROUND THE PERIMETER OF THE

ROVIDED: 12 EXISTING TREES RELOCATED WITHIN 15' OF THE PARKING LOT PROPOSED EVERGREEN SHRUBS AT NEW TRANSFORMER LOCATION AND PROPOSED SHRUBS/PERENNIALS UNDER NEW CARPORT CANOPY

HE OWNER SHALL COMPARE THE ORIGINAL APPROVED LANDSCAPED PLANS O THE EXISTING LANDSCAPE PLANTINGS AROUND THE ENTIRE SITE AND WILL REPLACE ANY MISSING OR DEAD PLANTINGS PER THE ORIGINAL APPROVED LANDSCAPE PLAN.

INVASIVE PLANT NOTE: F PHRAGMITES STILL EXIST OR OTHER INVASIVE SPECIFIES, IT SHALL BE

CHEMICALLY TREATED BY A LICENSE ANC CONTRACTOR TO KILL IT. REPLACEMENT / TRANSPLANT TREE NOTE:

REPLACE WITH NEW TREE OF SAME SPECIES AND MIN. 3" CAL. SIZE.

PARKING AREA

EXISTING IRRIGATION SYSTEM SHALL BE EXTENDED/ MODIFIED AS NECESSARY FOR NEW PLANTING LOCATIONS/ RELOCATED TREES.

TRANSPLANTED MATERIAL GUIDELINES

- ALL TRANSPLANTED TREES SHALL BE FROM ON-SITE. TREES MAY BE REJECTED FOR REASONS OF INSECT INFESTATION, DISEASE OR TREE THE ROOT BALL OF ANY TRANSPLANTED TREE SHALL MEASURE 1 FOOT
- FOR EACH INCH OF TRUNK DIAMETER MEASURED 12" ABOVE THE GROUND. IF THERE IS AN OPTION BETWEEN IMMEDIATELY TRANSPLANTING OR
- TEMPORARILY STOCKPILING TREES, TREES SHOULD BE IMMEDIATELY TRANSPLANTED IF TREES ARE TO BE STORED, THEY SHALL BE BURLAPPED AND HEELED IN WITH MULCH IN A PRE-DETERMINED AREA PROVIDED BY
- CONTRACTOR. THE TREES SHALL BE PROVIDED WITH ACCESSIBLE WATER TO ENSURE THEIR VIABILITY DURING STORAGE.
- TREES TRANSPLANTED IN CLOSE PROXIMITY TO CONSTRUCTION AREAS ARE TO HAVE TREE PROTECTION FENCING INSTALLED AT THEIR
- DRIP LINE. TRANSPLANTED TREES ARE GUARANTEED FOR 2 YEARS. IF THEY WEAKEN OR FAIL DURING THAT TIME THEY MUST BE REPLACED.

CITY OF NOVI LANDSCAPE NOTES:

NOVEMBER 15th.

ALL PLANT MATERIALS ARE TO BE INSTALLED IN A SOUND, NORKMAN-LIKE MANNER AND IN ACCORDANCE WITH THE CURRENT CITY OF NOVI PLANTING REQUIREMENTS. ALL PLANT MATERIALS SHALL BE INSTALLED BETWEEN MARCH 15th AND

. ALL PLANT MATERIALS ARE TO BE NORTHERN NURSERY GROWN NO. 1 GRADE AND INSTALLED ACCORDING TO ACCEPTED PLANTING PROCEDURES. AL PLANT MATERIALS SHALL CONFORM TO THE CURRENT AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS FOR NURSERY STOCK. THEY SHALL BE PLANTED ACCORDING TO THE CITY OF NOVI PLANTING DETAILS AND SPECIFICATIONS. THE CITY SHALL HAVE THE RIGHT TO INSPECT THE PLANT MATERIALS PRIOR TO PLANTING AND TO REJECT ANY PLANT MATERIALS DEEMED NOT TO MEET THE STANDARDS OF THE CITY OF NOVI ZONING

ORDINANCE OR LANDSCAPE DESIGN MANUAL. 4. ALL TREES SHALL HAVE A CENTRAL LEADER AND A RADIAL BRANCHING STRUCTURE. PARK GRADE TREES ARE NOT ACCEPTABLE. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B).

ANY DECIDUOUS CANOPY TREES WITH BRANCHES THAT MIGHT TEND TO DEVELOP INTO "V" CROTCHES SHALL BE SUBORDINATED SO AS NOT TO BECOME DOMINANT BRANCHES. . MULCH SHALL BE NATURAL COLOR, FINELY SHREDDED HARDWOOD BARK

FOR ALL PLANTINGS - 3" THICK FOR TREES IN A 4-FOOT DIAMETER CIRCLE WITH

B" PULLED AWAY FROM TRUNK, 3" THICK FOR SHRUBS AND SHRUB BEDS, AND 2" THICK FOR PERENNIALS AND PERENNIAL BEDS. ALSO PULL AWAY ROOT BALL DIRT FROM TRUNK AND ROOT FLARE. ALL PLANT MATERIAL SHALL BE WARRANTIED FOR TWO (2) FULL YEARS AFTER DATE OF ACCEPTANCE BY THE CITY OF NOVI. ALL UNHEALTHY AND DEAD

MATERIAL SHALL BE REPLACED WITHIN THREE (3) MONTHS OR THE NEXT APPROPRIATE PLANTING PERIOD. . ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION, INCLUDING WATERING, CULTIVATION, WEED CONTROL AND SOIL ENRICHMENTS AS MAY BE NECESSARY.

. ANY SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED IN WRITING BY THE CITY OF NOVI PRIOR TO INSTALLATION. ALL LANDSCAPE AREAS ARE TO BE MAINTAINED IN A HEALTHY GROWING CONDITION FREE OF DEBRIS AND REFUSE AND IN CONFORMANCE WITH THE

APPROVED LANDSCAPE PLAN. 11. CONTRACTOR TO REMOVE ALL CONSTRUCTION DEBRIS AND EXCESS MATERIAL FROM THE SITE PRIOR TO FINAL ACCEPTANCE. 12. PLANT MATERIALS, EXCEPT SOD, GROUND COVERS AND CREEPING VINE

TYPE PLANTINGS, SHALL NOT BE LOCATED WITHIN FOUR (4) FEET OF THE 3. ALL TRANSFORMERS ARE TO BE SCREENED ON THREE SIDES (MINIMUM) N ACCORDANCE WITH THE CITY OF NOVI ORDINANCE AND SO AS TO NOT CONFLICT WITH DTE RESTRICTIONS (SEE DETAIL THIS SHEET).

4. THE OWNER IS RESPONSIBLE FOR REQUEST OF FINAL INSPECTION AND

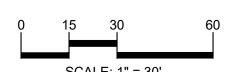
15. THE PROVIDER OF THE FINANCIAL GUARANTEE FOR THE LANDSCAPE NSTALLATION SHALL BE FULLY REPSONSIBLE FOR COMPLETION OF THE LANDSCAPE INSTALLATION AND MAINTENANCE PER THE APPROVED LANDSCAPE PLAN AND APPLICABLE CITY ORDINANCES.

ACCEPTANCE OF THE LANDSCAPE AT THE END OF THE 2-YEAR GUARANTEE



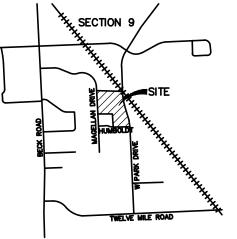








CAUTION!! JTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR MPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF HE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



MADISON ENERGY INVESTMENTS 8100 BOONE BLVD. STE 310

PROJECT TITLE

LINEAGE CAR **PORTS ADDITION** 46500 HUMBOLDT DRIVE NOVI, MICHIGAN

REVISIONS	
PSP AND FSP SUBMITTAL	9/12/2024
FSP/VARIANCE SUBMITTAL	12/2/2024

ORIGINAL ISSUE DATE: AUGUST 16, 2024

DRAWING TITLE **LANDSCAPE**

	PEA JOB NO.	2023-1048
)	P.M.	ВК
	DN.	CAL
	DES.	JLE
	DRAWING NUMBER	R:

GENERAL LANDSCAPING REQUIREMENTS

- 1.0 GENERAL
- SUMMARY
- Includes But Not Limited To
- 1. General procedures and requirements for Site Work.
- PRODUCTS Not Used
- 3.0 EXECUTION
- PREPARATION
- Protection 1. Spillage:
- A. Avoid spillage by covering and securing loads when hauling on or

adjacent to public streets or highways.

- B. Remove spillage and sweep, wash, or otherwise clean project,
- 2. Erosion Control:
- A. Take precautions necessary to prevent erosion and transportation of soil downstream, to adjacent properties, and into on-site or off-site drainage systems.
- B. Develop, install, and maintain an erosion control plan if required by
- C. Repair and correct damage caused by erosion.
- 3. Existing Plants And Features:
- A. Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain.
- B. Do not use heavy equipment within branch spread. Interfering branches may be removed only with permission of Landscape
- C. Do not damage other plants and features which are to remain.
- 3.1.2 If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

END OF SECTION

LANDSCAPING PREPARATION

- 1.0 GENERAL
- SUMMARY
- Includes But Not Limited To
- General landscape work requirements.
- QUALITY ASSURANCE
- Comply with all applicable local, state and federal requirements, regarding materials, methods of work, and disposal of excess and waste materials.
- Obtain and pay for all required inspections, permits, and fees.
- Provide notices required by governmental authorities
- PROJECT CONDITIONS

expense.

- Locate and identify existing underground and overhead services and utilities within contract limit work areas. (Call Miss Dig: 1-800-482-7171 in Michigan)
- Provide adequate means to protect utilities and services designated to
- 1.3.3 Repair utilities damaged during site work operations at Subcontractor's
- When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in
- Locate, protect, and maintain benchmarks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Subcontractor's expense
- 1.3.6 Perform landscape work operations and the removal of debris and materials to assure minimum interference with streets, walks, and other adjacent
- Obtain governing authorities' written permission when required to close or obstruct streets, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing
- Protect and maintain street lights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated
- The General Contractor will occupy the premises and adjacent facilities during the entire period of construction. Perform landscape work operations to minimize conflicts and to facilitate General Contractor's use of the premises and conduct of his normal operations.
- 1.3.10 Perform landscape preparation work before commencing landscape construction.
- Provide necessary barricades, coverings and protection to prevent damage to existing improvements indicated to remain.
- 1.3.12 Protect existing trees scheduled to remain against injury or damage including cutting, breaking or skinning of roots, trunks or branches, smothering by stockpiled construction materials, excavated materials or vehicular traffic within branch spread.
- 2.0 PRODUCTS
- MATERIALS/EQUIPMENT
- As selected by the General Contractor, except as indicated.
 - 1. Tree protection:
 - A. Wood fencing Snow fencing 4' height.
 - B. Posts Steel fence post.
- C. Herbicide for lawn restoration "Round—up" by Monsanto.
- EXISTING UTILITIES
- Call "MISS DIG" 811 before construction begins. Information on the drawings related to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities.
- 3.2
- Locate and suitably identify trees and improvements indicated to remain.
- 3.2.2 Fencing/soil erosion fence is to be installed.
- 3.2.3 Any equipment that compacts the soil in the areas of existing trees is not
- 3.2.4 Protect trees scheduled to remain with 4' high snow fence per plans.

- 3.2.5 No vehicular traffic is permitted beneath drip line at any time. All lawn areas are to be worked by hand.
- 3.2.6 Clear and grub areas within contract limits as required for site access and execution of the work.
- Remove trees, plants, undergrowth, other vegetation and debris, except items indicated to remain.
- Treat planting and lawn areas as required with herbicide per manufacturer recommendations to kill existing vegetation prior to planting, seeding and
- 3.2.9 Remove stumps and roots to a clear depth of 36" below subgrades. Remove stumps and roots to their full depth within 5'0" of underground structures, utility lines, footings, and paved areas.
- DISPOSAL OF WASTE MATERIALS
- Stockpile, haul from site and legally dispose of waste materials and debris. Accumulation is not permitted.
- 3.3.2 Maintain disposal routes, clear, clean and free of debris.
- 3.3.3 On site burning of combustible cleared materials is not permitted.
- Upon completion of landscape preparation work, clean areas within contract limits, remove tools and equipment. Site to be clear, clean and free of materials and debris and suitable for site work operations.
- 3.3.5 Materials, items and equipment not scheduled for reinstallation or salvaged for the General Contractor are the property of the Landscape Contractor. Remove cleared materials from the site as the work progresses. Storage and sale of Landscape Contractors salvage items on site is not permitted

END OF SECTION

FINISH GRADING AND TOPSOIL PLACEMENT

- 1.0 GENERAL
- 1.1 SUMMARY
- 1.1.1 Includes But Not Limited To 1. Perform finish grading and topsoil placement required to prepare site for
- 1.2 SUBMITTALS
- 1.2.1 Quality Assurance
 - 1. Submit test on imported topsoil and on site stockpiled topsoil by independent licensed testing laboratory prior to use. Imported topsoil shall meet minimum specified requirements and be approved by Landscape Architect prior to use.

installation of landscaping as described in Contract Documents

- 2. Provide and pay for testing and inspection during topsoil operations. Laboratory, inspection services, and Soils Engineer shall be acceptable to the Landscape Architect.
- 3. Submit report stating location of source of imported topsoil and account
- of recent use 4. Test for pH factor, mechanical analysis, and percentage of organic
- 5. Submit test reports to General Contractor.
- 6. Sub-Contractor, or testing agency to make recommendations on type of quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.
- Participate in pre-installation meeting with Landscape Architect.
- PROJECT CONDITIONS
- 1.4.1 Also see Landscape Preparation Section
- Protect existing trees, plants, lawns, and other features designated to remain as part of the landscaping work.
- 1.4.3 Promptly repair damage to adjacent facilities caused by topsoil operations. Cost of repair at Subcontractor's expense
- 1.4.4 Promptly notify the General Contractor and Landscape Architect of unexpected subsurface conditions.
- 2.0 PRODUCTS
- 2.1 MATERIALS
- Topsoil: supplied and stockpiled topsoil proposed for use must meet the testing criteria results specified. Topsoil must conform to adjustments and recommendations from the soil test and by the Landscape Architect.
- 2.1.2 Existing topsoil: existing topsoil from on-site stockpile shall be utilized. All processing, cleaning, and preparation of this stored topsoil to render it acceptable for use is the responsibility of the Subcontractor.
- 2.1.3 Provide additional topsoil as required to complete the job. Topsoil must meet testing criteria results specified.
- 2.1.4 All processing, cleaning, and preparation of this supplied topsoil to render it acceptable for use is the responsibility of the Subcontractor.
- growth and free of clay lumps, subsoil, noxious weeds or other foreign matter such as stones of 1" in any dimension, roots, sticks, and other extraneous material: not frozen or muddy. PH of soil range between 5.0

Supplied and stockpiled topsoil, shall be fertile, friable, dark in color and

representative of local productive soil, capable of sustaining vigorous plant

- 2.1.6 Soil shall not contain more than 2 percent of particles measuring over 2.0 mm in largest size
- Prepared topsoil shall be used in planting mixtures as specified in Trees, Plants, and Ground Cover; all beds prepared as specified.
- EXECUTION
- 3.1 EXAMINATION
- Do not commence work of this Section until grading tolerances specified are
- 3.2 PREPARATION
- 3.2.2 Prior to grading, dig out weeds from planting areas by their roots and remove from site. Before placing top soil in landscape areas, remove rocks larger than 1 inch in any dimension and foreign matter such as building rubble, wire, cans. sticks, concrete, etc.
- 3.2.3 Prior to placing topsoil, remove any imported base material present in planting areas down to natural subgrade or other material acceptable to
- 3.3 PERFORMANCE
- 3.3.1 Site Tolerances
 - 1. Total Topsoil Depth
 - A. Lawn And Groundcover Planting Areas 3 inches minimum compacted.
 - B. Shrub Planting Areas 12 inches minimum throughout entire

 - 2. Elevation of topsoil relative to walks or curbs A. Seeded Lawn Areas - 1/4 inch below

3.3.2 Do not expose or damage existing shrub or tree roots.

B. Sodded Lawn Areas - 1 1/2 inches below

surface to specified elevation relative to walk or curb.

