

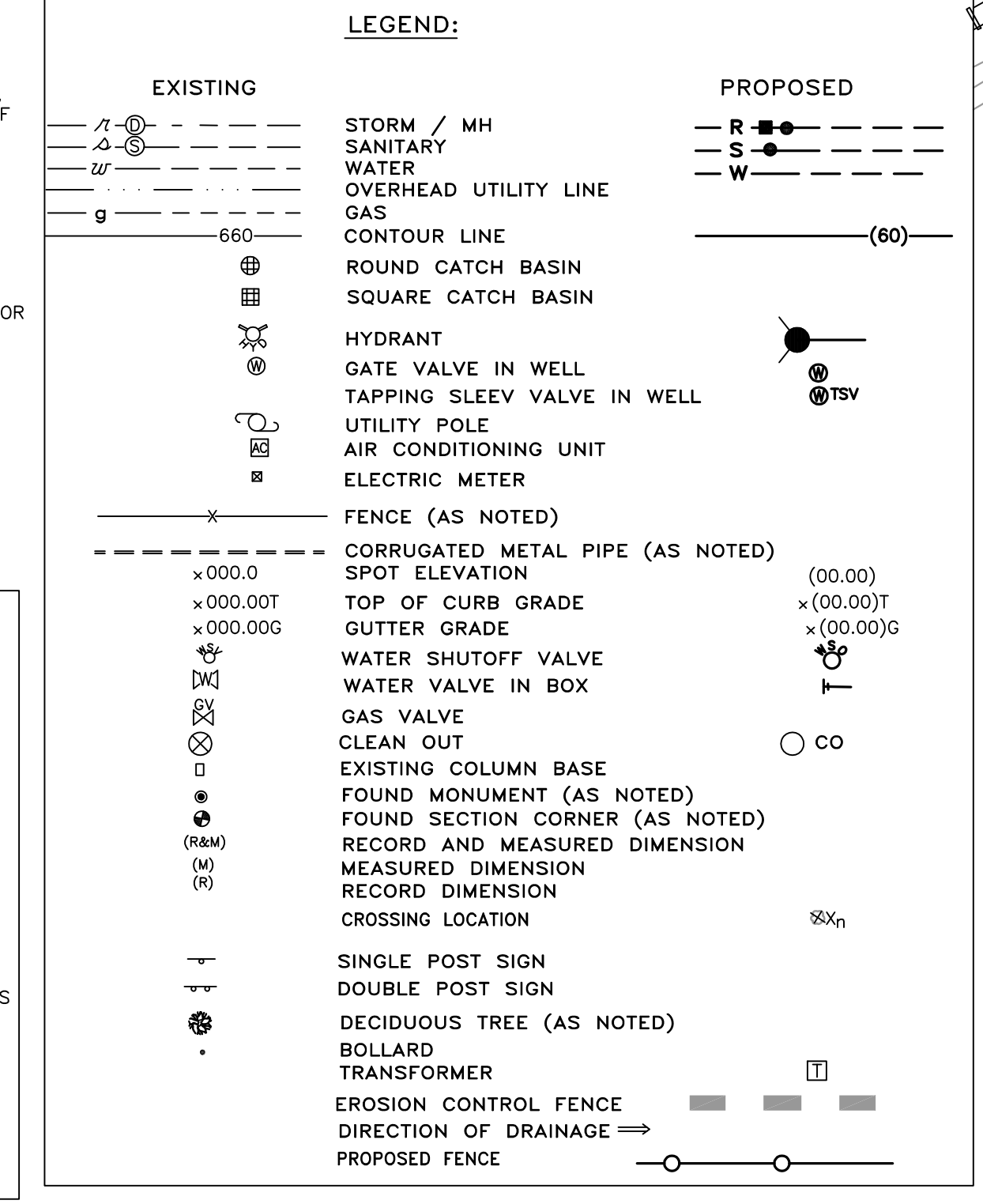
**AMENDED PARCEL 3: PARCEL ID: AFTER AMENDMENT 56 053 99 0028 701**

