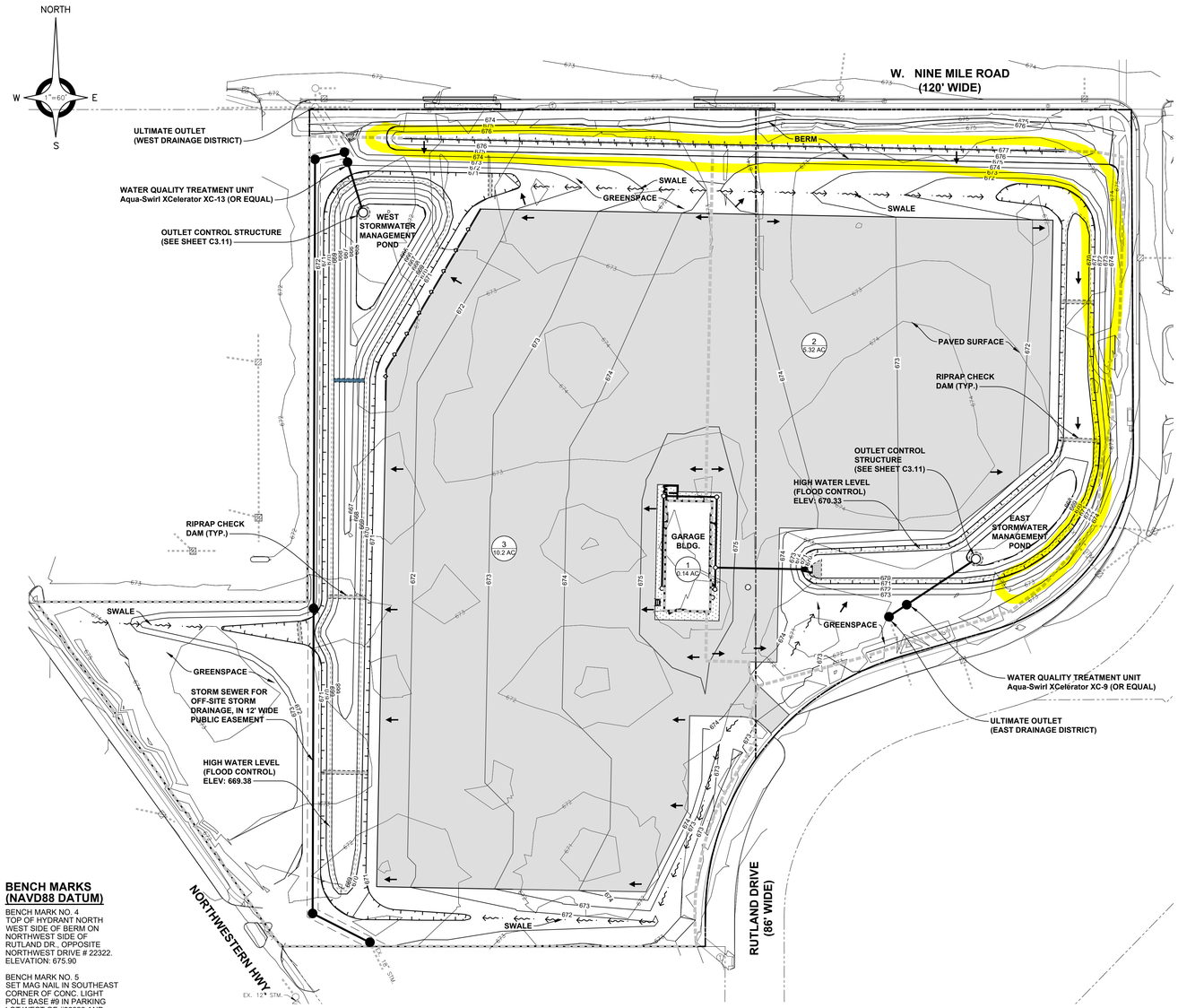


BENCH MARKS (NAVD88 DATUM)