- C. Shrub And Ground Cover Areas 3 inches below
- 3.3.3 Redistribute approved existing top soil stored on site as a result of rough grading. Remove organic material, rocks and clods greater than 1 inch any dimension, and other objectionable materials. Provide additional approved imported topsoil required for specified topsoil depth and bring

- For trees, shrubs, ground cover beds and plant mix for beds see Exterior Plants section.
- 3.3.5 Provide earth berming where indicated on Plans.
- Berming to be free flowing in shape and design, as indicated, and to blend into existing grades gradually so that the toe of slope is not readily visible. Landscape Architect or General Contractor's representative to verify final contouring before planting.
- Regardless of finish grading elevations indicated, it is intended that grading be such that proper drainage of surface water away from buildings will occur and that no low areas are created to allow ponding. Subcontractor to consult the General Contractor and Landscape Architect regarding variations in grade elevations before rough grading is completed.
- Slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch per ft minimum unless otherwise noted. High point of finish grade at buildina foundation shall be 6 inches minimum below finish floor level. Direct surface drainage in manner indicated on Drawings by molding surface to facilitate natural run—off of water. Fill low spots and pockets with top soil and grade to drain properly.
- 3.3.9 Rake all topsoil to remove clods, rocks, weeds, and debris.
- 3.3.10 Grade and shape area to bring surface to true uniform planes free from irregularities and to provide proper drainage and slopes per plans.
- Upon completion of topsoil operations, clean areas within contract limits, remove tools, equipment, and haul all excess topsoil off-site. Site shall be clear, clean, free of debris, and suitable for site work operations.

END OF SECTION

- LAWN SEEDING
- GENERAL SUMMAR'
- 1.1.1 Includes But Not Limited To
- 1. Furnish and install seeded lawn as described in Contract Documents.
- SURMITTAL S
- Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentage of purity, germination, and weed seed for each grass species.
- DELIVERY AND STORAGE
- Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent
- PROJECT CONDITIONS
- See landscape preparation section.
- Work notification: Notify Landscape Architect of General Contractor's representative at least seven (7) working days prior to start of seeding operation.
- 1.4.3 Protect existing utilities, paving, and other facilities from damage caused by
- 1.4.4 Perform seeding work only after planting and other work affecting ground
- surface has been completed. Provide hose and lawn watering equipment as required.
- 1.4.6 The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components damaged during seeding operations at the
- Sub-Contractor's expense. WARRANTY
- See Landscape Maintenance and Warranty Section
- PRODUCTS
- Topsoil for Seeded Areas: See Topsoil Placement and Drawings
- Lawn seeded areas: Fresh, clean and new crop seed mixture. Mixed by
- Seed mixture composed of the following varieties, mixed to the specified proportions by weight and tested to minimum percentages of purity and aermination.
- 2.1.4 Irrigated Lawn Seed Mixture proportioned by volume as indicated below: PROPORTION PURITY GERMINATION 50% 30%
- 20% Annual Ryegrass

Non-Irrigated Seed Mixture proportioned by volume as indicated below: PROPORTION PURITY GERMINATION Penn Lawn Fescue Kentucky 28# Common Bluegrass 20% 90% 90%

- Pennfine Perennial Rve 2.1.6 Fertilizer: granular, non burning product composed of not less that 50%
- organic slow acting, guaranteed analysis professional fertilizer. Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20% mesh
- Straw Mulch: Used in crimping process only. Clean oat or wheat straw well seasoned before bailing, free from mature seed—bearing status, or roots of
- Water: Free of substance harmful to seed growth. Hoses or other methods to transpiration furnished by Sub Contractor.
- EXECUTION
- Landscape Architect or General Contractor's representative must approve finish surfaces, grades, topsoil quality and depth. Do not start seeding work
- until unsatisfactory conditions are corrected 3.2 PREPARATION
- SURFACE PREPARATION
- 1. Seven days maximum prior to seeding, -

fill depressions as required to drain.

actual nitrogen 1,000 sq. ft. (43 lbs / acre).

label direction to kill existing vegetation prior to seeding.

C. Rake area to remove clods, rocks, weeds, roots, debris, and stones

A. Treat Lawn areas if required with "Round-Up" by Monsanto, per

- B. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.
- over 1" in any dimension. D. Grade lawn areas to smooth, free draining even surface with a loose. moderately coarse texture. Roll and rake, remove ridges, and

E. Apply limestone to supplied topsoil if required by soil test report at

- rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more that 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil. F. Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of
- G. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

- H. After lawn areas have been prepared, take no heavy objects over
- them except lawn rollers. I. After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately
- J. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and

right angles with water ballast roller weighing 100 to 300 lbs

- K. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.

INSTALLATION 3.3

3.3.1 SEEDING

- 1. Seed lawns only between April 1, and June 1, and fall seeding between August 15, and October 15, or at such other times acceptable to
- 2. Seed immediately after preparation of bed. Seed indicated areas within contract Limits and areas adjoining contract limits disturbed as a result
- 3. Perform seeding operations when the soil is dry and when the winds do
- not exceed five(5) miles per hour velocity. 4. Apply seed with a rotary or drop type distributor. Install seed evenly by sowing equal quantities in two (2) directions, at right angles to each
- 5. Sow seed at a rate of 300 lbs./acre.

Landscape Architect.

according to soil type.

- 6. After seeding, rake or drag surface of soil lightly to incorporate seed
- into top 1/8" of soil. Roll with light lawn roller. 7. Provide soil erosion planting mat where grade conditions required to stabilize the planting area.
- 1. Hydro-seeding: The application of grass seed and a wood cellulose fiber mulch tinted green shall be accomplished in one operation by use of an approved spraying machine.
 - A. Mix seed, fertilizer, and wood cellulose fiber in required amount of water to produce a homogeneous slurry. Add wood cellulous fiber after seed, water, and fertilizer have been thoroughly mixed and apply at the rate of 200 pounds per acre dry weight.
 - B. For hydro-seeding, wood cellulose fiber shall be used. Silva-Fiber Mulch by Weyerhaeuer Company, Tacoma, WA (800-443-9179).
- C. Hydraulically spray material on ground to form a uniform cover impregnated with grass seed. D. Immediately following application of slurry mix, make separate application of wood cellulose mulch at the rate of 1,000 pounds, dry
- weight, per acre. Apply cover so that rainfall or applied water will percolate to

underlying soil. 3.3.3 MULCHING

2. Place straw mulch uniformly in a continuous blanket at a rate of 2-1/2tons per acre, or two (2) 50 lb. bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application when acceptable to the Landscape Architect.

3. Crimp straw into soil by use of a "crimper". Two passes in alternate

1. Place straw mulch on seeded areas within 24-hours after seeding.

direction required. Alternative methods on areas too small for crimper must be approved by the Landscape Architect or Owner's Representative. 3.3.3 ESTABLISH LAWN

1. Establish dense lawn of permanent grasses, free from lumps and

- depressions. Any area failing to show uniform germination to be reseeded; continue until dense lawn established. 2. Damage to seeded area resulting from erosion to be repaired by Sub
- 3. In event Sub Contractor does not establish dense lawn during first germination period, return to project to refertilize and reseed to establish

4. Should the seeded lawn become largely weeds after germination, Sub

Contractor is responsible to kill the weeds and reseed the proposed lawn areas to produce a dense turf, as specified.

3.4 CLEANING Perform Cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all

excess materials, debris, and equipment. Repair damage resulting from

- seeding operations. MAINTENANCE
- See Landscape Maintenance and Warranty Section.
- ACCEPTANCE 3.6.1 See Landscape Maintenance and Warranty Section.
- END OF SECTION
- LAWN SODDING
- 1.0 GENERAL
- 1.1 SUMMARY Includes But Not Limited To
- 1. Furnish and install sodded lawn as described in Contract Documents.

QUALITY ASSURANCE

- Sod: Comply with American Sod Producers Association (ASPA) classes of sod
- 1.3.1 Submit sod growers certification of grass species. Identify source location.
- 1.3.2 Submit manufacturer's certification of fertilizer.
- DELIVERY, STORAGE, AND HANDLING
- Cut, deliver, and install sod within 24 hour period. 1.4.2 Do not harvest or transport sod when moisture content may adversely affect
- Protect sod from sun, wind, and dehydration prior to installation. Do not tear, stretch, or drop sod during handling and installation.
- 1.4.4 Sod which dries out before installation will be rejected.
- PROJECT CONDITIONS
- 1.5.1 See Landscape Preparation section.

surface has been completed.

- Work notification: Notify Landscape Architect or General Contractor's representative at least seven (7) working days prior to start of sodding
- 1.5.3 Protect existing utilities, paving, and other facilities from damage caused by sodding operations. Perform sodding work only after planting and other work affecting ground
- Restrict traffic from lawn areas until grass is established. Erect signs and

- 1.5.6 Provide hose and lawn watering equipment as required
- 1.5.7 The irrigation system will be installed prior to sodding. Locate, protect, and maintain the irrigation system during sodding operations. Repair irrigation system components damaged during sodding operations at the
- Subcontractor's expense. 1.6 WARRANTY
- 1.6.1 See Landscape Maintenance and Warranty Section.
- 2.0 PRODUCTS 2.1 MATERIALS
- 2.1.1 Sod: An "approved" nursery grown blend of improved Kentucky Bluegrass
- 2.1.2 Sod containing Common Bermudagrass, Quackgrass, Johnsongrass, Poison Ivy, Nutsedge, Nimblewill, Canada Thistle, Timothy, Bentgrass, Wild Garlic, Ground
- lvy. Perennial Sorrel, or Bramegrass weeds will not be acceptable. 2.1.3 Provide well rooted, healthy sod, free of diseases, nematodes and soil borne insects. Provide sod uniform in color, leaf texture, density, and free of weeds, undesirable grasses, stones, roots, thatch, and extraneous material;
- viable and capable of growth and development when planted. 2.1.4 Furnish sod, machine stripped in square pads or strips not more than 3'-0" long; uniformly 1" to 1-1/2" thick with clean cut edges. Mow sod before
- 2.1.5 Fertilizer: granular, non burning product composed of not less that 50%
- organic slow acting, guaranteed analysis professional fertilizer. Type A: starter fertilizer containing 20% nitrogen, 12% phosphoric acid, and 8% potash by by weight or similar approved composition.
- 2.1.7 Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20% mesh
- 2.1.8 Stakes: softwood, 3/4" x 8" long. 2.1.9 Water: Free of substance harmful to seed growth. Hoses or other methods
- to transpiration furnished by Sub Contractor. 2.1.10 Topsoil: see Topsoil Placement section.
- 3.0 EXECUTION
- INSPECTION 3.1 3.1.1 Landscape Architect or General Contractor's representative must approve
- 3.2 PREPARATION 3.2.1 Surface Preparation:

until unsatisfactory conditions are corrected.

over 1" in any dimension.

- 1. Seven days maximum prior to sodding, a. Treat Lawn areas if required with herbicide per manufacturer
- Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.

recommendations to kill existing vegetation prior to sodding.

- Grade lawn areas to smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.
- than 6.0 no more that 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil. Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of

actual nitrogen 1,000 sq. ft. (43 lbs / acre).

g. Apply fertilizers by mechanical rotary or drop type distributor thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

h. After lawn areas have been prepared, take no heavy objects over

Rake or scarify and cut or fill irregularities that develop as required

Restore prepared greas to specified condition if eroded, settled or

otherwise disturbed after fine grading and prior to sodding.

- After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately
- until area is true and uniform, free from lumps, depressions, and

Dampen dry soil prior to sodding.

sidewalks, drains, and seeded areas.

ensure contact with sub grade.

them except lawn rollers.

3.3 INSTALLATION 1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and

sides of sod strips. Do not overlay edges. Stagger strips to offset

ioints in adjacent course. Remove excess sod to avoid othering of

adjacent grass. Provide sod pad top flush with adjacent curbs,

- 2. Do not lay dormant sod or install sod on saturated, frozen soil
- slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and lightly against previously installed row. 4. Peg sod on slopes greater than 3 to 1 or in centerline of swales to

5. Water sod thoroughly with a fine spray immediately after laying to obtain

3. Install initial row of sod in a straight line, beginning at the bottom of

moisture penetration through sod into top 4 inches of topsoil. 6. Roll with light lawn roller in two directions perpendicular to each other to

8. Damage to sodded area resulting from erosion to be repaired by

excess materials, debris, and equipment. Repair damage resulting from

prevent slippage at a rate of 2 stakes per yard of sod.

- 7. Install sod at indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
- 3.4 CLEANING 3.4.1 Perform Cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all
- See Landscape Maintenance and Warranty Section.

3.5

sodding operations.

MAINTENANCE

ACCEPTANCE

- 3.6.1 See Landscape Maintenance and Warranty Section. END OF SECTION

GROUP

t: 844.813.2949

www.peagroup.com

REBECCA

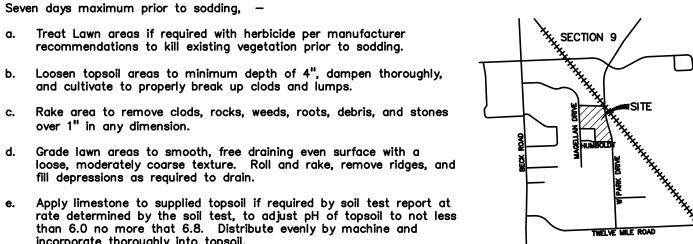
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License No.

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finish surfaces, grades, topsoil quality and depth. Do not start sodding work CAUTION ITILITIES AS SHOWN ON THIS DRAWING ARE ONLY MPLIED AS TO THE COMPLETENESS OR ACCURACY THEREO DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



INVESTMENTS 8100 BOONE BLVD, STE 310

MADISON ENERGY

PROJECT TITLE LINEAGE CAR

46500 HUMBOLDT DRIVE

NOVI, MICHIGAN

PORTS ADDITION

REVISIONS PSP AND FSP SUBMITTAL 9/12/2024 FSP/VARIANCE SUBMITTAL 12/2/2024

DRAWING TITLE LANDSCAPE **SPECIFICATIONS**

ORIGINAL ISSUE DATE:

AUGUST 16, 2024

PEA JOB NO. 2023-1048 P.M. BK CAL DN. DES. JLE DRAWING NUMBER:

EXTERIOR PLANTS

- 1.0 GENERAL
- 1.1.1 Includes But Not Limited To
- Furnish and install landscaping plants as described in Contract Documents.
- QUALITY ASSURANCE
- Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and
- 1.2.2 Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock". A plant shall be dimensioned as it stands in its natural position.
- All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of two years.
- Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional charge. Larger plants shall not be cut back
- 1.2.5 Provide "specimen" plants with a special height, shape, or character of growth. Landscape Subcontractor is to tag specimen trees or shrubs at the source of supply. The Landscape Subcontractor shall inspect all plant material at source prior to Landscape Architect's approval. Landscape Subcontractor shall accompany Landscape Architect on final selection trip. The Landscape Architect will inspect specimen selections for suitability and adaptability to selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for
- Plants may be inspected and approved at the place of growth for compliance with specification requirements for quality, size, and variety.
- Approval of plant selection at the place of growth shall not impair the right of inspection and rejection upon delivery at the site or during progress of
- Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.
- 1.2.9 Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with work of this section
- 1.2.10 Plant totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All plantings indicated on Drawings are required unless indicated otherwise.
- 1.3 SUBMITTALS
- Provide and pay for material testing. Testing agency shall be acceptable to the Landscape Architect. Provide the following data:
- 1. The loss of weight by ignition and moisture absorption capacity shall be tested for peat moss.
- 1.3.2 Submit the following material samples to Landscape Architect:
 - Compost, shredded hardwood bark mulch, planting accessories, pre-emergent herbicides, and plant fertilizers.
- 1.3.3 Submit the following materials certification to Landscape Architect: Topsoil source and ph value, compost, and plant fertilizer.
- DELIVERY, STORAGE, AND HANDLING
- Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.
- Take all precautions customary in good trade practice in preparing plants for Workmanship that fails to meet the highest standards will be
- Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration.
- 1.4.4 Dig, pack, transport, and handle plants with care to ensure protection against injury.
- Inspection certificates required by law shall accompany each shipment invoice or order to stock on arrival. The certificate shall be filed with the General Contractor's representative.
- 1.4.6 Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, shredded hardwood bark mulch, or in a manner acceptable to the General Contractor's representative.
- 1.4.7 Water heeled in plantings daily.
- 1.4.8 No plant shall be bound with rope or wire in a manner that could damage or
- 1.4.9 Cover plants transported on open vehicles with a protective covering to prevent wind burn.
- 1.4.10 Frozen or muddy topsoil is not acceptable.
- PROJECT CONDITIONS
- 1.5.1 See Landscape Preparation Section.
- Work notification: notify Landscape Architect at least seven working days prior to installation of plant material.
- Protect existing utilities, paving, and other facilities from damage caused by landscaping operations
- 1.5.4 A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the proposal form. In the event that quantity discrepancies or material omissions occur in the proposal form, Subcontractor shall notify the Landscape Architect during the proposal bidding process.
- 1.5.5 An irrigation system will be installed prior to planting. Locate, protect, and maintain the irrigation system during planting operations. Repair irrigation system components, damaged during planting operations, at the Landscape Subcontractor's expense.
- 1.5.6 The Landscape Subcontractor shall inspect existing soil conditions in all areas of the site where his operations will take place, prior to the beginning of work. It is the responsibility of the Landscape Subcontractor to notify the General Contractor's representative and the Landscape Architect in writing of any conditions which could affect the survivability of plant material to be
- WARRANT 1.6
- See Landscape Maintenance and Warranty Standards
- 2.0 PRODUCTS
- MATERIALS
- Plants: Provide plants typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without
- Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nurserv Stock". Cracked or mushroomed balls are not acceptable.
- 2. All trees shall have clay or clay loam balls. Trees with sand balls will be
- 3. Provide tree species that mature at heights over 25'-0" with a single, main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable.