THAT PART OF THE EAST 1/2 OF SECTION 19, TOWN 2, RANGE 9 EAST, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE NORTH LINE OF SAID SECTION DISTANT S89°15'00"W 890.73 FEET FROM THE NORTHEAST CORNER OF SECTION 19 AND PROCEEDING THENCE S89°15'00"W ALONG SAID NORTH LINE 267.00 FEET; THENCE S00°53'30"E 540.50 FEET TO NORTHEASTLY LINE OF PERE MARQUETTE RAILROAD RIGHT-OF-WAY; THENCE S30°03'04"E ALONG SAID NORTHEASTLY LINE 615.72 FEET; THENCE N00°53'30"W 800.44 FEET; THENCE S89°15'00"W 33.00 FEET; THENCE N00°53'30"W 277.00 FEET TO THE POINT OF BEGINNING, CONTAINING 5.361 ACRES GROSS (4.993 ACRES NET), MORE OR LESS, SUBJECT TO EASEMENTS AND RESTRICTIONS, RIGHT OF WAY, RECORDED OR OTHERWISE.

**NOTE:** CONTRACTOR SHALL EXPOSE THE EXISTING GAS OR ANY OTHER EXISTING UTILITY LINE AT THE AREA OF CROSSING WITH PROPOSED SANITARY SEWERS AND/OR WATER MAIN PRIOR TO STARTING CONSTRUCTION OF THE SANITARY SEWERS. CONTRACTOR SHALL VERIFY THAT THE EXISTING UTILITY LINE WILL NOT CONFLICT WITH THE PROPOSED SEWERS OR WATER, AND INFORM ENGINEER (TO REVISE DESIGN PLANS) IF CONFLICT EXISTS.

**NOTE:** CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

**NOTE:** THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITIES CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE VARIOUS UTILITY LINES SHOWN HEREON ARE BASED UPON FIELD DATA WHEREVER POSSIBLE. ADDITIONAL INFORMATION REGARDING UNDERGROUND UTILITIES HAS NOT BEEN AVAILABLE TO US.



**Detention Pond Design**

V <sub>10</sub>	16387 10-year flood
V <sub>10 adjusted</sub>	16387 No adjustment due to mechanical treatment
V <sub>2</sub>	13132 Bank Full
V <sub>2 adjusted</sub>	13132 No adjustment due to mechanical treatment

Elevation	Area	Incremental Volume	Cumulative Volume
655	1005	0	0
656	1553	1269	1269
657	3063	2266	3535
658	5174	4073	7608
659	9243	7111	14719
660	15601	12284	27003

Z<sub>bf</sub> = 658 + (659 - 658) x (13132 - 7608) / (14719 - 7608)

Z<sub>bf</sub> = 658.78

Z<sub>10</sub> = 659 + (660 - 659) x (16387 - 14719) / (27003 - 14719)

Z<sub>10</sub> = 659.14

Top of riser = 659.14

Z<sub>top</sub> Riser Upstream Outlet Invert = 655

Top of overflow structure = 659.1

Minimum Freeboard Elevation = 660.1

Crest of Emergency Spillway = 659.6

**Detention Calculations**

**1. Determination of Allowable Outflow**

Total Site Area	217,529 s.f.	4.99 ac. Net
Frontage	267 ft	
Allowable Outflow = 0.15 * Acreage	0.75 cfs	

**2. Determination of Runoff coefficient (developed)**

Area Type	C Factor	Area	Weighted Area
Proposed Buildings	0.95	27,734 s.f.	26,347 s.f.
Proposed Pavement	0.95	53,262 s.f.	50,599 s.f.
Proposed Concrete	0.95	6,755 s.f.	6,417 s.f.
Water	1	1,005 s.f.	1,005 s.f.
Unimproved	0.2	128,773 s.f.	25,755 s.f.
			110,123 s.f.

C<sub>weighted</sub> = Weighted Area = 110,123 / Area = 217,529 = 0.51

**3. Computation of Required Storage Volume**

a) Q<sub>0</sub> = allowable outflow / acreage x runoff coefficient

Q<sub>0</sub> = 0.75 cfs / 4.99 acres x 0.51

Q<sub>0</sub> = 0.29 cfs/acre imperviousness

b) Time in minutes that the maximum storage will occur (orifice outlet)

T = -19.9 + √(4530/Q<sub>0</sub>)

T = -19.9 + √(4530/0.29)

T = 105.08 minutes

c) Calculation of maximum volume of storage per acre imperviousness

V<sub>s</sub> = ((9.108 x T) / (T + 19.9)) - 40Q<sub>0</sub>T

V<sub>s</sub> = 6,439 c.f./acre impervious

d) Total volume of storage required

V<sub>t</sub> = V<sub>s</sub> x area x runoff coefficient (developed)

V<sub>t</sub> = 6439 x 4.99 x 0.51 = 16,387 c.f.