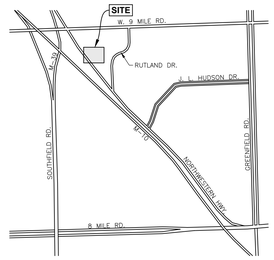
BENCH MARK NO. 4
TOP OF HYDRANT NORTH WEST SIDE OF BERM ON NORTHWEST SIDE OF RUTLAND DR., OPPOSITE NORTHWEST DRIVE # 22322.
ELEVATION: 675.90

BENCH MARK NO. 5
SET MAG NAIL IN SOUTHEAST CORNER OF CONC. LIGHT POLE BASE #9 IN PARKING LOT WEST OF #22322 AND NORTH OF #22000.
ELEVATION: 674.81

BENCH MARK NO.6
CHIS "X" NORTHEAST RIM OF PHONE M.H. IN WALK. WEST SIDE OF RUTLAND DR., OPPOSITE WEST DRIVE OF #22322.
ELEVATION: 671.06

DRAINAGE AREAS LEGEND

- PROPOSED STORM SEWER
- DRAINAGE AREA LIMITS
- PROPOSED STORM MANHOLE
- PROPOSED CLEANOUT
- EXIST. CATCH BASIN (PAVT.)
- EXIST. CATCH BASIN (FIELD)
- EXIST. STORM SEWER
- 3 / 10.2 AC — DRAINAGE AREA # / TOTAL AREA IN ACRES



LOCATION MAP
NOT TO SCALE

WEIGHTED C CALCULATIONS

Drainage Area	Impervious Area (C = 0.95)	Water (C = 1.0)	Pervious Area HGS A C = .10	Pervious Area HGS B C = .20	Pervious Area HGS C C = .25	Pervious Area HGS D C = .30	Total	Weighted C
East Drainage District								
1	6.000						6.000	0.95
2	133.606					98.078	231.684	0.74
SubTotal	139.606					98.078	237.684	**0.74**
West Drainage District								
3	245.175					199.889	445.064	0.73
SubTotal	245.175					199.889	445.064	**0.73**

OAKLAND COUNTY DETENTION CALCULATIONS (WEST POND)

Part A: Determination of Surface Runoff				
Total Site Area	A =	10.22	ac	
Runoff Coefficient	C =	0.73		
Time of Concentration	T_C =	20.00	min	
Rainfall Return Period	p =	100	years	
Rainfall Depth	p_{100} =	5.40	inch	
Rainfall Intensity (Eq. III-7)	I =	5.41	in/hr	= $30.2p^{0.22}/(T_C+9.17)^{0.81}$
Peak Runoff (Eq. III-1)	Q =	40.12	cfs	= C*I*A
Volume (Eq. III-3)	V =	145,290	cf	= 3,630*p*C*A
Part C: Channel Protection Volume Control				
Required CPVC Volume (Eq. III-9)	V_{CP-R} =	34,977	cf	= 4,719*C*A
Provided CPVC Volume	V_{CP-P} =		cf	
Part D: Water Quality Control				
Required Water Quality Volume (Eq. III-17)	V_{WQ} =	26,906	cf	= 3,630*C*A
Option 1: Manufactured Treatment System (MTS)				
Water Quality Rate (Eq. III-18)	Q_{WQ} =	14.57	cfs	= C*A*(30.20/(T_C + 9.17)$^{0.81}$)
Option 2: Forebay				
Required Forebay Volume (Eq. III-19)	$V_{F\,B1}$ =	2,791	cf	= 545*C*A
	$V_{F\,B2}$ =	768	cf	=545*C*A
Part E: Channel Protection Rate Control: Extended Detention				
Required Extended Detention Volume (Eq. III-21)	V_{ED} =	51,120	cf	= 6,897*C*A
Head	h_{ED} =	4.06	Ft	= Z_{ED}-Z_{Out}
Required No. of 1-inch Holes (Eq. III-22)	H_{ED} =	5		= V_{ED}/(4.666*$h_{ED}^{0.50}$)
Part F: Detention and Flood Control Facilities				
100-Year Post Development Flow Rate (Eq. III-23)	Q_{100N} =	40.12	cfs	= C*I*A
Variable Release Rate (Eq. III-25)	Q_{VRR} =	0.627	cfs/ac	= 1.1055-[.206*ln(A)]
100-Year Post Development Peak Discharge	Q_{100p} =	6.40	cfs	= Q_{VRR}*A
Storage Curve Factor (Eq. III-26)	R =	0.48		= 0.206-0.15*ln(Q_{100P}/Q_{100N})
100-Year Post Development Runoff Volume (Eq. III-27)	V_{100R} =	140,717	cf	= 18,985*C*A
100-Year Detention Volume (Eq. III-28)	**V_{1000} =**	**67,719**	**cf**	= V_{100R}*R-V_{CP-P}