- 4. Plants planted in rows shall be matched in form, (see specimen stock).
- 5. Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.
- 6. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.
- 7. Evergreen trees shall be unsheared and branched to the ground.
- 8. Shrubs and small plants shall meet the requirements for spread and height indicated on the drawings.
- 9. Plant materials shall be subject to approval by the Landscape Architect as to size, health, quality, and character.
- 10. Bare root trees are not acceptable.
- 11. Provide plant materials from licensed nursery or grower.
- Bare root plants: dug with adequate fibrous roots, to be covered with a uniformly thick coating of mud by being puddled immediately after they are dug or packed in moist straw or peat moss.
- Container grown stock: grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm, and whole.
 - 1. No plants shall be loose in the container.
 - 2. Container stock shall not be root bound.
 - 3. Single stemmed or thin plants will not be accepted.
 - 4. Side branches shall be generous, well twigged, and the plant as a whole well bushed to the ground.
 - 5. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.
- Collected stock consists of plants growing under natural conditions in soils and climate as exist at location to be planted, in locations lending themselves to proper collecting practices. Root system (balls) to be at least twenty-five (25%) percent larger than specified for nursery grown material.
- 2.1.5 Specimen stock: all specimen designated plantings are to be nursery grown, fully developed, excellent quality, and typical example of the species. Plants designated to be planted in rows must be matched, symmetrical, and uniform in height, spread, caliper, and branching density.
 - 1. Matched plantings should be obtained from the same nursery and, preferably, from the same row or line. All specimen material will be approved by the Landscape Architect at nursery.
- Topsoil for planting mix: fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots sticks, and other foreign materials with acidity range of between ph 6.0-6.8
- 2.1.7 <u>Compost</u>: Well decomposed, stable, weed free organic matter source.
- Planting mixture Type A trees: standard planting backfill shall be a mixture of ½native soil (excavated from plant pits), ¼topsoil, and ¼sand. Add fertilizer Type "A" and "B" to planting mixture per manufacturer's requirements. Follow planting details.
- 2.1.9 Planting mixture Type B for perennial flowers, groundcover beds, and ericaceous plants: planting backfill shall be a mixture of 1/3 screened topsoil, 1/3 sand and 1/3 <u>compost.</u> All existing soil shall be excavated and removed. Adding fertilizer types "A" and "B" to mixture per manufacturer's requirements. Follow planting details. Planting mixture Type C for annual flower beds: same as Type "B". Submit a sample to the Landscape Architect for approval prior to installation.
- 2.1.10 Plant fertilizer Type A to be "Drimanure" applied per manufacturer recommendations.
- 2.1.11 Plant fertilizer Type B to be "14-14-14". Apply per manufacturer
- 2.1.12 Bone Meal 5 lbs. per cubic yard of soil mixes.
- 2.1.13 Lime to be ground dolomitic limestone, ninety-five (95%) percent passing through #100 mesh screen. Use to adjust soil pH only, under direction o
- 2.1.14 Sand to be clean, coarse, ungraded conforming to ASTM-C-3 for fine
- Anti-Desiccant: protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with Manufacturer's instructions
- 2.1.16 Shredded bark mulch shall be double processed, dark shredded hardwood bark that is clean, free of debris and sticks. Materials shall be uniform in size. shape, and texture. Submit samples to Landscape Architect for approval prior to installation. Install mulch to finish grade, level smooth, without ridges,
- Water: free of substances harmful to plant growth. Hoses or other methods of transportation shall be furnished by Sub Contractor.
- 2.1.18 Stakes for staking: (3) Three Hardwood, 2" x 2" x 8'-0" long. Driven a min. of 18" deep firmly into subgrade prior to backfilling. Stakes for guying: Hardwood, 2" x 2" x 36" long.
- 2.1.19 Guying/staking material: Wit 2"-3" wide fabric straps, connect from tree to stake. Remove after (1) one year, allow for flexibility. (do not use wire and
- 2.1.20 Tree wrap: standard waterproofed tree wrapping paper, 2-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, cemented together with asphalt. Secure tree wrap with biodegradable material at top and bottom. Remove after first winter.
- 2.1.21 Twine: two-ply jute material.
- 2.2 MEASUREMENTS
- Measure height and spread of specimen plant materials with branches in their normal positions as indicated on Drawings or Plant List.
- The measurements for height shall be taken from the ground level to the
- average height of the top of the plant and not the longest branch. Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in
- narrowest direction would be classified as 12 inch stock.
- 2.2.4 Plants properly trimmed and transplanted should measure same in every
- Measure caliper of trees 6 inches above surface of ground.
- Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.
- Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:
- 1. If complying with Contract Document requirements in all other respects.
- 2. If at no additional cost to Owner.
- 3. If sizes of roots or balls are increased proportionately.
- The height of the trees, specified by height, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated on the drawings.
- 3.0 EXECUTION
- INSPECTION 3.1
- Landscape Architect or General Contractor's representative must approve proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.
- Individual plant locations shall be staked on the project site by the Landscape Contractor and approved by the Landscape Architect before any

- planting pits are dug. The Landscape Architect reserves the right to adjust plant material locations to meet field conditions, without additional cost to the General Contractor / Owner.
- Accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.
- TIME OF PLANTING
- Evergreen material: Plant Evergreen materials between September 1 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.
- 3.2.2 Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in leaf, they shall be sprayed with anti-desiccant
- Planting times other than those indicated must be acceptable to the Landscape Architect.
- PREPARATION
- 3.3.1 General: See Landscape Preparation Section
- 3.3.2 Vegetation Removal
 - 1. Strip existing grass and weeds, including roots from all bed areas leaving
 - the soil surface one (1") inch below finish grade. 2. Herbicide: as required to prepare area for new planting applied to all ground cover, evergreen and shrubbery beds and all mulch areas before

application of preemergence herbicide, per manufacture's

- recommendations. Clean area of all dead material after five (5) days. 3. Pre-Emergence Herbicide: applied per manufacturer recommendations to same area where "Herbicide" has been applied and to planting bed areas,
- after area is cleared of dead vegetation. 4. Herbicides to be applied by licensed applicator as required by the State.
- 5. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide plant pits per planting details. Depth of pit shall accommodate the root system. Scarify the bottom of the pit to a depth of 6".
- 6. Roughen sides of excavations.
- 7. Provide premixed planting mixture Type "A" for use around the balls and roots of all deciduous and evergreen tree plantings.
- 3.3.3 Ground Cover Beds, Perennial Flower Beds, and Ericaceous Plant Beds
- 1. Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B" Ground Cover shall be planted after bed has been backfilled with plant mix and mulched. Plant ground cover through mulch and into plant mix.
- 3.3.4 Mass Shrub Beds / Hedge Beds:
 - 1. Excavate existing soil to 18" depth over entire bed area and remove soil from site. Scarify bottom of the bed to a 4" depth. Set plants according to drawings and Specifications. Backfill entire bed with (premixed) specified planting mixture Type "A".
- 3.3.5 Annual Flower Beds:
 - 1. Excavate existing soil to 8" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Backfill entire bed to an 8" depth with premixed planting mixture "Type B".
- INSTALLATION
- Planting shall be performed only by experienced workman familiar with
- planting procedures under the supervision of a qualified supervisor. Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the planting details.
- 3.4.3 See drawings for planting details.
- 3.4.4 If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape
- 3.4.5 Set plant material in the planting pit to proper grade and alignment.
 - relationship to each other or adjacent structure.

1. Set plants upright, plumb, and faced to give the best appearance or

- 2. Set plant material so it is flush to finish grade after settling, or 1-2" higher in poorly drained soil, or as directed by Landscape Architect.
- 3. No filling will be permitted around the trunks or stems.
- 4. Do not cover top of root ball with soil. 5. Backfill pit with planting mixture. Do not use frozen or muddy mixtures
- 6. Form a ring of soil around the edge of the planting pit to retain water.
- 3.4.6 After balled and burlapped plants are set, tamp planting mixture around of balls and fill all void and remove air pockets.
- Remove all burlap, ropes, and wires from top 1/3 of balls. Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of

plants. Plant to within 12" of trunks and shrubs and to within 6" of

- Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and frayed roots before installing planting mixture.
- 3.4.10 Water immediately after planting.
- 3.4.11 Apply pre-emergent herbicide to bed areas per manufacturer's
- recommendations before mulching.
- MULCHING Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep to dripline immediately after planting. Leave 3" circle of bare soil around tree trunk. Thoroughly water mulched areas. After watering,
- rake mulch to provide a uniform finished surface. 3.5.2 Mulch shall not be placed in contact with trunks or stems. Form saucer with
- 4" continuous rim. 3.5.3 Mulch ground cover beds with shredded bark mulch 2" to 3

tall and over with metal fence post, three (3)per tree.

- " deep prior to planting. 3.5.4 Plant ground cover through mulch.
- WRAPPING, GUYING, AND STAKING
- Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.
- 3.6.2 Wrap trunks of all trees spirally from bottom to top with specified tree wrap
- Stake/guy all trees immediately after installation. When high winds or other conditions which may effect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the

Stake deciduous trees under 4" caliper. Stake evergreen trees under 6'-0"

- 3.6.5 Guy deciduous trees 4" caliper and over. Stake evergreen trees 6'-0" tall and over with metal fence post, three (3) per tree.
- 3.6.6 All work shall be acceptable to the Landscape Architect/Owner's
- PRUNING

staking/guying.

- 3.7.1 Remove or cut back broken, damaged, and unsymmetrical growth of new
- 3.7.2 Multiple leader plants: preserve the leader which will best promote the symmetry of the plant. Do not prune terminal leader. Cut branches flush with the trunk of the main branch, at a point beyond a lateral shoot or bud a distance of not less than ½ the diameter of the supporting branch. Make
- 3.7.3 Prune evergreens only to remove broken or damaged branches.
- 3.8 MAINTENANCE
- See Landscape Maintenance and Warranty Standards

LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS

- 3.9 CLEANING
- 3.9.1 Perform cleaning during installation of the work and upon completion of the work. Remove from all site excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.

END OF SECTION

- 1.1 SUMMARY
 - Includes But Not Limited To Provide maintenance for new landscaping as described in Contract
 - 2. The requirements of the Section include a two (2) year warranty period. per city of Novi Ordinance, from date of acceptance of installation performed by the General Contractor's Representative and Landscape
- 2.0 PRODUCTS Not Used
- 3.0 EXECUTION
- 3.1 PERFORMANCE 3.1.1 Acceptance of Installation

Representative shall be present.

- 1. At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's
- a. Following the acceptance inspection a punch list will be issued by
- b. Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall reinspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.
- c. At the time of acceptance all plant material shall be of vigorous
- d. It is the responsibility of the Landscape Subcontractor to make the written request for inspection of installation in a timely fashion. e. If there is plant material loss prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape

Contractor shall make all replacements of this dead material at no

additional cost. These replacements are not considered to be the

replacement of dead plant material by the Landscape Subcontractor during the <u>two (2) year project warranty period</u>, as outlined below. 2. Landscape work may be inspected for acceptance in parts agreeable to

the General Contractor's Representative and Landscape Architect provided

work offered for Inspection is complete, including maintenance as 3. For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply

a written statement requesting acceptance of this work completed to

3.1.2 Project Warranty

- 1. The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General
- Contractor's representative. 2. The Landscape Subcontractor shall guarantee trees, shrubs, ground cover beds and seeded or sodded areas through construction and for a period of two (2) years after date of Acceptance of Installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse or damage by others or unusual phenomena or

incidents which are beyond Landscape Subcontractor's control.

- 3.1.3 Maintenance During Two (2) Year Project Warranty 1. To insure guarantee standards, the following maintenance procedures for
 - trees, shrubs, and ground covers shall be executed during construction and for the full Project Warranty Periods. a. Landscape Subcontractor shall be <u>responsible for unlimited</u> replacement of any plant materials up to and during the two (2) year Project Warranty Period. A plant that dies within the first growing season should be replaced within 3 months or during the <u>first available growing season, whichever comes first.</u> These include those which are dead or in the opinion of the Landscape Architec
 - shape, resulting from dieback, excessive pruning, or inadequate or improper maintenance as part of the guarantee. b. Prior to any replacements, Landscape Subcontractor shall review

are in an unhealthy or unsightly condition, or having lost natural

individual plants in question with Landscape Architect to determine

- 2. Replacements must meet the standards specified on the Landscape plans and in the specifications, i.e. quality, species of plant material and
- 3. Costs for replacements are assumed part of bid quotations and therefore will not result in an additional cost to General Contractor or Landscape

planting procedures to receive approval of replacement materials by

4. Areas damaged as a result of replacement operation are to be restored by Landscape Subcontractor at no cost to the General Contractor or

5. The Landscape Subcontractor shall be responsible for watering all

the plantings free of disease and insects until the end of the warranty

plantings through the warranty period and shall keep guy wires taut, raise

tree balls which settle, furnish and apply sprays as necessary to keep

6. The Landscape Subcontractor shall remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition

a. Rejected plants and materials shall be removed promptly.

Replacements shall be made during the following normal planting

Trees and shrubs which are in doubt shall be replaced, unless, in the opinion of the Landscape Architect, it is advisable to extend

Project Warranty Period for full growing Season. 7. The Landscape Contractor shall apply anti-desiccants on evergreen trees and evergreen shrub beds within 150' of major streets and drives, no

later than December 1, during the two (2) year project warranty.

8. All ropes around trunk, as well as burlap, shall be removed at the time of planting per detail. 9. All stakes, guy wires, tree wrap paper, dead twigs and branches shall be

removed from tree and plant materials by July 1st of the year following

plantina.

- 3.1.4 Maintenance of Seeded Lawn Areas
 - 1. The Landscape Subcontractor shall maintain seeded lawn areas a. Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare

maximum of 3% of the total seeded lawn area is established.

spots, none of which is larger than one (1) foot of area up to a

- b. Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established, regardless of what season the seed was installed.
- 2. The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows). When lawn reaches 3"
- in height it shall be cut to 2" in height. 3. The Owner assumes cutting responsibilities following the Acceptance of
- Installation of the seeded lawn 4. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance
- 3.1.5 Maintenance of Sodded Lawn Areas
 - 1. The Landscape Subcontractor shall maintain sodded lawn areas.
 - a. Water, fertilize, spot weed, apply herbicides, fungicides, insecticides and resod until a full uniform, smooth stand of sod is knitted to topsoil, and accepted by the Landscape Architect or his or her
 - 2. Water sod thoroughly, as required to establish proper rooting.
 - 3. Repair, rework, and resod all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod 4. Mow lawn areas once as soon as sod has rooted sufficiently and knitted

to the topsoil. Cut back to 2" height. Not more than 40% of grass leaf shall be removed at any single mowing. Excess clipping to be removed by the Landscape Subcontractor. The Landscape Subcontractor

- shall be responsible for lawn mowing until acceptance of installation (typically 3-mows).
- 5. The Owner assumes mowing responsibilities following the Acceptance o 6. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape

Architect, the Owner shall assume all sodded lawn maintenance

3.1.6 Final Acceptance Upon Conclusion of the Warranty Period

Representative shall be present

1. At the conclusion of the Project Warranty Period the Landscape Subcontractor shall request a project inspection for final acceptance in which the Landscape Contractor, Landscape Architect and Owner's

Landscape Architect and the Owner's Representative shall reinspect the project and issue a Written Statement of Final Acceptance.

END OF SECTION

and the site work.