V<sub>t</sub> bf = 5,160 x 4.99 x 0.51 = 13,132 c.f.

**Bank Full Flow Restrictor Sizing**

Q <sub>avg</sub> = V <sub>avg</sub> / 144,000	
Q <sub>avg</sub> = 0.09 cfs	Desired average release rate
havg,us = 0.667 x (658.78 - 655)	2.52 Average head on the orifice
Ao = Q <sub>avg</sub> / (0.62 x √(2gxhavg))	0.01139 ft <sup>2</sup> Area required
d <sub>o</sub> = 0.09 / (0.62 x √(2gxhavg))	0.08333 ft - Diameter of a 1 inch hole
A - 1 in	0.00545 ft <sup>2</sup>
Holes Required = Ao / Area of a 1 inch hole	2.09
Holes Required	2 1 inch holes
Q <sub>avg</sub> = 0.62 x # holes x (A - 1 in) x √(2gxhavg)	0.086 Actual average release rate based on 2 holes
T <sub>bf</sub> = V <sub>t</sub> / (Q <sub>avg</sub> x 3,600)	42 Actual holding time for bank full flood

**Riser Outlet Pipe and Flood Control Flow Restrictor Sizing**

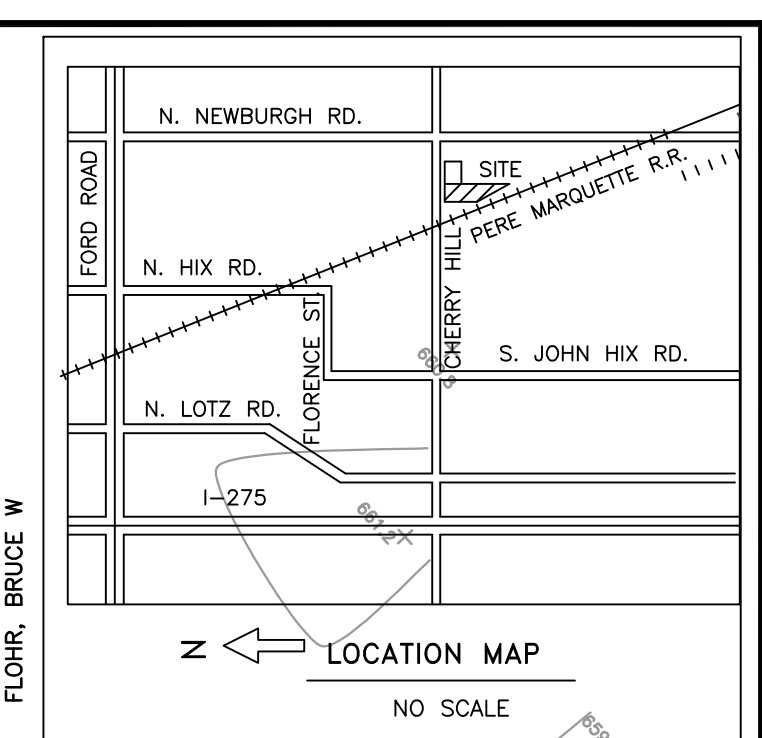
Q <sub>max</sub>	0.75 From Storage Volume Calculations
d <sub>out</sub>	0.67 An assumed 6 inch was used to begin the computation
Z <sub>out</sub>	655.67 (Crown Elevation of Riser Outlet pipe assuming full flow)
h <sub>max</sub> = (Z <sub>10</sub> - Z <sub>out</sub> )	
A <sub>out</sub> = Q <sub>max</sub> / (0.62 x √(2gxhmax))	3.47
A <sub>out</sub>	0.0809
d <sub>out,required</sub>	3.852075614
A 3.75 inch diameter hole will be drilled in the end cap of the of the vertical run of the outlet tee	8 Diameter of Outlet Pipe
A <sub>out,pipe</sub>	0.3491 Area of a 6 inch pipe
A <sub>out,restrictor</sub>	0.3125 3.75 The diameter of the restrictor
A <sub>out,restrictor</sub>	0.0767 Area of the restrictor
Q <sub>max</sub> the maximum release through the end cap is computed	
Q <sub>max</sub>	0.71 5% Within 3% of Q <sub>max</sub>
R	0.167
n	0.012
Slope	0.55%
Velocity check	2.57 ft/s ...O.K.
8 inch pipe with 3.75 end cap restrictor	

**Overflow Structure Outlet Pipe Size and Slope**

Q (Rational)	10.3
Pipe Diameter	1.75 ft 21
R	0.438
A	2.4053
Slope	0.42%
V	4.28

SEE SHEET C-9 FOR EROSION NOTES AND DETAIL

INSTALL SILT FENCE AROUND PERIMETER OF SITE AS SHOWN. INSTALL PRIOR TO EXCAVATION AND SHALL BE MAINTAINED DURING CONSTRUCTION OR UNTIL SITE IS STABILIZED.