OAKLAND COUNTY DETENTION CALCULATIONS (EAST POND)

Part A: Determination of Surface Runoff				
Total Site Area	A =	5.46	ac	
Runoff Coefficient	C =	0.74		
Time of Concentration	T_C =	20.00	min	
Rainfall Return Period	p =	100	years	
Rainfall Depth	p_{100} =	5.40	inch	
Rainfall Intensity (Eq. III-7)	I =	5.41	in/hr	= $30.2p^{0.22}/(T_C+9.17)^{0.81}$
Peak Runoff (Eq. III-1)	Q =	21.96	cfs	= C*I*A
Volume (Eq. III-3)	V =	79,542	cf	= 3,630*p*C*A
Part C: Channel Protection Volume Control				
Required CPVC Volume (Eq. III-9)	V_{CP-R} =	19,149	cf	= 4,719*C*A
Provided CPVC Volume	V_{CP-P} =	0	cf	
Part D: Water Quality Control				
Required Water Quality Volume (Eq. III-17)	V_{WQ} =	14,730	cf	= 3,630*C*A
Option 1: Manufactured Treatment System (MTS)				
Water Quality Rate (Eq. III-18)	Q_{WQ} =	7.97	cfs	= C*A*(30.20/(T_C + 9.17)$^{0.81}$)
Option 2: Forebay				
Required Forebay Volume (Eq. III-19)	$V_{F\,A1}$ =	315	cf	= 545*C*A
	$V_{F\,A2}$ =	1,625	cf	=545*C*A
Part E: Channel Protection Rate Control: Extended Detention				
Required Extended Detention Volume (Eq. III-21)	V_{ED} =	27,987	cf	= 6,897*C*A
Head	h_{ED} =	3.05	Ft	= Z_{ED}-Z_{Out}
Required No. of 1-inch Holes (Eq. III-22)	H_{ED} =	3		= V_{ED}/(4.666*$h_{ED}^{0.50}$)
Part F: Detention and Flood Control Facilities				
100-Year Post Development Flow Rate (Eq. III-23)	Q_{100N} =	21.96	cfs	= C*I*A
Variable Release Rate (Eq. III-25)	Q_{VRR} =	0.756	cfs/ac	= 1.1055-[.206*ln(A)]
100-Year Post Development Peak Discharge	Q_{100p} =	4.12	cfs	= Q_{VRR}*A
Storage Curve Factor (Eq. III-26)	R =	0.46		= 0.206-0.15*ln(Q_{100P}/Q_{100N})
100-Year Post Development Runoff Volume (Eq. III-27)	V_{100R} =	77,039	cf	= 18,985*C*A
100-Year Detention Volume (Eq. III-28)	**V_{1000} =**	**35,195**	**cf**	= V_{100R}*R-V_{CP-P}

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Project Title

OAKLAND COMMUNITY COLLEGE®
Oakland Community College

Southfield Campus Driving Pad

Project Address:
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Southfield , MI 48075

Key Plan

Project Administrator	V. Grant
Project Designer	J. Sala
Project Architect / Engineer	J. Sala
Drawn By	B. Koci
Q.M. Review	M. Sommers
Approved	J. Sala
Drawing Scale	1" = 60'