NOTE: The Owners may at their option elect to utilize a Construction Manager in lieu of a General Contractor for all matters pertaining to these specifications

2. After the inspection for final acceptance, a punch list will be issued by

the Landscape Architect. Upon completion of all punch list items, the



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THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND

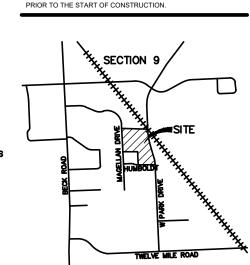
MPLIED AS TO THE COMPLETENESS OR ACCURACY THEREO

HE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR

DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS

ITILITIES AS SHOWN ON THIS DRAWING ARE ONLY

CAUTION



MADISON ENERGY

INVESTMENTS 8100 BOONE BLVD, STE 310

CLIENT

PROJECT TITLE LINEAGE CAR PORTS ADDITION

REVISIONS PSP AND FSP SUBMITTAL 9/12/2024 FSP/VARIANCE SUBMITTAL 12/2/2024

ORIGINAL ISSUE DATE:

AUGUST 16, 2024

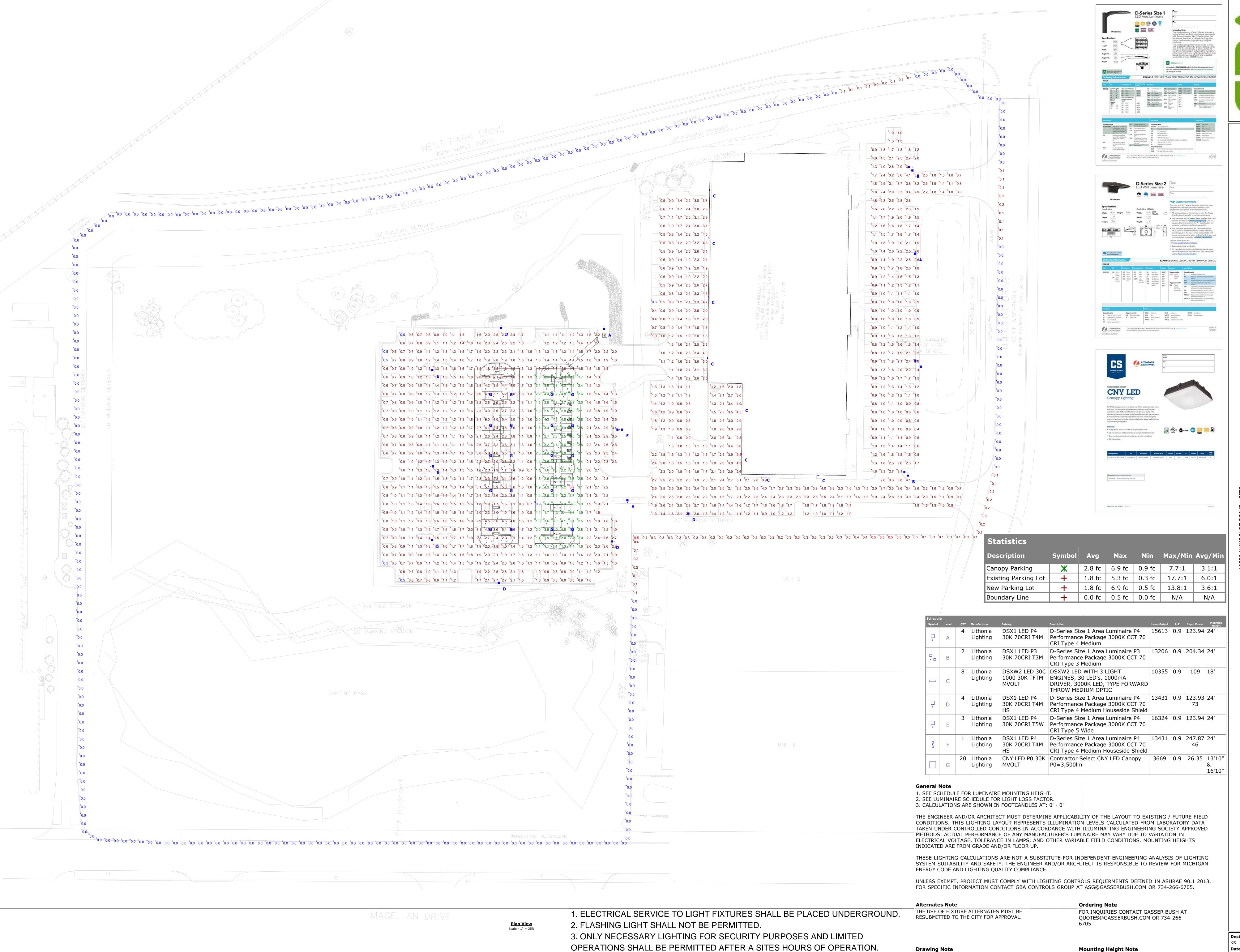
DRAWING TITLE

PEA JOB NO. 2023-1048 P.M. BK CAL DN. DES. JLE

LANDSCAPE

SPECIFICATIONS

DRAWING NUMBER:



4. HOURS OF OPERATION ARE: 6AM TO 7PM, M-F

#24-33156_V2

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE

HEIGHT.

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC

IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE

VERIFIED IN FIELD BY OTHERS.

Date 11/04/2024 Scale Not to Scale Drawing No.



Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Canopy Parking	Ж	2.8 fc	6.9 fc	0.9 fc	7.7:1	3.1:1
Existing Parking Lot	+	1.8 fc	5.3 fc	0.3 fc	17.7:1	6.0:1
New Parking Lot	+	1.8 fc	6.9 fc	0.5 fc	13.8:1	3.6:1
Boundary Line	+	0.0 fc	0.5 fc	0.0 fc	N/A	N/A

Schedule Symbol	e Label	QTY	Manufacturer	Catalog	Description	Lamp Output	LLF	Input Power	Mounting Height
	А	4	Lithonia Lighting	DSX1 LED P4 30K 70CRI T4M	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 70 CRI Type 4 Medium	15613	0.9	123.94	
• -	В	2	Lithonia Lighting	DSX1 LED P3 30K 70CRI T3M	D-Series Size 1 Area Luminaire P3 Performance Package 3000K CCT 70 CRI Type 3 Medium	13206	0.9	204.34	24'
	С	8	Lithonia Lighting	DSXW2 LED 30C 1000 30K TFTM MVOLT	DSXW2 LED WITH 3 LIGHT ENGINES, 30 LED's, 1000mA DRIVER, 3000K LED, TYPE FORWARD THROW MEDIUM OPTIC	10355	0.9	109	18'
	D	4	Lithonia Lighting	DSX1 LED P4 30K 70CRI T4M HS	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 70 CRI Type 4 Medium Houseside Shield	13431	0.9	123.93 73	24'
	Е	3	Lithonia Lighting	DSX1 LED P4 30K 70CRI T5W	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 70 CRI Type 5 Wide	16324	0.9	123.94	24'
	F	1	Lithonia Lighting	DSX1 LED P4 30K 70CRI T4M HS	D-Series Size 1 Area Luminaire P4 Performance Package 3000K CCT 70 CRI Type 4 Medium Houseside Shield	13431	0.9	247.87 46	24'
	G	20	Lithonia Lighting	CNY LED P0 30K MVOLT	Contractor Select CNY LED Canopy P0=3,500lm	3669	0.9	26.35	13'10" & 16'10"

General Note

- SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
 SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
- 3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

Alternates Note

THE USE OF FIXTURE ALTERNATES MUST BE RESUBMITTED TO THE CITY FOR APPROVAL.

Ordering Note FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

Mounting Height Note

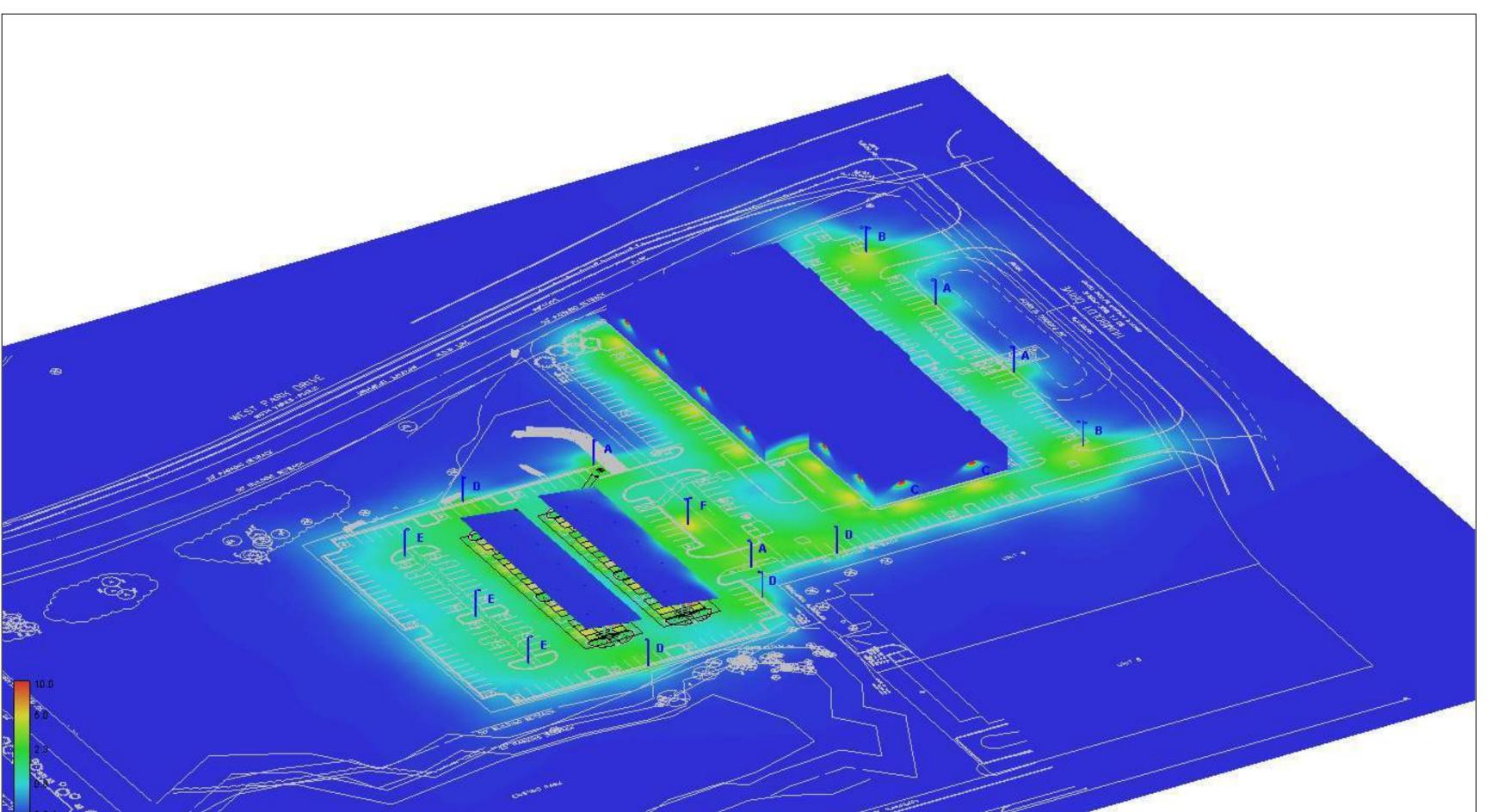
MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

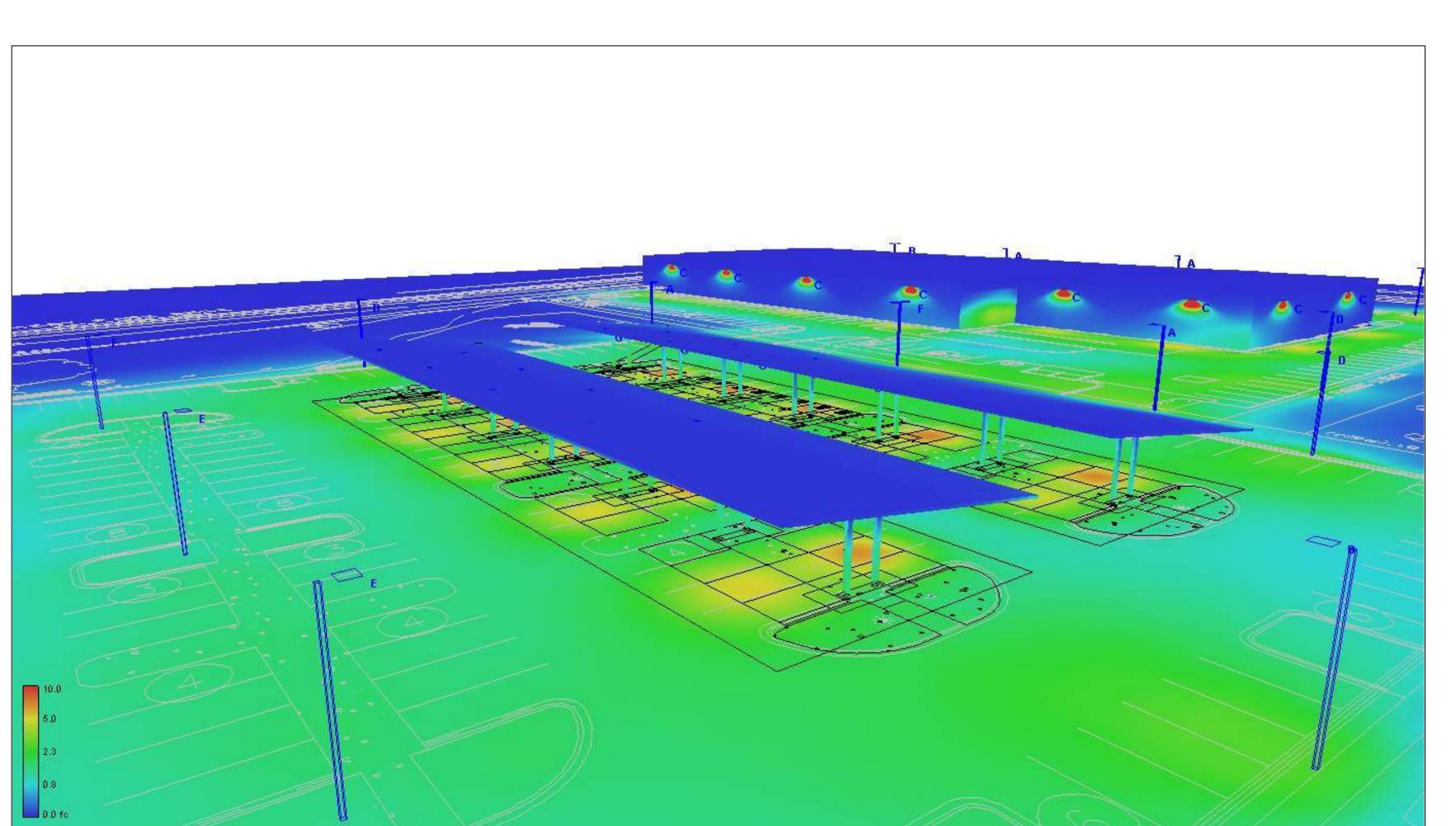
11/04/2024

Drawing No. #24-33156_V2

Scale Not to Scale

View #1





View #3

GENERAL NOTES

- 1. "STRUCTURAL ENGINEER" IN THESE NOTES REFERS TO TYLK GUSTAFSON RECKERS WILSON ANDREWS, LLC, THE STRUCTURAL ENGINEER OF RECORD.
- 2. "SPECIALTY ENGINEER" IN THESE NOTES REFERS TO AN ENGINEER LICENSED OR REGISTERED TO PRACTICE STRUCTURAL ENGINEERING IN THE STATE IN WHICH THE PROJECT IS LOCATED.
- 3. STRUCTURAL DRAWINGS ARE TO BE COORDINATED AND USED IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS. SEE MECHANICAL

DRAWINGS FOR EQUIPMENT PADS, BASES, SUPPORTS, AND DUCT PENETRATIONS.