**LANDMARK ENGINEERING CO.**  
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9401 General Dr., Suite 101  
Plymouth, Michigan 48170  
Tel: 248-557-3000  
Fax: 248-557-3059  
Email: landmark@landmarkengineeringco.com



SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST  
CITY OF WESTLAND  
WAYNE COUNTY, MICHIGAN

CLIENT: WESTLAND PRINCIPLES, LLC

GRADING & EROSION CONTROL PLAN  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

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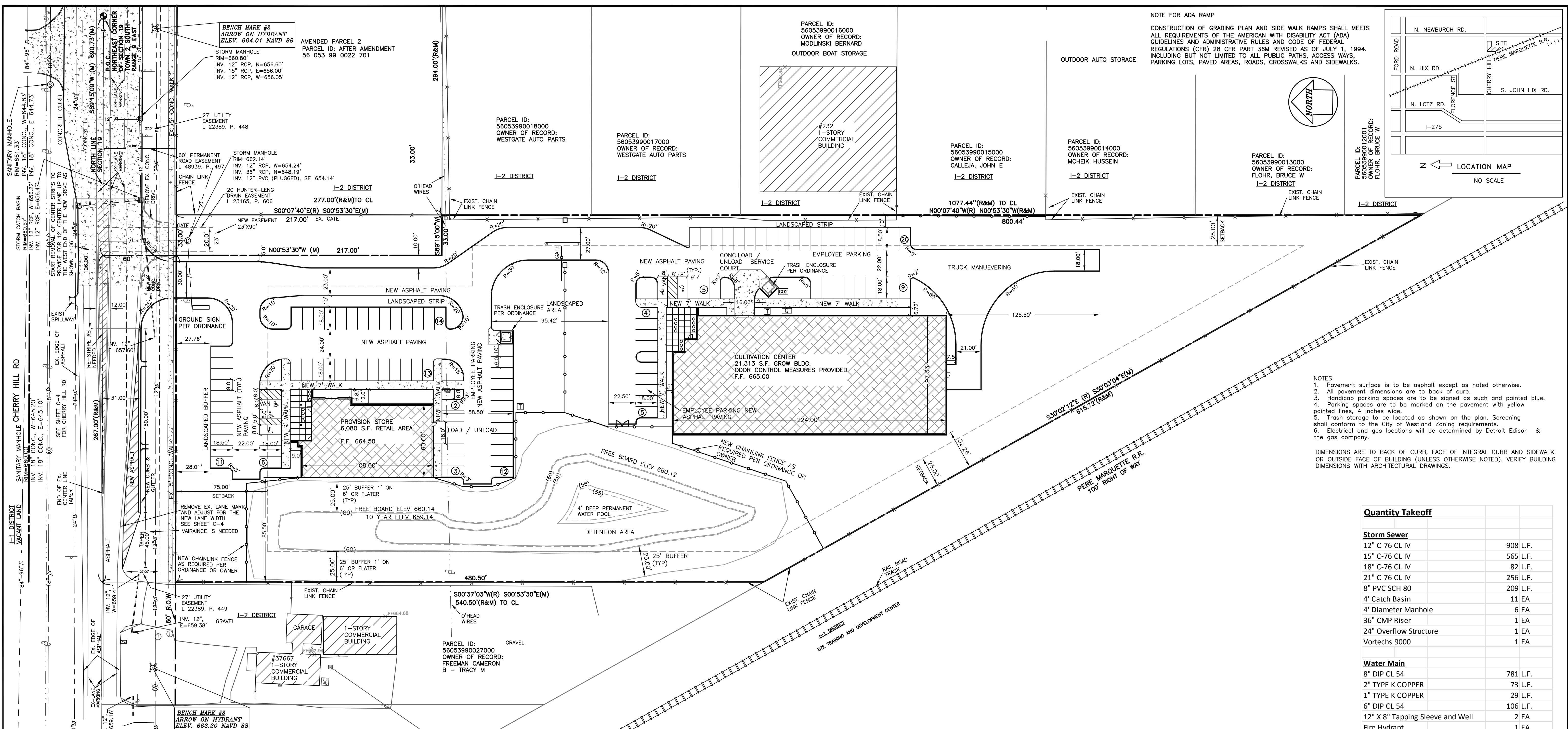