Issued for	Issue Date
Owner Review	02-13-2025
Quality Management Review	03-13-2025
Bids	04-03-2025

AEW Drawing Title

Overall Drainage Plan

IDS Project Number
24140-1000
AEW PROJECT NUMBER
0369-0088

Drawing Number
C3.00

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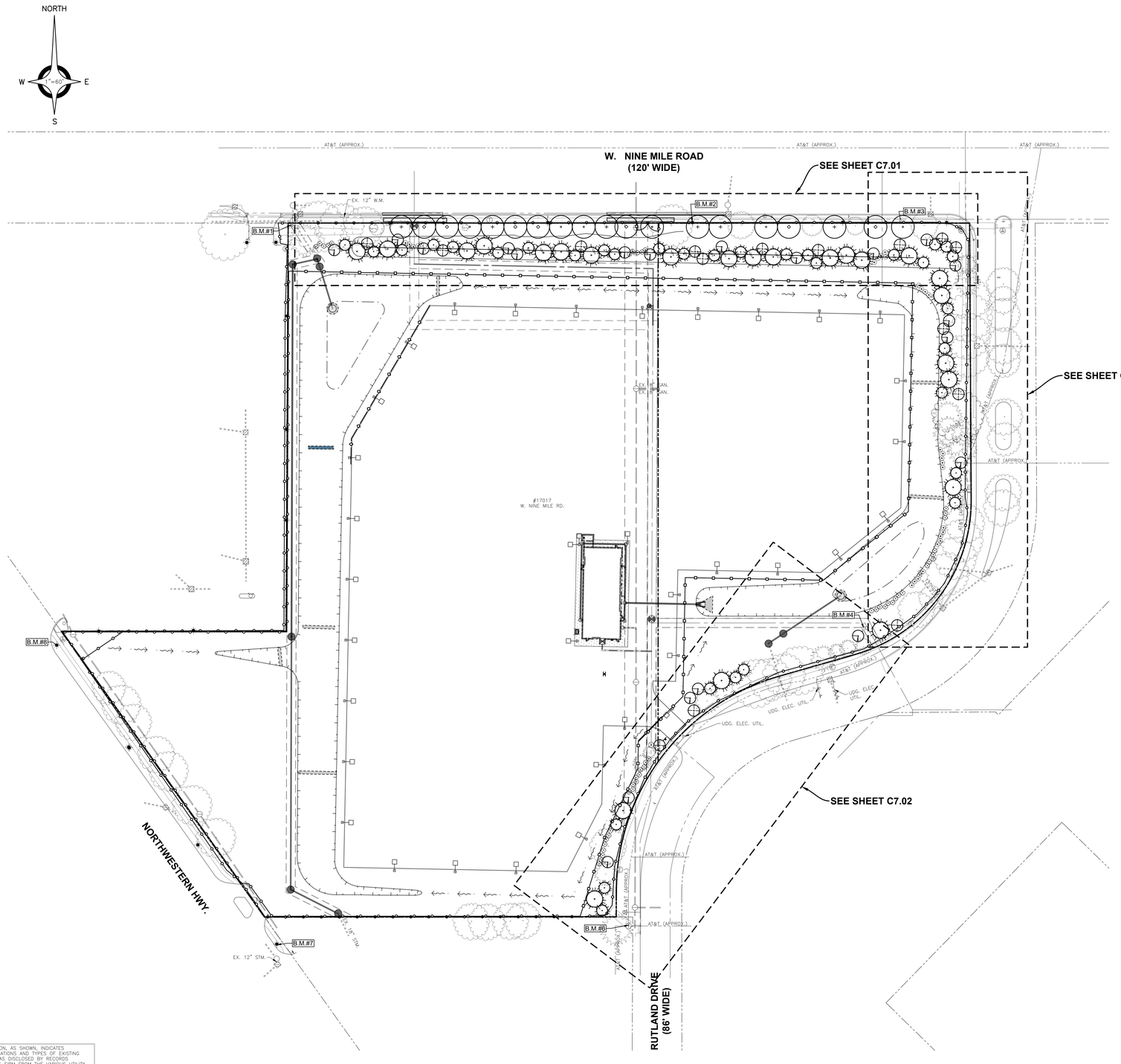