- 4. TYLK GUSTAFSON RECKERS WILSON ANDREWS, LLC. SHALL NOT BE RESPONSIBLE FOR, NOR HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES FOR THE SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS PROJECT, AND SHALL NOT BE RESPONSIBLE FOR CONTRACTOR'S FAILURE TO CARRY OUT HIS WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 5. TYLK GUSTAFSON RECKERS WILSON ANDREWS, LLC. SHALL NOT BE RESPONSIBLE FOR, NOR HAVE CONTROL OVER, THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, ANY OF THEIR AGENTS, OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- . THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR ALL TEMPORARY SHORING AND BRACING REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT. ALL SHORING AND BRACING MEMBERS AND CONNECTIONS SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT THE IMPOSED LOADS. TEMPORARY MEMBERS AND CONNECTIONS SHALL NOT BE REMOVED UNTIL PERMANENT MEMBERS ARE IN PLACE AND FINAL CONNECTIONS ARE MADE.
- CONTRACTOR SHALL VERIFY IN FIELD ALL DIMENSIONS, ELEVATIONS AND MEMBER SIZES AS SHOWN ON THE CONTRACT DRAWINGS FOR THE EXISTING CONSTRUCTION, PRIOR TO THE DETAILING OR FABRICATION OF ANY NEW STRUCTURAL ELEMENT. CONTRACTOR SHALL DOCUMENT ANY CONSTRUCTION-RELATED DISCREPANCIES. CONTRACTOR SHALL FURNISH THE ABOVE INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE STRUCTURAL ENGINEER FOR REVIEW (28) CALENDAR DAYS PRIOR TO THE SCHEDULED START OF ANY DETAILING OR
- 8. THE CONTRACTOR SHALL PROVIDE ALL MEASURES AND PRECAUTIONS NECESSARY TO PREVENT DAMAGE AND SETTLEMENT OF EXISTING OR NEW CONSTRUCTION INSIDE OR OUTSIDE THE PROJECT LIMITS DURING EXCAVATION AND FOUNDATION CONSTRUCTION. ANY DAMAGE TO NEW OR EXISTING CONSTRUCTION INSIDE OR OUTSIDE OF THE PROJECT LIMITS, CAUSED BY CONSTRUCTION TECHNIQUES IS THE RESPONSIBILITY OF THE CONTRACTOR.
- 9. NO FIELD MODIFICATIONS TO ANY STRUCTURAL COMPONENTS SHALL BE MADE WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER. THIS INCLUDES, BUT IS NOT LIMITED TO REVISIONS DUE TO MISLOCATION, MISFIT, OR ANY OTHER CONSTRUCTION ERRORS.
- 10. NO OPENING SHALL BE PLACED IN ANY STRUCTURAL MEMBER (OTHER THAN AS INDICATED ON APPROVED SHOP DRAWINGS) UNTIL THE LOCATION HAS BEEN APPROVED BY THE STRUCTURAL
- 11. PROVIDE SLEEVE LAYOUTS FOR ALL PENETRATIONS THROUGH STRUCTURAL MEMBERS (ALL TRADES ARE INCLUDED). LAYOUTS ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
- 12. SUPPORT ALL ROOF MOUNTED EQUIPMENT OR EQUIPMENT SUSPENDED FROM FLOORS OR THE ROOF ONLY ON/FROM BEAMS DESIGNATED FOR SUCH PURPOSE. IF NO SUPPORT HAS BEEN DESIGNATED, OR IF A QUESTION ARISES, NOTIFY STRUCTURAL ENGINEER PRIOR TO ERECTION OF
- 13. ALL DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS ELSEWHERE, UNLESS OTHERWISE NOTED. FOR DETAILS AND DIMENSIONS NOT INDICATED ON THE STRUCTURAL DRAWINGS, SEE THE ARCHITECTURAL DRAWINGS.
- 14. MATERIALS AND EQUIPMENT SHALL BE STORED AND TRANSPORTED IN A MANNER SO AS NOT TO EXCEED THE ALLOWABLE FLOOR OR ROOF LOADING INDICATED IN THE "SCHEDULE OF BUILDING DESIGN LOADS" ON THE CONSTRUCTION DOCUMENTS OR THE ALLOWABLE CAPACITY OF THE CONSTRUCTED MEMBER, WHICHEVER IS SMALLER.
- 15. ALL MEMBERS SHOWN ON FRAMING PLANS BETWEEN COLUMN LINES/GRID LINES SHALL BE EQUALLY SPACED, UNLESS NOTED OTHERWISE.

- 1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW AND
- ALL SHOP DRAWING SUBMITTALS SHALL BE AS DESCRIBED IN THE PROJECT SPECIFICATIONS OR IN THESE NOTES IF THERE IS NO PROJECT SPECIFICATION.
- 3. SHOP DRAWINGS AND RELATED MATERIALS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE ARCHITECT/STRUCTURAL ENGINEER. THE GENERAL CONTRACTOR SHALL REVIEW ALL SUBMISSIONS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, MEANS, METHODS. TECHNIQUES, SEQUENCES, AND OPERATION OF CONSTRUCTION, TECHNICAL CONTENT, COORDINATION OF TRADES, DIMENSIONAL ACCURACY, SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL APPROVE AND SO STAMP EACH SUBMISSION BEFORE SUBMITTING TO THE ARCHITECT/STRUCTURAL ENGINEER.
- 4. THE STRUCTURAL DRAWINGS SHALL NOT BE USED AS THE BACKGROUNDS FOR THE PRODUCTION OF ANY SHOP DRAWINGS THAT ARE SUBMITTED FOR REVIEW.
- 5. ANY DEVIATIONS FROM THE STRUCTURAL DRAWINGS OR SPECIFICATIONS SHALL BE NOTED AND BUBBLED ON THE SHOP DRAWINGS THAT ARE SUBMITTED FOR APPROVAL
- 6. FOR SHOP DRAWINGS TO BE RESUBMITTED TO THE STRUCTURAL ENGINEER FOR A SUBSEQUENT REVIEW, ALL CHANGES SHALL BE NOTED AND BUBBLED.
- 7. THE GENERAL CONTRACTO SHALL SUBMIT TO THE STRUCTURAL ENGINEER, OWNER, AND SS, LLC THE BELOW INDICATED VERIFICATION SUBMITTALS FOR REVIEW AND APPROVAL:
- A. AS-BUILT SURVEY DRAWING OF THE CONSTRUCTED CONCRETE PIERS INDICATING THE
- FOLLOWING: a. DIMENSIONED LOCATION IN PLAN OF ALL PIERS INCLUDING ANY ADJUSTMENTS MADE TO
- THEM RELATIVE TO THE FOUNDATION PLAN. b. ELEVATION OF THE TOP OF EACH PIER AND THE SURFACE GRADE ADJACENT TO THE PIER. c. CONFIRMATION OF ACCOURATE PLACEMENT OF THE COLUMN BASE ANCHOR RODS
- INCLUDING ANY ANCHOR RODS THAT ARE PLACED OUT OF TOLERANCE.
- B. STRUTURAL STEEL CANOPY STRUCTURES ARE BASED ON THE USE OF THE **VSUN550W SOLAR** PANEL MODULE MANUFACTURED BY VSUN. THE GENERAL CONTRACTOR SHALL SUBMIT WRITTEN VERIFICATION OF THE USE OF THIS MODULE SYSTEM.

STRUCTURAL SYSTEM

- 1. THE GRAVITY LOADS RESISTING SYSTEM CONSISTS OF STEEL PURLINS, STEEL BEAMS, AND STEEL COLUMNS ON CONCRETE FOOTINGS.
- 2. THE LATERAL LOAD RESISTING SYSTEM CONSISTS OF STEEL ORDINARY CANTILEVER COLUMNS ON CONCRETE FOOTINGS.

FOUNDATIONS

- 1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT PERFORMED BY XXX DATED XXX, 2022. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS SPECIFIED IN THIS REPORT.
- 2. FOUNDATION STRUCTURE IS BASED ON THE USE OF CONTINUOUS STRIP FOOTINGS AND/OR SPREAD FOOTINGS APPLYING A MAXIMUM PRESSURE OF 1,500 POUNDS PER SQUARE FOOT TO THE SOIL.
- 3. ALL ENGINEERED FILL IS TO BE COMPACTED TO ACHIEVE THIS BEARING PRESSURE AS VERIFIED BY FIELD TESTING BY THE OWNER'S TESTING AGENCY. IF FIELD CONDITIONS DO NOT PROVIDE THIS MINIMUM VALUE, THE STRUCTURAL ENGINEER AND ARCHITECT
- 4. PER THE ABOVE REFERENCED REPORT, THE LATERAL EARTH PRESSURE IS AS
- A. PASSIVE EARTH PRESSURE XXX PSF/FOOT

SHOULD BE NOTIFIED IMMEDIATELY.

- SHOULD UNSUITABLE BEARING CONDITIONS BE ENCOUNTERED DURING EXCAVATION, NOTIFY THE OWNER, STRUCTURAL ENGINEER AND SS, LLC BEFORE CONTINUING WITH
- 6. THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS
- THE CONTRACTOR MUST PROVIDE SURFACE DRAINAGE AND PUMPS TO PROTECT ALL EXCAVATION FROM FLOODING. FLOODING OF ANY EXCAVATION AFTER APPROVAL OF THE SUBGRADE WILL BE CAUSE FOR CONCRETE RE-PREPARATION AND RE-APPROVAL OF THE
- 8. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY WATER, FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND THE PERMANENT BUILDING STRUCTURE.
- 9. THE CONTRACTOR'S PROCEDURES AND SEQUENCING FOR FOUNDATION INSTALLATION SHALL PREVENT SETTLEMENT OF ADJACENT CONSTRUCTION. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ALL REMEDIAL WORK RESULTING FROM SUCH SETTLEMENT.
- 10. RECORDS OF ANY EXISTING SUBGRADE INTERFERENCES OTHER THAN THOSE INTERFERENCES SHOWN OR INDICATED ON THE CONSTRUCTION DOCUMENTS, ARE NOT CURRENTLY AVAILABLE. DURING EXCAVATION WORK, INTERFERENCES MAY BE DISCOVERED. CONTRACTOR SHALL DOCUMENT CONSTRUCTION - RELATED DIMENSIONS OF ALL INTERFERENCES. CONTRACTOR TO FURNISH THE ABOVE INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE OWNER, STRUCTURAL ENGINEER AND SS, LLC FOR
- 11. REFER TO THE TESTING AND INSPECTION SECTION OF THESE NOTES FOR THE FOUNDATION TESTING AND INSPECTION REQUIREMENTS.

STRUCTURAL CONCRETE

- 1. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS:
- A. ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" B. ACI 302 - "RECOMMENDED PRACTICE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION"
- C. ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING
- D. ACI 311 "ACI MANUAL OF CONCRETE INSPECTION"
- E. ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" F. ACI 318 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
- G. ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK"
- 2. PROVIDE CONCRETE TO OBTAIN A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, fc = 4,000 PSI 3. LABORATORY TEST REPORTS OR MATERIAL CERTIFICATES FOR CONCRETE MATERIALS AND MIX DESIGN TEST DATA, IN CONFORMANCE WITH ACI STANDARDS, SHALL BE SUBMITTED FOR REVIEW

FOR EACH TYPE OF CONCRETE TO BE USED. EACH SUBMITTED MIX DESIGN SHALL IDENTIFY THE

- APPLICATION FOR WHICH THE MIX WILL BE USED. 4. ALL CONCRETE SHALL BE NORMAL WEIGHT UNLESS NOTED OTHERWISE.
- 5. ALL CONCRETE ELEMENTS SUBJECT TO FREEZING AND THAWING DURING CONSTRUCTION OR OVER THE SERVICE LIFE OF THE STRUCTURE SHALL CONTAIN AN AIR ENTRAINMENT ADMIXTURE
- AS SPECIFIED IN ACI-318, LATEST EDITION.

6. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

- THE CONTRACTOR SHALL SUBMIT CHECKED, DETAILED REINFORCEMENT SHOP DRAWINGS SHOWING THE LOCATIONS AND DETAILING OF ALL FOFOUNDATIONS, CONSTRUCTION JOINTS, CONTROL JOINTS, ETC. PRIOR TO FABRICATION. DETAILS SHALL INCLUDE STEEL SIZES, LAPS, SPACING AND PLACEMENT.
- AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY

 8. PROVIDE ADEQUATE BOLSTERS, HI-CHAIRS, SUPPORT BARS, ETC., TO MAINTAIN SPECIFIED CLEARANCES FOR THE ENTIRE LENGTH OF ALL REINFORCING BARS. PROVIDE CONTINUOUS #4 SPACER BARS IN WALLS AND SLABS TO SUPPORT DOWELS.
 - 9. PROVIDE PLASTIC TIPPED ACCESSORIES FOR REINFORCEMENT AT ALL FACES OF EXPOSED CONCRETE, INTERIOR OR EXTERIOR.
 - 10. ALL FIELD BENDING OF REINFORCEMENT SHALL BE DONE COLD. HEATING OF BARS WILL NOT BE PERMITTED.
 - 11. IF STRUCTURAL CONCRETE MEMBERS (STRUCTURED SLABS, BEAMS AND GIRDERS) ARE NOT CONSTRUCTED IN ONE CONTINUOUS POUR THE VERTICAL CONSTRUCTION JOINT BETWEEN POURS SHALL BE PLACED WITHIN THE MIDDLE FIFTH OF THE MEMBER SPAN AND CONTINUOUSLY KEYED. THE MEMBER SHALL BE SHORED UNTIL THE CONCRETE HAS ATTAINED THE MINIMUM 28-DAY STRENGTH. SEE TYPICAL CONSTRUCTION JOINT DETAILS. ALTERNATE CONSTRUCTION JOINT LOCATIONS MUST BE REVIEWED BY THE STRUCTURAL ENGINEER. NO HORIZONTAL CONSTRUCTION JOINTS WILL BE PERMITTED IN SLABS AND BEAMS UNLESS SPECIFICALLY SHOWN
 - 12. NO ALUMINUM OF ANY TYPE SHALL BE ALLOWED IN THE CONCRETE WORK, UNLESS COATED TO PREVENT ALUMINUM CONCRETE REACTION.
 - 13. UNLESS OTHERWISE NOTED ON THE DRAWINGS, SLEEVES FOR PIPES AND CONDUITS PENETRATING GRADE BEAMS AND CONCRETE WALLS SHALL BE STEEL PIPE SLEEVES OF NOMINAL DIAMETER 2 INCHES LARGER THAN THE NOMINAL SIZE OF THE PIPE PENETRATING THE STRUCTURAL MEMBER. THE THICKNESS OF THE SLEEVE SHALL CONFORM TO SCHEDULE 40 BUT NEED NOT BE MORE THAN 3/8 INCH. ALL SUCH SLEEVE LOCATIONS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER AND ARCHITECT PRIOR TO INSTALLATION.
 - 14. ALL REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL, CONFORMING TO ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE.
 - 15. ALL BAR DETAILING AND ACCESSORIES TO BE FURNISHED SHALL CONFORM TO TYPICAL DETAILS IN THE ACI STANDARD 315 DETAILING MANUAL LATEST EDITION, EXCEPT AS OTHERWISE SHOWN, NOTED, OR SPECIFIED.
 - 16. DETAILING AND ACCESSORIES SHALL CONFORM TO THE ACI DETAILING MANUAL AND TO THE CRSI MANUAL OF STANDARD PRACTICE. LATEST EDITIONS, UNLESS OTHERWISE NOTED BELOW, ON THE DRAWINGS, OR IN THE SPECIFICATIONS.
 - 17. ALL HOOKS SHALL BE "STANDARD" HOOKS AS PER ACI 318, UNLESS NOTED OTHERWISE.
 - 18. THE MINIMUM LENGTH OF ALL LAP SPLICES NOT DIMENSIONED ON THE DRAWINGS SHALL BE AS FOLLOWS:

BAR fo		f'c SLAB/BEAM		W	ALL	COLUMN	
SIZE	10	TOP	OTHER	VERT	HORIZ	VERTICAL	
	4000	25"	19"	19"	25"		
#3	5000	22"	17"	17"	22"	-	
	6000	20"	16"	16"	20"		
	4000	33"	25"	25"	33"		
#4	5000	29"	23"	23"	29"	-	
	6000	27"	21"	21"	27"	1	
	4000	41"	31"	31"	41"		
#5	5000	36"	28"	28"	36"	19"	
	6000	33"	26"	26"	33"		
	4000	49"	37"	37"	49"		
#6	5000	44"	34"	34"	44"	23"	
	6000	40"	31"	31"	40"		
	4000	71"	54"	54"	71"		
#7	5000	63"	49"	49"	63"	27"	
	6000	58"	45"	45"	58"		
	4000	81"	62"	62"	81"		
#8	5000	72"	56"	56"	72"	30"	
	6000	66"	51"	51"	66"		
	4000	91"	70"	70"	91"		
#9	5000	81"	63"	63"	81"	34"	
	6000	74"	57"	57"	74"		
	4000	102"	79"	79"	102"		
#10	5000	92"	71"	71"	92"	39"	
	6000	84"	64"	64"	84"		
	4000	114"	87"	87"	114"		
#11	5000	102"	78"	78"	102"	43"	
	0000	0011	7411	7411	0011	I	