8/16/2022	CONSTRUCTION PLANS
2/23/2022	PER OHM REVIEW
2/2/2022	PER OHM REVIEW
1/4/2022	
REVISIONS	
DATE:	3/1/2021
DR. BY:	H.M.O
CH. BY:	H.M.O
JOB NO.	1210
SHEET NO.	C-1

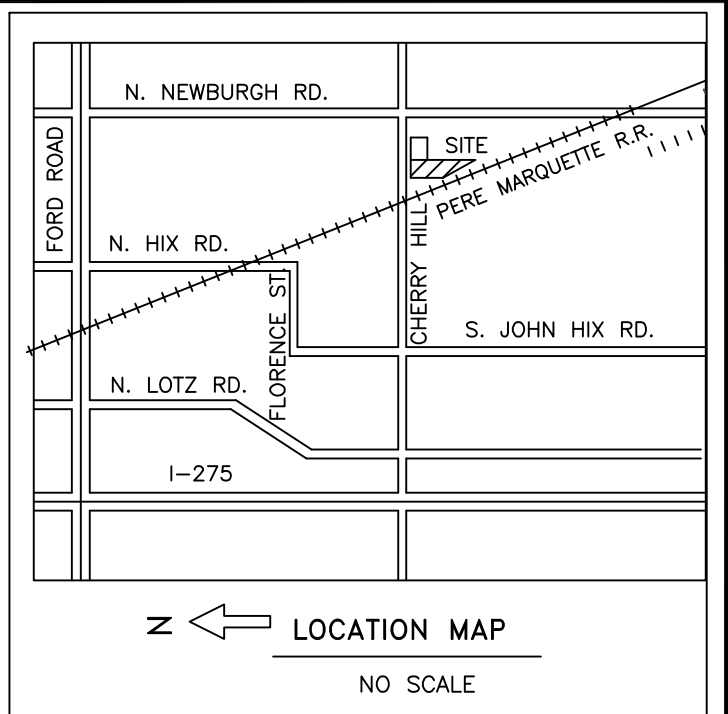
PROPERTY OWNER: WESTLAND PRINCIPLES, LLC  
ATTN: CURT MOLINO  
26621 EAST RIVER ROAD  
GROSSE ILE, MI 48138  
Phone: 313-218-4069  
EMAIL: curt.molino@yahoo.com

WAYNE COUNTY DPS PLAN REVIEW R 21-149

ALL MATERIAL AND INSTALLATION MUST CONFORM TO THE CURRENT ENGINEERING DESIGN STANDARDS OF THE CITY OF WESTLAND AND WAYNE COUNTY.



NOTE FOR ADA RAMP  
CONSTRUCTION OF GRADING PLAN AND SIDE WALK RAMP SHALL MEETS ALL REQUIREMENTS OF THE AMERICAN WITH DISABILITY ACT (ADA) GUIDELINES AND ADMINISTRATIVE RULES AND CODE OF FEDERAL REGULATIONS (CFR) 28 CFR PART 36M REVISED AS OF JULY 1, 1994. INCLUDING BUT NOT LIMITED TO ALL PUBLIC PATHS, ACCESS WAYS, PARKING LOTS, PAVED AREAS, ROADS, CROSSWALKS AND SIDEWALKS.



NOTES  
1. Pavement surface is to be asphalt except as noted otherwise.  
2. All pavement dimensions are to back of curb.  
3. Handicap parking spaces are to be signed as such and painted blue.  
4. Parking spaces are to be marked on the pavement with yellow painted lines, 4 inches wide.  
5. Trash storage to be located as shown on the plan. Screening shall conform to the City of Westland Zoning requirements.  
6. Electrical and gas locations will be determined by Detroit Edison & the gas company.  
DIMENSIONS ARE TO BACK OF CURB, FACE OF INTEGRAL CURB AND SIDEWALK OR OUTSIDE FACE OF BUILDING (UNLESS OTHERWISE NOTED). VERIFY BUILDING DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