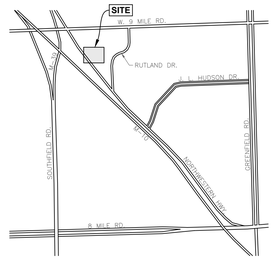

LOCATION MAP
NOT TO SCALE

LEGEND

- PROPOSED CANOPY TREES
- PROPOSED EVERGREEN TREES
- PROPOSED UNDERSTORY TREES
- PROPOSED SHRUBS

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Project Title

OAKLAND COMMUNITY COLLEGE®
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Southfield Campus Driving Pad

Project Address:
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Southfield , MI 48075

Key Plan

Project Administrator	V. Grant
Project Designer	J. Sala
Project Architect / Engineer	J. Sala
Drawn By	B. Koci
Q.M. Review	M. Sommers
Approved	J. Sala
Drawing Scale	1" = 60'

Issued for	Issue Date
Quality Management Review	03-13-2025
Bids	04-03-2025

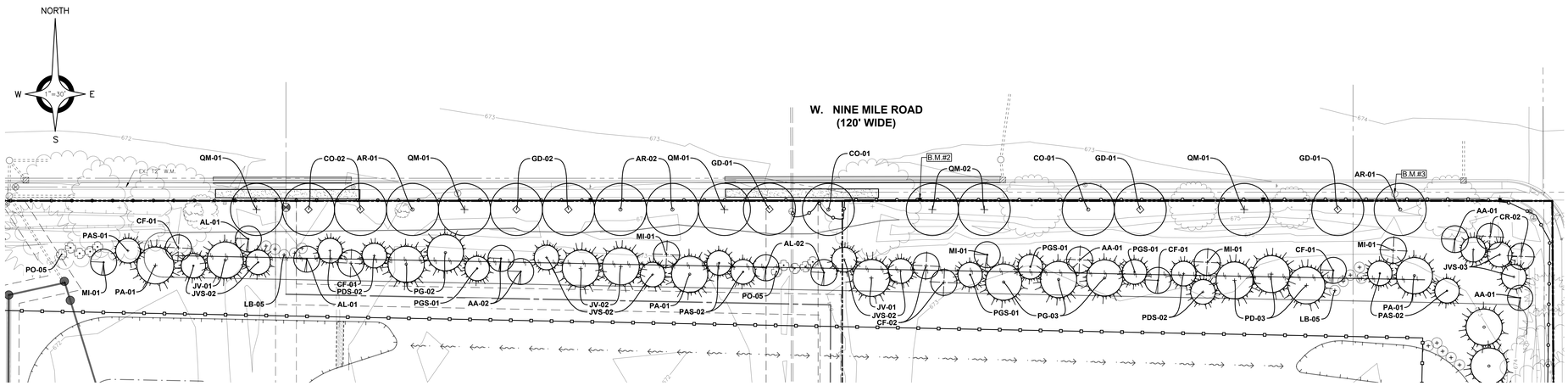
AEW Drawing Title

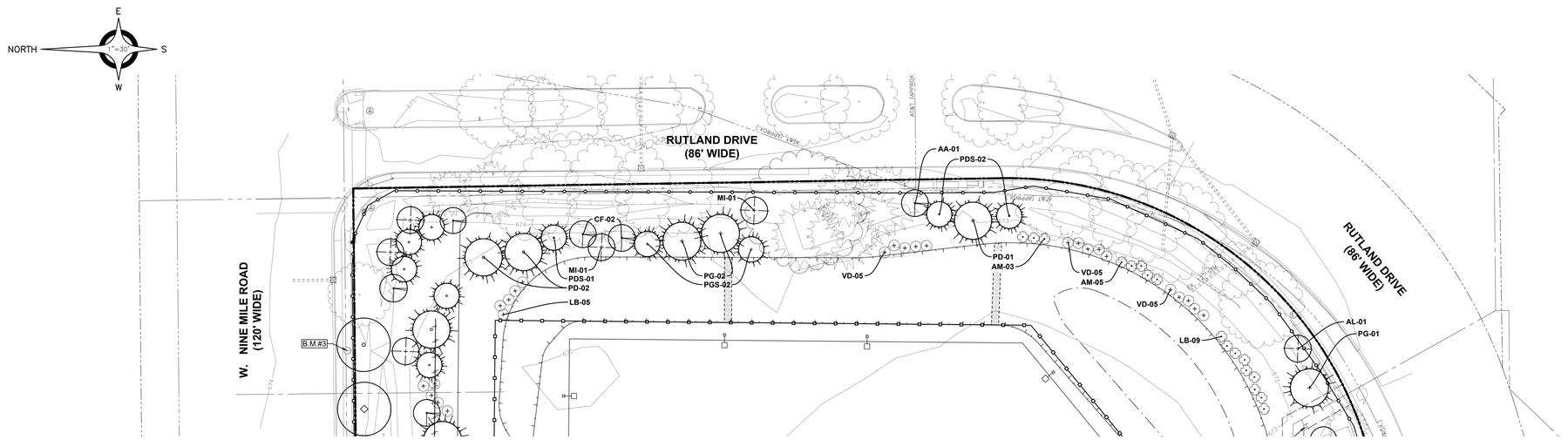
Overall Landscape Plan

IDS Project Number
24140-1000

AEW PROJECT NUMBER
0369-0088

Drawing Number
C7.00





LEGEND

- PROPOSED CANOPY TREES
- PROPOSED EVERGREEN TREES
- PROPOSED UNDERSTORY TREES
- PROPOSED SHRUBS

PLANT MATERIAL SCHEDULE

Qty.	Key	Scientific Name	Common Name	Size	Spacing	Comments
CANOPY TREES						
4	AR	*Acer rubrum*	Red Maple	2.5" cal.	Match	
4	CO	*Celtis occidentalis*	Hackberry	2.5" cal.	Match	