- 6000 93" 71" 71" 93" A. THE ABOVE TABLE IS BASED ON THE CLEAR SPACING OF BARS BEING NOT LESS THAN 2x THE MAXIMUM BAR DIAMETER AND THE CLEAR COVER OF BARS BEING NOT LESS THAN ONE BAR
- DIAMETER. MULTIPLY THE LENGTH BY 1.5 FOR ALL OTHER CASES. B. TOP BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE SPLICE.
- C. FOR EPOXY COATED BARS, MULTIPLY THE LENGTHS SHOWN IN THE TABLE ABOVE BY 1.5. D. LENGTHS ARE BASED ON NORMAL WEIGHT CONCRETE. FOR LIGHTWEIGHT CONCRETE,
- MULTIPLY THE LENGTHS SHOWN IN THE TABLE ABOVE BY 1.3. E. WHERE BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTH SHALL BE THAT REQUIRED
- FOR THE LARGER BAR. F. LENGTHS SHALL BE SPECIFICALLY DIMENSIONED AT ALL LOCATIONS ON THE SHOP DRAWINGS. G. FOR CONCRETE STRENGTH BETWEEN LISTED VALUES, USE LENGTH OF THE NEXT LOWER
- CONCRETE STRENGTH LISTED VALUE. H. FOR CONCRETE STRENGTHS EXCEEDING 6000 PSI, USE THE LENGTH FOR 6000 PSI CONCRETE
- THE ABOVE TABLE UTILIZES "CLASS B" SPLICES. 20. MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICES. MECHANICAL COUPLERS MUST BE CAPABLE OF SUSTAINING 125% OF THE BAR CAPACITY.
- 21. REFER TO THE <u>TESTING AND INSPECTION</u> SECTION OF THESE NOTES FOR THE CONCRETE

POST-INSTALLED ANCHORS

- 1. WHERE EPOXY SYSTEM IS INDICATED ON THE PLANS OR DETAILS, USE HILTI HY-200 ADHESIVE IN CONCRETE AND SOLID GROUTED MASONRY UNLESS NOTED OTHERWISE. THE CONTRACTOR MAY SUBMIT SUBSTITUTE EPOXY SYSTEMS FOR APPROVAL PROVIDED THEY MEET OR EXCEED THE CAPACITY OF HILTI HY-200 ADHESIVE.
- 2. DRILL HOLES TO EPOXY MANUFACTURER'S RECOMMENDED SIZE. CLEAN HOLES WITH A CIRCULAR WIRE OR NYLON BRUSH AND BLOW OUT WITH COMPRESSED AIR.
- 3. WHERE MECHANICAL EXPANSION ANCHORS ARE INDICATED ON THE PLANS OR DETAILS, USE HILTI KWIK BOLT 3 ANCHORS IN CONCRETE UNLESS NOTED OTHERWISE. THE CONTRACTOR MAY SUBMIT SUBSTITUTE EXPANSION ANCHOR SYSTEMS FOR APPROVAL PROVIDED THEY MEET OR EXCEED THE CAPACITY OF HILTI KWIK BOLT 3 ANCHORS.
- 4. POST-INSTALLED ANCHORS MUST BE INSTALLED USING THE SPACING AND EDGE DISTANCES GIVEN ON THE PLANS OR DETAILS. IF FIELD CONDITIONS DICTATE THAT THE ANCHOR SPACING OR EDGE DISTANCES BE MODIFIED, THE CONTRACTOR SHALL SUBMIT A FIELD SKETCH TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO MAKING ANY
- 5. REFER TO THE <u>TESTING AND INSPECTION</u> SECTION OF THESE NOTES FOR THE POST-INSTALLED ANCHORS TESTING AND INSPECTION REQUIREMENTS.

STRUCTURAL STEEL

- 1. FURNISH STRUCTURAL STEEL IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND AISC CODE OF STANDARD PRACTICE, LATEST EDITIONS.
- 2. STRUCTURAL STEEL MATERIAL SHALL BE AS INDICATED BELOW UNO:

STRUCTURAL SHAPES	SPECIFICATION
WIDE FLANGES	ASTM A992
CHANNELS	ASTM A36
ANGLES	ASTM A36
SQUARE & RECTANGULAR HSS	ASTM A500, GRADE C
PLATES	ASTM A36
THREADED RODS	ASTM A36
ANCHOR BOLT ASSEMBLIES	ASTM F1554 GRADE 36

3. ALL STRUCTURAL STEEL FRAMEWORK INCLUDED IN THESE DOCUMENTS ARE CLASSIFIED AS NON-SELF-SUPPORTING. ALL CONNECTIONS SPECIFIED HEREIN ARE BASED ON LOADING CONDITIONS OF THE FULLY COMPLETED STRUCTURE IN ITS ENTIRETY INCLUDING THE FUNCTIONS OF THE COLUMN BASE PLATES AND ANCHOR BOLTS. INSTABILITIES CAN BE EXPECTED DURING THE ERECTION PROCESS DUE TO LACK OF INSTALLED ROOF, FLOOR, WALL AND SLAB DIAPHRAGMS AS WELL AS STEEL BRACING, CONNECTION RIGIDITIES AND OTHER SUCH STABILIZING ELEMENTS. THE GENERAL CONTRACTOR SHALL IDENTIFY THE SEQUENCE AND SCHEDULING OF CONSTRUCTION ITEMS AND COORDINATE THE ACTIVITIES OF ALL TRADES INCLUDING THE STEEL FABRICATOR AND ERECTOR. THE ERECTOR SHALL SUBMIT AN ERECTION PLAN AND A TEMPORARY BRACING SCHEME TO THE CONTRACTOR AND OWNER WHICH IS FOR RECORD PURPOSES ONLY. THIS SUBMITTAL WILL NOT BE REVIEWED AND IS NOT A DESIGN FUNCTION OF THE STRUCTURAL ENGINEER.

HIGH STRENGTH BOLTS......ASTM A325 OR SAE GRADE 5, AS NOTED

- 4. THE FABRICATOR/ERECTOR SHALL SUBMIT TO THE STRUCTURAL ENGINEER AND ARCHITECT FOR REVIEW, ENGINEERED AND CHECKED DRAWINGS SHOWING FABRICATION DETAILS, FIELD ASSEMBLY DETAILS AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL ELEMENTS.
- 5. ALL BEAMS AND JOISTS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP. PROVIDE FABRICATED CAMBERS AS INDICATED ON THE DRAWINGS.
- 6. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE, AND OTHER FOREIGN MATERIALS.
- 7. WELDING SHALL BE PERFORMED WITH E70XX LOW HYDROGEN ELECTRODES. ALL WELDING SHALL BE PERFORMED BY CERTIFIED/QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS D1.1, "STRUCTURAL WELDING CODE - STEEL," LATEST EDITION.
- 8. MINIMUM FILLET WELD SIZE SHALL COMPLY WITH THE AISC SPECIFICATION REQUIREMENTS, BUT SHALL NOT BE LESS THAN 3/16 INCH UNLESS NOTED OTHERWISE
- 9. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF "AISO SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS," LATEST EDITION. ALL BOLT HOLES SHALL BE "SHORT SLOTTED", UNLESS NOTED OTHERWISE
- 10. ALL STEEL BEAM AND GIRDER CONNECTIONS SHALL BE SIMPLE SHEAR CONNECTIONS UTILIZING HIGH STRENGTH BOLTS IN BEARING-TYPE CONNECTIONS WITH THREADS EXCLUDED FROM THE SHEAR PLANE UNLESS NOTED OTHERWISE. BOLTS ARE TO BE TIGHTENED TO THE "SNUG TIGHT" CONDITION UNLESS NOTED AS "SLIP CRITICAL". BOLTS DESIGNATED AS "SLIP CRITICAL" ARE TO BE TIGHTENED PER THE ABOVE MENTIONED
- BOLT SPECIFICATION. 11. BOLTED CONNECTIONS SHALL USE A MINIMUM OF (2) 3/4"Ø BOLTS UNLESS NOTED
- 12. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER OF
- 13. STEEL WORK SHALL SLOPE IN ACCORDANCE WITH ELEVATIONS GIVEN ON STRUCTURAL
- 14. COATING SYSTEM FOR "EXPOSED TO OUTSIDE ATMOSPHERE" STRUCTURAL STEEL A. AFTER THE STRUCTURAL STEEL COMPONENTS ARE FABRICATED, THEY SHALL BE HOT
- DIPPED GALVANIZED IN ACCORDANCE WITH ASTM 123, UNLESS NOTED OTHERWISE. 15. REFER TO THE <u>TESTING AND INSPECTION</u> SECTION OF THESE NOTES FOR THE STRUCTURAL STEEL TESTING AND INSPECTION REQUIREMENTS.

COLD FORMED STEEL FRAMING (TGRWA DESIGN)

- 1. FURNISH COLD FORMED STEEL FRAMING IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE, "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS," LATEST EDITION.
- 2. COLD FORMED STEEL FRAMING EXAMPLE MEMBER DESIGNATION IS AS SUCH:
- A. 600S200-54: 1. 600 = 6" WEB DEPTH 2. S = STUD SECTION
 - 3. 200 = 2" FLANGE WIDTH 4. 54 = 54 MILS = 16 GAUGE
- 3. ALL FRAMING SHALL BE FORMED FROM SHEET STEEL CORRESPONDING TO THE REQUIREMENTS OF ASTM A1003, STRUCTURAL GRADE, TYPE H WITH MINIMUM G90 ZINC
- 4. ALL FRAMING SHALL BE MINIMUM 54 MILS, UNLESS NOTED OTHERWISE.
- 5. ALL STUD SECTIONS SHALL BE PUNCHED WITH STANDARD HOLES WITH STIFFENED FLANGES. ALL TRACK SECTIONS SHALL BE UNPUNCHED WITH UNSTIFFENED FLANGES.

COATING AND MINIMUM YIELD STRENGTH OF 50 KSI, UNLESS NOTED OTHERWISE.

- 6. FASTENING OF COMPONENTS SHALL BE WITH SELF DRILLING SCREWS OR WELDING. SCREWS AND WELDING SHALL BE SUFFICIENT SIZE TO ENSURE THE STRENGTH OF THE CONNECTION. WIRE TYING OF COMPONENTS SHALL NOT BE PERMITTED. ALL WELDS SHALL BE TOUCHED-UP WITH A ZINC RICH PAINT MEETING ASTM A780.
- 7. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS D1.3, "STRUCTURAL WELDING CODE - SHEET STEEL," LATEST EDITION.
- 8. CONNECTIONS OF ALL COLD FORMED STEEL FRAMING TO COLD FORMED STEEL FRAMING SHALL BE WITH MINIMUM OF (2) #10 SELF TAPPING SHEET METAL SCREWS WITH LOW PROFILE HEAD, UNLESS NOTED OTHERWISE.
- 9. CONNECTIONS OF ALL COLD FORMED STEEL FRAMING TO STRUCTURAL STEEL FRAMING SHALL BE WITH MINIMUM OF (2) 0.145"Ø POWDER-ACTUATED FASTENING PINS, UNLESS NOTED OTHERWISE.
- 10. CONTRACTOR SHALL SUBMIT COLD FORMED STEEL FRAMING SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO COMMENCING CONSTRUCTION. SHOP DRAWINGS SHALL SHOW LAYOUT, SPACING, SIZES, THICKNESS, AND TYPES OF COLD FORMED STEEL FRAMING, FASTENING AND ANCHORAGE DETAILS, REINFORCING CHANNELS, OPENING FRAMING, SUPPLEMENTAL FRAMING, STRAPPING, BRACING, BRIDGING, SPLICES, AND ACCESSORIES. PROVIDE ADDITIONAL INFORMATION WITH SHOP DRAWING SUBMITTAL AS INDICATED IN PROJECT SPECIFICATIONS.
- 11. REFER TO THE TESTING AND INSPECTION SECTION OF THESE NOTES FOR THE COLD FORMED STEEL FRAMING TESTING AND INSPECTION REQUIREMENTS.

STRUCTURAL LOADING CRITERIA

- 1. STRUCTURAL BUILDING CODE 2015 MICHIGAN BUILDING CODE
- 2. ROOF DEAD LOADS: SEE "SCHEDULE OF BUILDING DESIGN LOADS"
- A. SOLAR PANELS = 2.5 PSF B. MISC. WIRING AND CONNECTORS: 1.0 PSF
- C. STRUCTURAL = WELF WEIGHT OF STRUCTURAL MEMBERS INDICATED 3. ROOF LIVE LOADS: SOLAR PANELS NOT DESIGNED FOR OCCUPANCY
- A. BASIC WIND SPEED (3 SECOND GUST) V = 115 MPH (ULTIMATE)
- B. RISK CATEGORY = II
- C. IMPORTANCE FACTOR I = 1.00 D. EXPOSURE CATEGORY = B
- E. WIND LOADS ON OPEN BUILDING WITH MONOSLOPE ROOF: 1. VERTICAL FACES OF STRUCTURAL MEMBERS (ALL DIRECTIONS) = 32.6 PSF
- 2. WIND PARALLEL TO ROOF SLOPE A. VERTICAL DOWN FORCE AT WINDWARD HALF OF ROOF, CASE A = 23.7 PSF
- B. VERTICAL DOWN FORCE AT LEEWARD HALF OF ROOF, CASE A = 8.3 PSF
- C. VERTICAL UPLIFT FORCE AT WINDWARD HALF OF ROOF, CASE B = 24.6 PSF D. VERTICAL UPLIFT FORCE AT LEEWARD HALF OF ROOF, CASE B = 7.4 PSF 3. WIND PERPENDICULAR TO ROOF SLOPE
- a. VERTICAL UPLIFT/DOWN FORCE AT WINDWARD EDGE = 16.0 PSF b. VERTICAL UPLIFT/DOWN FORCE AWAY FROM WINDWARD EDGE = 12.6 PSF c. VERTICAL UPLIFT/DOWN FORCE AT LEEWARD EDGE = 7.4 PSF

F. COMPONENTS TRANSFERRING WIND LOAD TO PRIMARY STRUCTURAL SYSTEM = SEE

- REFERENCED CODE ABOVE.
- SNOW LOADS:
- A. GROUND SNOW LOAD Pg = 25 PSF B. IMPORTANCE FACTOR = 1.0 C. THERMAL FACTOR, Ct = 1.2

D. EXPOSURE FACTOR = 0.9

- E. FLAT ROOF SNOW LOAD Pf = 20 PSF SEISMIC LOADS:
- A. SHORT PERIOD MAPPED SPECTRAL ACCELERATION Ss = 0.088
- B. 1-SECOND PERIOD MAPPED SPECTRAL ACCELERATION S1 = 0.046 C. SITE CLASS = D (ASSUMED)
- D. RISK CATEGORY = II E. IMPORTANCE FACTOR I = 1.00
- SHORT PERIOD SITE COEFFICIENT Fa = 1.6 G. 1-SECOND PERIOD SITE COEFFICIENT Fv = 2.4 H. SHORT PERIOD DESIGN SPECTRAL RESPONSE ACCELERATION SDS = 0.094
- I. 1-SECOND PERIOD DESIGN SPECTRAL RESPONSE ACCELERATION SD1 = 0.074 SEISMIC DESIGN CATEGORY = A
- K. BASIC SEISMIC FORCE RESISTING SYSTEM = STEEL ORDINARY CANTILEVER COLUMN SYSTEMS L. RESPONSE MODIFICATION COEFFICIENT R = 1.25

M. SEISMIC RESPONSE COEFFICIENT, Cs = 0.01

REVISION SCHEDULE ISSUE FOR

> SEO 07/29/16 SCALE NTS

SPECIAL INSPECTIONS AND TESTS (2015 MICHIGAN STATE BUILDING CODE)

- 1. THE OWNER OR THE OWNER'S AUTHORIZED AGENT, OTHER THAN THE CONTRACTOR, SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PROVIDE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION ON THE TYPES OF WORK SPECIFIED BELOW AND IDENTIFY THE APPROVED AGENCIES TO THE BUILDING OFFICIAL.
- 2. THE APPROVED AGENCIES SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THE COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION.
- 3. THE CONSTRUCTION OR WORK FOR WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS OR TESTS.
- 4. APPROVED AGENCIES SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSTRUCTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.
- 5. REFER TO 2015 MICHIGAN STATE BUILDING CODE FOR DEFINITION OF TERMS.

SOILS CONSTRUCTION (IBC 1705.6)

1. VERIFY SUBGRADE IS ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY	☐ CONTINUOUS	☑ PERIODIC	PRIOR TO PLACEMENT OF CONCRETE.
2. VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND MATERIAL	☐ CONTINUOUS	☑ PERIODIC	PRIOR TO PLACEMENT OF COMPACTED FILL OR CONCRETE.
3. VERIFY THAT SUBGRADE HAS BEEN APPROPRIATELY PREPARED PRIOR TO PLACING COMPACTED FILL	☐ CONTINUOUS	☑ PERIODIC	PRIOR TO PLACEMENT OF COMPACTED FILL
4. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	☐ CONTINUOUS	▼ PERIODIC	ALL MATERIALS SHALL BE CHECKED AT EACH LIFT FOR PROPER CLASSIFICATIONS AND GRADATIONS NOT LESS THAN ONCE FOR EACH 10,000 FT ² OF SURFACE AREA
5. VERIFY PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION	□ CONTINUOUS	□ PERIODIC	

CONCRETE CONSTRUCTION (IBC 1705.3 AND IBC CHAPTER 19)

1. REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS	□ CONTINUOUS	☑ PERIODIC	VERIFY PRIOR TO PLACING CONCRETE THAT REINFORCING IS OF SPECIFIED TYPE, GRADE AND SIZE; THAT IT IS FREE OF OIL, DIRT AND RUST; THAT IT IS LOCATED AND SPACED PROPERLY; THAT HOOKS, BENDS, TIES, STIRRUPS AND SUPPLEMENTAL REINFORCEMENT ARE PLACED CORRECTLY; THAT LAP LENGTHS, STAGGER AND OFFSETS ARE PROVIDED; AND THAT ALL MECHANICAL CONNECTIONS ARE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND/OR EVALUATION REPORT. (REF. CHAPTER 20 AND SECTIONS 25.2, 25.3, & 26.6.1-26.6.3 OF ACI 318)
2. CAST-IN ANCHORS & EMBEDS	☐ CONTINUOUS	□ PERIODIC	COMPLY WITH SECTIONS 1.9 & 17.8.2 OF ACI 318.
3A. POST-INSTALLED ANCHORS (ADHESIVE)		□ PERIODIC	ALL POST-INSTALLED ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC-ES REPORT, AND SHALL COMPLY WITH SECTIONS 17.8.2, 26.7.2, AND 26.13.3.2&3 OF ACI 318.
3B. POST-INSTALLED ANCHORS (NON-ADHESIVE)	☐ CONTINUOUS	☑ PERIODIC	ALL POST-INSTALLED ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC-ES REPORT, AND SHALL COMPLY WITH SECTIONS 17.8.2, 26.7.2, AND 26.13.3.2&3 OF ACI 318.
4. USE OF REQUIRED MIX DESIGN	☐ CONTINUOUS	☑ PERIODIC	VERIFY THAT ALL MIXES USED COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS AND CHAPTER 19 & SECTIONS 26.4.3&4 OF ACI 318.
5. CONCRETE SAMPLING FOR STRENGTH TESTS, SLUMP, AIR CONTENT, AND TEMPERATURE	☐ CONTINUOUS	☑ PERIODIC	COMPLY WITH SECTIONS 26.4 & 26.12 OF ACI 318.
6. CONCRETE & SHOTCRETE PLACEMENT		☐ PERIODIC	COMPLY WITH SECTION 26.5 OF ACI 318 AND SECTION 1908 OF IBC.
7. CURING TEMPERATURE AND TECHNIQUES	☐ CONTINUOUS	☑ PERIODIC	VERIFY THAT THE AMBIENT TEMPERATURE FOR CONCRETE IS KEPT AT > 50°F FOR AT LEAST 7 DAYS AFTER PLACEMENT. HIGH-EARLY-STRENGTH CONCRETE SHALL BE KEPT AT > 50°F FOR AT LEAST 3 DAYS. ACCELERATED CURING METHODS MAY BE USED. THE AMBIENT TEMPERATURE FOR SHOTCRETE SHALL BE > 40°F FOR THE SAME PERIOD OF TIME AS NOTED FOR CONCRETE. SHOTCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR AT LEAST 24 HOURS AFTER SHOTCRETING. ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS, AND GROUND SHALL BE FREE FROM FROST. IN HOT WEATHER CONDITIONS ENSURE THAT APPROPRIATE MEASURES ARE TAKEN TO AVOID PLASTIC SHRINKAGE CRACKING AND THAT THE SPECIFIED WATER/CEMENT RATIO IS NOT EXCEEDED. (REF SECTIONS 26.5.3 THRU 26.5.5 OF ACI 318)
8. PRE-STRESSED CONCRETE		□ PERIODIC	COMPLY WITH SECTION 26.10.2 OF ACI 318.
9. ERECTION OF PRECAST CONCRETE	☐ CONTINUOUS	☑ PERIODIC	VERIFY THAT ALL PRECAST ELEMENTS ARE LIFTED, ASSEMBLED AND BRACED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
10. STRENGTH VERIFICATION FOR REMOVAL OF SHORES/FORMS AND FOR POST-TENSIONED CONCRETE	☐ CONTINUOUS	☑ PERIODIC	VERIFY THAT ADEQUATE STRENGTH HAS BEEN ACHIEVED PRIOR TO THE REMOVAL OF SHORES AND FORMS OR THE STRESSING OF POST-TENSIONED TENDONS.
11. FORMWORK	☐ CONTINUOUS	☑ PERIODIC	VERIFY THAT THE FORMS ARE PLACED PLUMB AND CONFORM TO THE SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.
12. VERIFICATION OF WELDABILITY OF REINFORCING STEEL	CONTINUOUS	▼ PERIODIC	VERIFY WELDABILITY OF REINFORCING STEEL BASED UPON CARBON EQUIVALENT AND IN ACCORDANCE WITH AWS D1.4 & SECTION 26.6.4.1 OF ACI 318.

STRUCTURAL STEEL (IBC 1705.2.1, 1705.12.1 & 1705.13.1)

PRIOR TO WELDING (TABLE N5.4-1, AISC 360)

THOR TO HELDING (INDEE HOLF I) HOO GOO)			
1. VERIFY WELDING PROCEDURES (WPS) AND CONSUMABLE CERTIFICATES		☐ PERIODIC	
2. MATERIAL IDENTIFICATION	-		VERIFY TYPE AND GRADE OF MATERIAL
3. WELDER IDENTIFICATION	☐ CONTINUOUS	☑ PERIODIC	A SYSTEM SHALL BE MAINTAINED BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED
4. FIT-UP GROOVE WELDS	☐ CONTINUOUS	☑ PERIODIC	VERIFY JOINT PREPARATION, DIMENSIONS, CLEANLINESS, TACKING, AND BACKING.
5. ACCESS HOLES	☐ CONTINUOUS	☑ PERIODIC	VERIFY CONFIGURATION AND FINISH.
6. FIT-UP OF FILLET WELDS	CONTINUOUS	□ PERIODIC	VERIFY ALIGNMENT, GAPS AT ROOT, CLEANLINESS OF STEEL SURFACES, AND TACK

DURING WELDING (TABLE N5.4-2, AISC 360)			
1. USE OF QUALIFIED WELDERS	☐ CONTINUOUS	PERIODI	C VERIFY THAT WELDERS ARE APPROPRIATELY QUALIFIED.
2. CONTROL AND HANDLING OF WELDING CONSUMABLES	☐ CONTINUOUS	PERIODI	C VERIFY PACKAGING AND EXPOSURE CONTROL.
3. CRACKED TACK WELDS	CONTINUOUS	PERIODI	C VERIFY THAT WELDING DOES NOT OCCUR OVER CRACKED TACK WELDS.
4. ENVIRONMENTAL CONDITIONS	☐ CONTINUOUS	PERIODI	C VERIFY WIND SPEED IS WITHIN LIMITS AS WELL AS PRECIPITATION AND TEMPERATUR
5. WPS FOLLOWED	☐ CONTINUOUS	PERIODI	VERIFY ITEMS SUCH AS SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, WELDIN MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED, AND PROPER POSITION.
6. WELDING TECHNIQUES	☐ CONTINUOUS	PERIODI	C VERIFY INTERPASS AND FINAL CLEANING, EACH PASS IS WITHIN PROFILE LIMITATION: AND QUALITY OF EACH PASS.
AFTER WELDING (TABLE N5.4-3, AISC 360)	'		
1. WELDS CLEANED	☐ CONTINUOUS	PERIODI	C VERIFY THAT WELDS HAVE BEEN PROPERLY CLEANED.
2. SIZE, LENGTH, AND LOCATION OF WELDS		PERIODI	С
3. WELDS MEET VISUAL ACCEPTANCE CRITERIA		PERIODI	VERIFY CRACK PROHIBITION, WELD/BASE METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, AND POROSITY ARE ALL ACCEPTABLE
4. ARC STRIKES		□ PERIODI	
5. K-AREA	□ CONTINUOUS	_	
6. BACKING & WELD TABS REMOVED	□ CONTINUOUS	_	
7. REPAIR ACTIVITIES	□ CONTINUOUS	PERIODI	С
8. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT/MEMBER	CONTINUOUS	□ PERIODI	С
NONDESTRUCTIVE TESTING (SECTION N5.5, AISC 360)			
1. CJP WELDS (RISK CAT. II)	☐ CONTINUOUS	B ☑ PERIODI	ULTRASONIC TESTING SHALL BE PERFORMED ON 10% OF CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION C LOADING IN MATERIALS 5/16 INCH THICK OR GREATER. TESTING RATE MUST BE INCREASED IF > 5% OF WELDS TESTED HAVE UNACCEPTABLE DEFECTS PER SECTION 15.5F.
2. CJP WELDS (RISK CAT. III OR IV)	☑ CONTINUOUS	B □ PERIODI	ULTRASONIC TESTING SHALL BE PERFORMED ON ALL CJP GROOVE WELDS IN BUTT, T
3. ACCESS HOLES (FLANGE > 2")	CONTINUOUS	PERIODI	MAGNETIC PARTICLE TESTING OR PENETRANT TESTING SHALL BE PERFORMED. ANY CRACK SHALL BE DEEMED UNACCEPTABLE
4. WELDED JOINTS SUBJECT TO FATIGUE	□ CONTINUOUS	PERIODI	C REFER TO APPENDIX 3, TABLE A-3.1.
PRIOR TO BOLTING (TABLE N5.6-1. AISC 360)			
NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED [PER SECTION N5	<u>'</u>		
1. CERTIFICATIONS OF FASTENERS	CONTINUOUS	PERIODI	
2. FASTENERS MARKED	☐ CONTINUOUS	PERIODI	VERIFY THAT FASTENERS HAVE BEEN MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS.
3. PROPER FASTENERS FOR JOINT	☐ CONTINUOUS	PERIODI	VERIFY GRADE, TYPE, AND BOLT LENGTH IF THREADS ARE EXCLUDED FROM THE SHEAR PLANE.
4. PROPER BOLTING PROCEDURE	☐ CONTINUOUS	B	C VERIFY PROPER PROCEDURE IS USED FOR THE JOINT DETAIL.
5. CONNECTING ELEMENTS	☐ CONTINUOUS	B	VERIFY APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF
6 DDE INISTALLATION MEDICICATION TESTING	CONTINUOUS		ORSERVE AND DOCUMENT VERIFICATION TESTING BY INSTALLATION PERSONNEL FO
6. PRE-INSTALLATION VERIFICATION TESTING		E PERIODI	FASTENER ASSEMBLIES AND METHODS USED. COMPONENTS. VERIFY PROPER STORAGE OF BOLTS, NUTS, WASHERS, AND OTHER FASTENER
7. PROPER STORAGE DURING BOLTING (TABLE N5.6-2, AISC 360) NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED [PER SECTION NOT REQUIRED FOR PRETENSIONED JOINTS USING TURN-OF-THE-NUT METHOOR TWIST-OFF TYPE TENSION CONTROL METHOD [PER SECTION N5.6(2) OF A	DD WITH MATCH-MAF		COMPONENTS. TENSION-INDICATORS,
1. FASTENER ASSEMBLIES	☐ CONTINUOUS	PERIODI	VERIFY THAT FASTENER ASSEMBLIES ARE OF SUITABLE CONDITION, PLACED IN ALL HOLES, AND WASHERS ARE POSITIONED AS REQUIRED.
2. SNUG-TIGHT PRIOR TO PRETENSIONING	☐ CONTINUOUS	B	VERIFY THAT JOINTS ARE BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO
			VEDICY THAT EACTENED COMPONENT IS NOT THRIFT BY WIDENCH DREVENTED EDGE
3. FASTENER COMPONENT	CONTINUOUS	PERIODI	ROTATING.
4. PRETENSIONED FASTENERS	CONTINUOUS	PERIODI	VERIFY THAT FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES.
AFTER BOLTING (TABLE N5.6-3, AISC 360)			
1. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	□ CONTINUOUS	□ PERIODI	C
OTHER STEEL INSPECTIONS (SECTION N5.7, AISC 360; TABLES J8-1 & J10-1, AISC	341)		
1. STRUCTURAL STEEL DETAILS	CONTINUOUS	B PERIODI	DETAILS AT EACH CONNECTION.
2. ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL	. CONTINUOUS	B № PERIODI	SHALL BE ON THE PREMISES DURING THE PLACEMENT OF ANCHOR RODS AND OTHEF EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS. VERIFY THE DIAMETER, GRADE, TYPE, AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT PRIOR TO PLACEMENT OF CONCRETE.
3. REDUCED BEAM SECTIONS (RBS)	□ CONTINUOUS	PERIODI	VERIFY CONTOUR AND FINISH AS WELL AS DIMENSIONAL TOLERANCES (SEE TABLE
4. PROTECTED ZONES	□ CONTINUOUS		VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE WITHIN THE
			VEDICY THAT NO HOLES OF LINADPROVED ATTACHMENTS OCCUR WITHIN THE
5. H-PILES	CONTINUOUS	PERIODI	PROTECTED ZONES OF PILING (SEE TABLE J10-1 OF AISC 341).
STEEL ELEMENTS OF COMPOSITE CONSTRUCTION (TABLE N6.1, AISC 360; TABLE	ES J9-1 THRU J9-3, AI	SC 341)	
1. PLACEMENT AND INSTALLATION OF STEEL DECK	□ CONTINUOUS	PERIODI	c
	A CONTRACTOR OF THE CONTRACTOR	1	- 1
2. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	□ CONTINUOUS	PERIODI	C

COLD-FORMED STEEL CONSTRUCTION (IBC 1705.2.4, 1705.11.2 & 1705.12.3):

3. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS

4. REINFORCING STEEL

5. COMPOSITE MEMBER SIZE

1. COLD FORMED STEEL PURLINS	☐ CONTINUOUS	PERIODIC VERIFY THAT THE SIZES, GRADES, CONFIGURATIONS, AND CONNECTIONS OF THE COLD FORMED STEEL FRAMING MATCH THE STRUCTURAL DRAWINGS.
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□ CONTINUOUS □ PERIODIC

CONTINUOUS PERIODIC VERIFY APPROPRIATE REINFORCEMENT SIZE, SPACING, AND ORIENTATION; THAT IT HAS NOT BEEN RE-BENT IN FIELD; THAT IT IS CORRECTLY TIED AND SUPPORTED; AND THAT REQUIRED STEEL CLEARANCES HAVE BEEN PROVIDED.

CONTINUOUS PERIODIC VERIFY THAT COMPOSITE MEMBER IS THE REQUIRED SIZE.