5	GD	*Gymnocladus dioicus*	Kentucky Coffeetree	2.5" cal.	Match	
6	QM	*Quercus macrocarpa*	Bur Oak	2.5" cal.	Match	
EVERGREEN TREES						
4	JV	*Juniperus virginiana*	Eastern Red Cedar	8-ft B&B	Match	
9	JVS	*Juniperus virginiana*	Eastern Red Cedar	6-ft B&B	Match	
3	PA	*Picea abies*	Norway Spruce	8-ft B&B	Match	
5	PAS	*Picea abies*	Norway Spruce	6-ft B&B	Match	
8	PG	*Picea glauca var. densata*	Black Hills Spruce	8-ft B&B	Match	
6	PGS	*Picea glauca var. densata*	Black Hills Spruce	6-ft B&B	Match	
6	PD	*Pseudotsuga menziesii*	Douglas Fir	8-ft B&B	Match	
7	PDS	*Pseudotsuga menziesii*	Douglas Fir	6-ft B&B	Match	
UNDERSTORY TREES						
6	AA	*Amelanchier arborea*	Juneberry	6-ft B&B	Match	Multi-Stem
5	AL	*Amelanchier laevis*	Smooth Shadbush	6-ft B&B	Match	Multi-Stem
8	CF	*Cornus florida*	Flowering Dogwood	1.5" cal.	Match	
2	CR	*Cornus 'Rutgan'*	Stellar Pink Dogwood	6-ft B&B	Match	Multi-Stem
7	MI	*Malus ioensis*	Prairifire Crabapple	1.5" cal.	Match	
SHRUBS, PERENNIALS & GRASSES						
8	AM	*Aronia melanocarpa*	Black Chokeberry	3 gal.	4-ft O.C.	
24	LB	*Lindera benzoin*	Spicebush	3 gal.	6-ft O.C.	
10	PO	*Physocarpus opulifolius*	Ninebark	3 gal.	6-ft O.C.	
15	VD	*Viburnum dentatum var. lucidum*	Smooth Arrow-wood	3 gal.	6-ft O.C.	