STRUCTURAL SOLAR, LLC
NEAGE HQ SOLAR PROJECT
500 HUMBOLDT DR., NOMI, MI

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02/06/20

SCALE NTS

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23116

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	EVIATIONS		
ADDL	ADDITIONAL	LIN	LINEAR
ALT	ALTERNATE	LL	LIVE LOAD
ALUM	ALUMINUM	LLH	LONG LEG HORIZONTAL
APPROX	APPROXIMATE	LLV	LONG LEG VERTICAL
ARCH	ARCHITECT(URAL)	LSL	LONG SLOT
ASSY	ASSEMBLY	LVL	LAMINATED VENEER LUMBER
В/	BOTTOM OF	LW	LIGHT WEIGHT
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BOT	BOTTOM	MED	MEDIUM
BRDG	BRIDGING	MEP	MECHANICAL ELECTRICAL
BRG	BEARING	14577	PLUMBING
BRKT	BRACKET	MEZZ	MEZZANINE
BW	BOTH WAYS	MFR	MANUFACTURER
C/C	CENTER TO CENTER	MIN	MINIMUM
CCD	CHICAGO CITY DATUM	MISC	MISCELLANEOUS
CFS	COLD FORM STEEL	MK	MARK
CIP	CAST IN PLACE	MO	MASONRY OPENING
CJ	CONSTRUCTION JOINT, CONTROL	MTL	METAL
CJ	JOINT	NIC	NOT IN CONTRACT
CJP	COMPLETE JOINT PENETRATION	NOM	NOMINAL
CL	CENTERLINE	NS	NEAR SIDE
	* =··· =· ·=·		
CLR	CLEAR	NTS	NOT TO SCALE
CMU	CONCRETE MASONRY UNIT	NW	NORMAL WEIGHT
COL	COLUMN	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CONN	CONNECTION	OPNG	OPENING
CONT	CONTINUOUS	OPP	OPPOSITE
COORD	COORDINATE, COORDINATION	OPP HD	OPPOSITE HAND
CTR	CENTER	PC	PRECAST CONCRETE
		PCF	POUNDS PER CUBIC FOOT
CU FT	CUBIC FOOT	_	
CU YD	CUBIC YARD	PERIM	PERIMETER
DBA	DEFORMED BAR ANCHOR	PERP	PERPENDICULAR
DEG	DEGREE	PL	PLATE
DEMO	DEMOLISH	PLF	POUNDS PER LINEAR FOOT
DIA	DIAMETER	PLUMB	PLUMBING
DIM	DIMENSION	PLYWD	PLYWOOD
DL	DEAD LOAD	PROJ	PROJECT
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT
DWGS	DRAWINGS	PSI	POUNDS PER SQUARE INCH
(E)	EXISTING	PSL	PARALLEL STRAND LUMBER
EA	EACH	PT	POST TENSIONED
EF	EACH FACE	QTY	QUANTITY
EL	ELEVATION	RAD	RADIUS
ELEC	ELECTRICAL	REBAR	REINFORCING BAR
EMBED	EMBEDDED	REF	REFER, REFERENCE
ENGR	ENGINEER	REINF	REINFORCE, REINFORCEMEN
EOD	EDGE OF DECK	REQD	REQUIRED
EOS	EDGE OF SLAB	REV	REVISION
EQ		RO	ROUGH OPENING
	EQUAL, EQUIVALENT		
EQUIP	EQUIPMENT	SC	SLIP CRITICAL
EW	EACH WAY	SCHED	
EXIST	EXISTING	SE	STRUCTURAL ENGINEER
EXP JT	EXPANSION JOINT	SECT	SECTION
EXT	EXTERIOR	SF	SQUARE FOOT
FDN	FOUNDATION	SHT	SHEET
FF	FINISHED FLOOR	SIM	SIMILAR
FIN	FINISH	SOG	SLAB ON GRADE
FLR	FLOOR	SPECS	
FS 	FAR SIDE	SQ	SQUARE
FT	FOOT, FEET	SQ FT	SQUARE FOOT (FEET)
FTG	FOOTING	SS	STAINLESS STEEL
GA	GAUGE	SSL	SHORT SLOT
GALV	GALVANIZED	STD	
GB	GRADE BEAM	STIFF	
GC	GENERAL CONTRACTOR	STL	STEEL
GYP CVD DD	GYPSUM CYPSUM BOARD		STRUCTURAL
GYP BD	GYPSUM BOARD	SYM	SYMMETRICAL
HORIZ	HORIZONTAL	t	THICKNESS
ID	INSIDE DIAMETER	T&B	TOP & BOTTOM
N	INCH(ES)	T/	TOP OF
NFO	INFORMATION	TEMP	TEMPORARY
INSUL	INSULATION	THRU	THROUGH
INT	INTERIOR	TYP	TYPICAL
JST	JOIST	UNO	UNLESS NOTED OTHERWISE
JT	JOINT	VERT	VERTICAL
K	KIPS	VIF	VERIFY IN FIELD
		W/	WITH
	KIPS PER SQUARE INCH	VV/	
KSI	KIPS PER SQUARE INCH LATERAL		
KSI LAT	LATERAL	W/O	WITHOUT
KSI LAT LB	LATERAL POUND	W/O WF	WITHOUT WIDE FLANGE
KSI LAT LB LFH LFV	LATERAL	W/O	WITHOUT

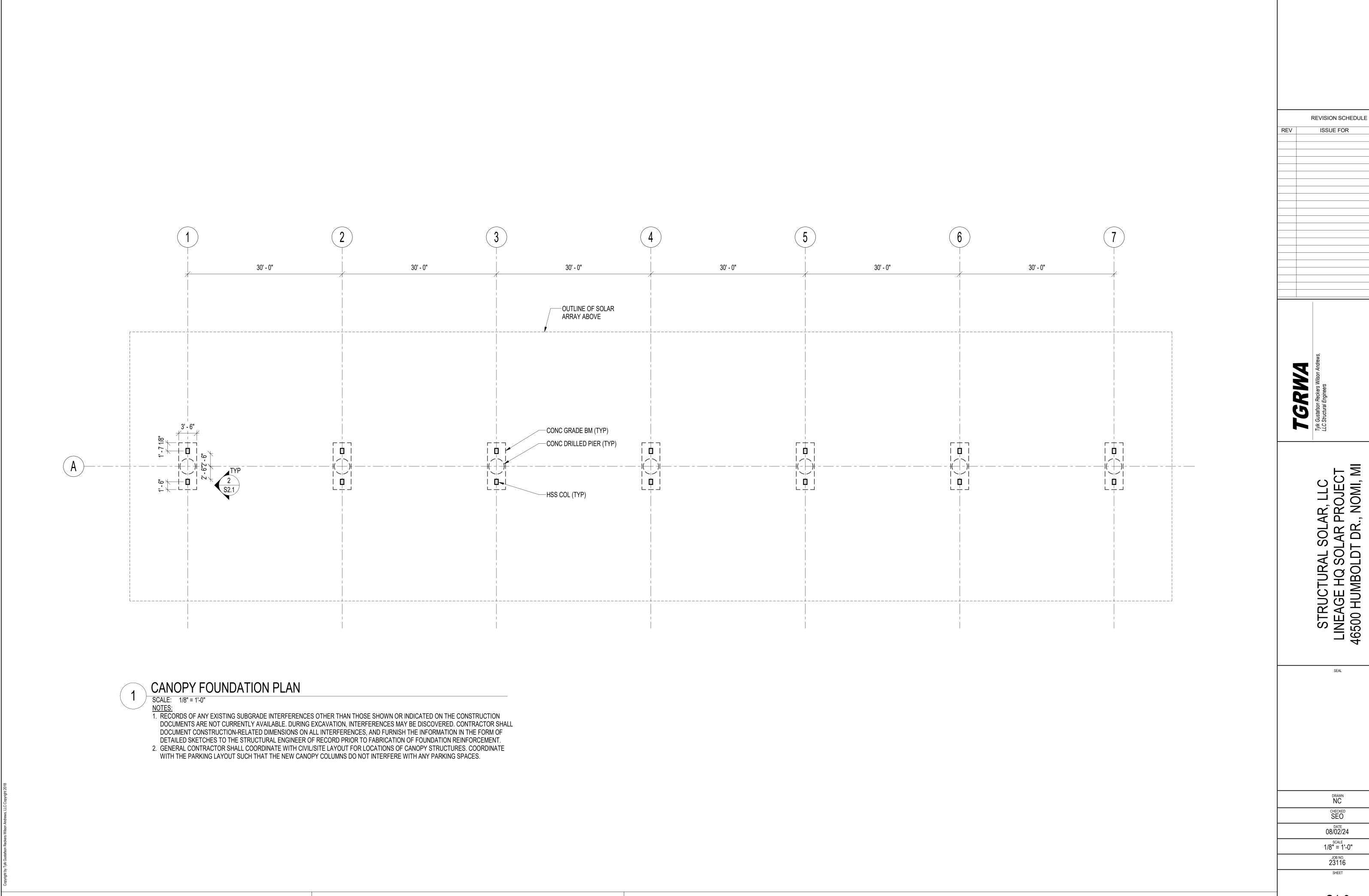
	MARK DESIGNATIONS	
AP#	INDICATES AUGER CAST-IN-PLACE PILE. REFER TO AUGER CAST-IN-PLACE PILE SCHEDULE FOR ADDITIONAL INFORMATION.	
B#	INDICATES BEAM TYPE. REFER TO BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
BF#	INDICATES BRACED FRAME TYPE. REFER TO BRACED FRAME ELEVATIONS AND DETAILS FOR ADDITIONAL INFORMATION.	
BP#	INDICATES BASE PLATE TYPE. REFER TO BASE PLATE SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
C#	INDICATES COLUMN TYPE. REFER TO COLUMN SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	47 / 47
CC#	INDICATES CAISSON CAP TYPE. REFER TO CAISSON CAP SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
CS#	INDICATES CAISSON TYPE. REFER TO CAISSON SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
DP#	INDICATES DRIVEN / DRILLED PILE TYPE. REFER TO DRIVEN / DRILLED PILE SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
F#	INDICATES SPREAD FOOTING TYPE. REFER TO FOOTING SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
GB#	INDICATES GRADE BEAM TYPE. REFER TO GRADE BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
J#	INDICATES JOIST TYPE. REFER TO JOIST SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
L#	INDICATES LINTEL TYPE. REFER TO LINTEL SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION	
P#	INDICATES PIER TYPE. REFER TO PIER DETAILS FOR ADDITIONAL INFORMATION.	
PC#	INDICATES PILE CAP TYPE. REFER TO PILE CAP DETAILS FOR ADDITIONAL INFORMATION.	(1/1/1/2)
PCB#	INDICATES PRECAST BEAM TYPE BY PRECAST MANUFACTURER.	****
PCP#	INDICATES PRECAST PLANK TYPE BY PRECAST MANUFACTURER.	
PTB#	INDICATES POST TENSIONED BEAM TYPE. REFER TO POST TENSIONED BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
SW#	INDICATES SHEAR WALL TYPE. REFER TO SHEAR WALL ELEVATIONS, SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	////
SWB#	INDICATES SHEAR WALL BEAM TYPE. REFER TO SHEAR WALL BEAM SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
T#	INDICATES TRUSS TYPE. REFER TO TRUSS SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	
WD#	INDICATES WOOD DECK TYPE. REFER TO WOOD DECK SCHEDULE AND DETAILS FOR ADDITIONAL INFORMATION.	

HATCH PATTERNS	GENERAL SYMBOLS			
EARTH / NATIVE SOIL	À	REVISION		
GRAVEL		REVISION CLOUD		
GROUT / SAND	Δ			
CONCRETE	NORTH	NORTH ARROW		
STEEL	-	ELEVATION TARGET		
WOOD		SLAB STEP		
CONCRETE MASONRY - PLAN	7////	RAMP SLOPE UP		
CONCRETE MASONRY - ELEVATION		RAMP SLOPE DOWN		
BRICK		SPAN DIRECTION OF ONE WAY SLAB, WOOD DECK OR METAL		
GEOFOAM		ROOF DECK		
PRECAST - SOLID		SPAN DIRECTION OF TWO WAY SLAB		
PRECAST - INSULATED				
SHEAR WALL				
DEMOLITION				

TYI	PICAL	STEEL BEAM DESIGNATIONS					
<u> </u>		WXxXX (X) <c=x"> (</c=x">					
(X)	HEAD! BEAM	DICATES NUMBER OF X/X" ØxX" WELDED ED STUDS UNIFORMLY SPACED ALONG THE I AND SLAB INTERFACE LENGTH. REFER TO IL XX/SXXX FOR ADDITIONAL INFORMATION.					
<c=x"></c=x">	FRA	CATES REQUIRED CAMBER UP FOR FLOOR AMING. INSTALL ALL BEAMS AND GIRDERS HOUT CAMBER SPECIFIED WITH NATURAL CAMBER UP.					
[-X X/X"]		CATES ELEVATION DIFFERENCE BETWEEN CAL T/STEEL ELEVATION AND THIS MEMBER					
STEEL FRAMING SYMBOLS							
-	~	→ MOMENT CONNECTION					
•	→ DRAG STRUT CONNECTION						
#	~	SLIP CRITICAL CONNECTION					
θ-	\rightarrow	SLIDE BEARING CONNECTION					
⟨X	>	BEAM OPENING. REFER TO BEAM OPENING SCHEDULE FOR ADDITIONAL INFORMATION.					
<u> </u>	STAIR CONNECTION						
Ţ	COLUMN SPLICE OR BEAM SPLICE						
Ι		COLUMN ABOVE					
ROOF DAVIT							
•	ROOF TIEBACK						
+	-	ROOF FALL ARREST					
/	TU# XX LBS	ROOFTOP UNIT DESIGNATION					

REVISION SCHEDULE ISSUE FOR SEO 07/29/16 SCALE NTS JOB NO. 23116 S0.3

YD YARD

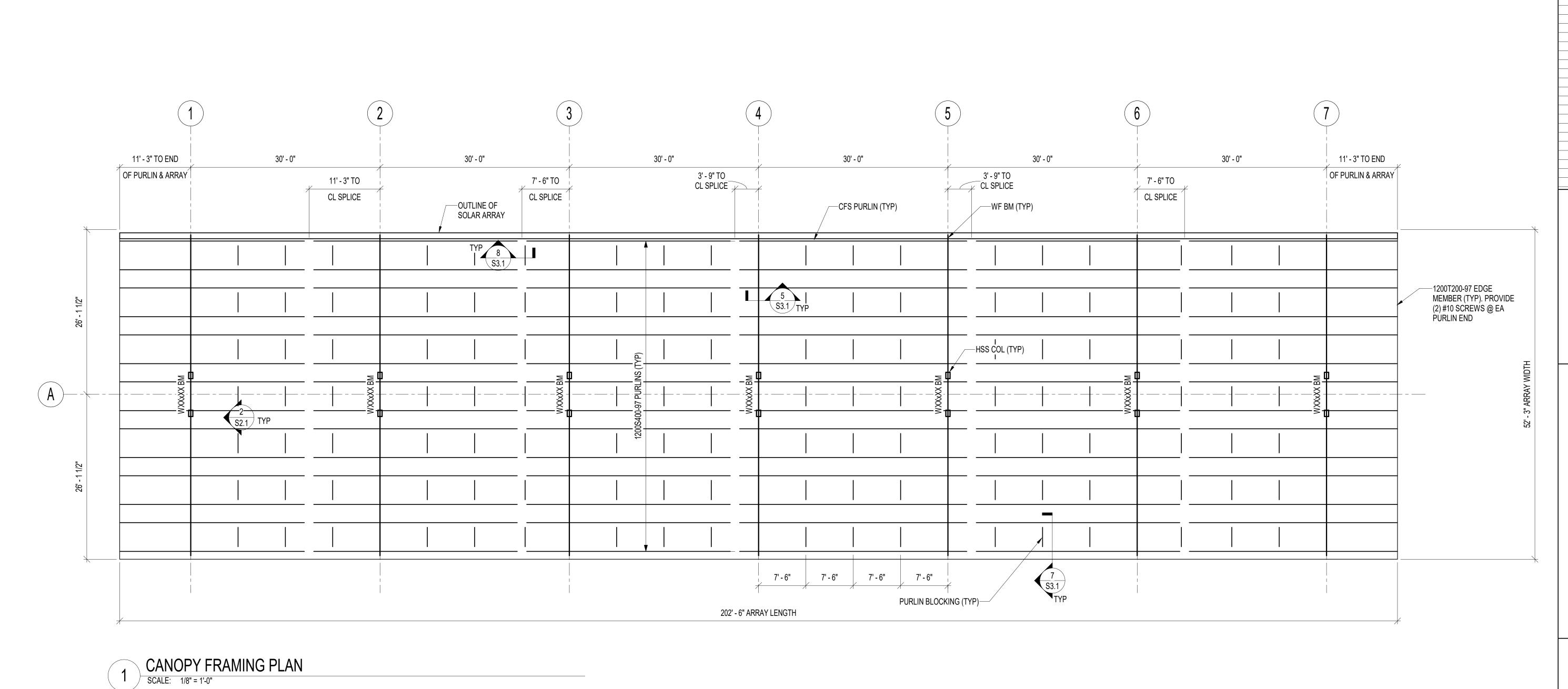


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CANOPY FOUNDATION PLAN

S1.0



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CANOPY FRAMING PLAN

TGRWA	Tylk Gustafson Reckers Wilson Andrews, LLC Structural Engineers	1000 Wood Van Driving Colins
	STRUCTURAL SOLAR, LLC LINEAGE HQ SOLAR PROJECT 46500 HUMBOLDT DR NOMEM	

CHECKED SEO

08/02/24

1/8" = 1'-0"

JOB NO. 23116

S1.1

REVISION SCHEDULE

ISSUE FOR