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Key Plan

NORTH

Project Administrator	V. Grant
Project Designer	J. Sala
Project Architect / Engineer	J. Sala
Drawn By	B. Koci
Q.M. Review	M. Sommers
Approved	J. Sala
Drawing Scale	1" = 30'

Issued for	Issue Date
Quality Management Review	03-13-2025
Bids	04-03-2025

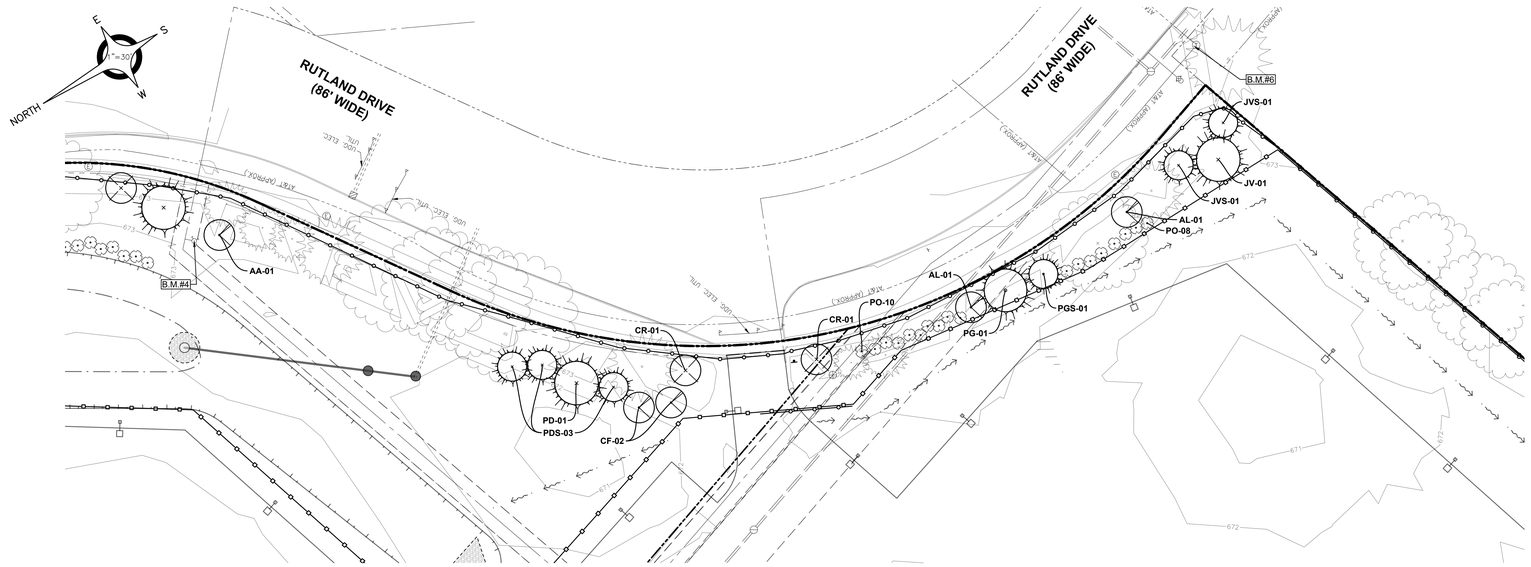
AEW Drawing Title

Landscape Plan

IDS Project Number
24140-1000

AEW PROJECT NUMBER
0369-0088

Drawing Number
C7.01



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	QM	*Quercus macrocarpa*	Bur Oak	2.5" cal.	Match	
		EVERGREEN TREES				
1	JV	*Juniperus virginiana*	Eastern Red Cedar	8-ft B&B	Match	
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	PA	*Picea abies*	Norway Spruce	8-ft B&B	Match	
	PAS	*Picea abies*	Norway Spruce	6-ft B&B	Match	
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1	PD	*Pseudotsuga menziesii*	Douglas Fir	8-ft B&B	Match	
3	PDS	*Pseudotsuga menziesii*	Douglas Fir	6-ft B&B	Match	
		UNDERSTORY TREES				
1	AA	*Amelanchier arborea*	Juneberry	6-ft B&B	Match	Multi-Stem
2	AL	*Amelanchier laevis*	Smooth Shadbush	6-ft B&B	Match	Multi-Stem
2	CF	*Cornus florida*	Flowering Dogwood	1.5" cal.	Match	
2	CR	*Cornus 'Rutgan'*	Stellar Pink Dogwood	6-ft B&B	Match	Multi-Stem
	MI	*Malus ioensis*	Prairifire Crabapple	1.5" cal.	Match	
		SHRUBS, PERENNIALS & GRASSES				
	AM	*Aronia melanocarpa*	Black Chokeberry	3 gal.	4-ft O.C.	
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18	PO	*Physocarpus opulifolius*	Ninebark	3 gal.	6-ft O.C.	
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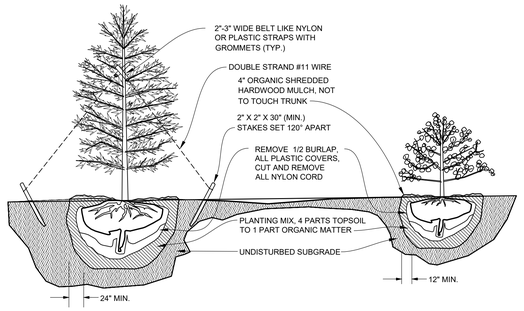
GENERAL LANDSCAPE NOTES:

1. ALL CONSTRUCTION AND PLANT MATERIAL LOCATION SHALL BE ADJUSTED ON SITE IF NECESSARY AS APPROVED BY THE OWNER'S REPRESENTATIVE.
2. ANY SUBSTITUTIONS OF PLANT MATERIAL OR ALTERATION IN PLANT SIZES OR SPECIFICATION TO BE APPROVED BY THE OWNER'S REPRESENTATIVE.
3. ALL LARGE TREES AND EVERGREENS SHALL BE STAKED, GUYED, AND WRAPPED PER DETAILS SHOWN ON PLAN.
4. ALL PLANT BEDS SHALL BE DRESSED WITH MINIMUM 4" DEPTH ORGANIC SHREDDED HARDWOOD MULCH.
5. DIG SHRUB PITS 1' LARGER THAN SHRUB ROOT BALLS AND TREE PITS 2' LARGER THAN ROOT BALL. BACK FILL WITH ONE PART TOP SOIL AND ONE PART SOIL FROM EXCAVATED PLANTING HOLE.
6. REMOVE ALL TWINE, WIRE, AND BURLAP FROM TREE AND SHRUB EARTH BALLS, AND FROM TREE TRUNKS.
7. TRUNK FLARE OF ALL WOODY MATERIAL SHALL BE EXPOSED.
8. INSTALLATION OF PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS.
9. PLANT MATERIAL, ESPECIALLY EVERGREENS, SHALL BE PLANTED HIGHER THAN NORMAL WHEN HEAVY SOIL CONDITIONS (CLAY, ETC.) PREVAIL.
10. ALL PLANTING AREAS SHALL BE FREE OF WEEDS, PREPARED WITH APPROPRIATE SOIL MIXTURES, AND FERTILIZED PRIOR TO PLANT INSTALLATION.
11. NO TREES OR EVERGREENS SHALL BE INSTALLED OVER ANY PROPOSED OR EXISTING UTILITY LINES AS SHOWN ON THE OVERALL LANDSCAPE PLAN. SEE UTILITY PLAN FOR EXACT LOCATION AND DETAILS.



TREE PLANTING DETAIL
NO SCALE

SHRUB PLANTING DETAIL
NO SCALE

LEGEND

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AEW Drawing Title

Landscape Plan and Details

IDS Project Number
24140-1000

AEW PROJECT NUMBER
0369-0088

Drawing Number
C7.02