Quantity Takeoff	
<b>Storm Sewer</b>	
12" C-76 CL IV	908 L.F.
15" C-76 CL IV	565 L.F.
18" C-76 CL IV	82 L.F.
21" C-76 CL IV	256 L.F.
8" PVC SCH 80	209 L.F.
4" Catch Basin	11 EA
4" Diameter Manhole	6 EA
36" CMP Riser	1 EA
24" Overflow Structure	1 EA
Vortechs 9000	1 EA
<b>Water Main</b>	
8" DIP CL 54	781 L.F.
2" TYPE K COPPER	73 L.F.
1" TYPE K COPPER	29 L.F.
6" DIP CL 54	106 L.F.
12" X 8" Tapping Sleeve and Well	2 EA
Fire Hydrant	1 EA
Shutoff Valve	2 EA
FDC Connection	1 EA
<b>Sanitary Sewer</b>	
8" PVC SDR 23.5	123 L.F.
10" ABS TRUSS PIPE	686 L.F.
6" CLEANOUT	2 EA
SANITARY MANHOLE	5 EA
INTERIOR DROP CONNECTION	3 EA
<b>Paving</b>	
Asphalt Pavement	5448 SYD.
Aggregate Base	5448 SYD.
4" Concrete Walk	5709 S.F.
Concrete Curb and Gutter	2719 L.F.
8" Concrete	1100 S.F.
<b>Erosion Control</b>	
Silt Fence	2085 L.F.
Inlet Filters	22 EA
Temporary Mud Mat	1 EA

LEGEND:	
	EXISTING STORM / MH SANITARY
	PROPOSED STORM / MH SANITARY
	EXISTING WATER OVERHEAD UTILITY LINE
	PROPOSED WATER OVERHEAD UTILITY LINE
	EXISTING GAS CONTOUR LINE
	PROPOSED GAS CONTOUR LINE
	EXISTING ROUND CATCH BASIN
	PROPOSED ROUND CATCH BASIN
	EXISTING SQUARE CATCH BASIN
	PROPOSED SQUARE CATCH BASIN
	EXISTING HYDRANT
	PROPOSED HYDRANT
	EXISTING GATE VALVE IN WELL
	PROPOSED GATE VALVE IN WELL
	EXISTING TAPPING SLEEVE VALVE IN WELL
	PROPOSED TAPPING SLEEVE VALVE IN WELL
	EXISTING UTILITY POLE
	PROPOSED UTILITY POLE
	EXISTING AIR CONDITIONING UNIT
	PROPOSED AIR CONDITIONING UNIT
	EXISTING ELECTRIC METER
	PROPOSED ELECTRIC METER
	EXISTING FENCE (AS NOTED)
	PROPOSED FENCE (AS NOTED)
	EXISTING CORRUGATED METAL PIPE (AS NOTED)
	PROPOSED CORRUGATED METAL PIPE (AS NOTED)
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	EXISTING TOP OF CURB GRADE
	PROPOSED TOP OF CURB GRADE
	EXISTING GUTTER GRADE
	PROPOSED GUTTER GRADE
	EXISTING WATER SHUTOFF VALVE
	PROPOSED WATER SHUTOFF VALVE
	EXISTING WATER VALVE IN BOX
	PROPOSED WATER VALVE IN BOX
	EXISTING GAS VALVE
	PROPOSED GAS VALVE
	EXISTING CLEAN OUT
	PROPOSED CLEAN OUT
	EXISTING COLUMN BASE
	PROPOSED COLUMN BASE
	EXISTING FOUND MONUMENT (AS NOTED)
	PROPOSED FOUND MONUMENT (AS NOTED)
	EXISTING RECORD AND MEASURED DIMENSION
	PROPOSED RECORD AND MEASURED DIMENSION
	EXISTING MEASURED DIMENSION
	PROPOSED MEASURED DIMENSION
	EXISTING RECORD DIMENSION
	PROPOSED RECORD DIMENSION
	EXISTING CROSSING LOCATION
	PROPOSED CROSSING LOCATION
	EXISTING SINGLE POST SIGN
	PROPOSED SINGLE POST SIGN
	EXISTING DOUBLE POST SIGN
	PROPOSED DOUBLE POST SIGN
	EXISTING DECIDUOUS TREE (AS NOTED)
	PROPOSED DECIDUOUS TREE (AS NOTED)
	EXISTING BOLLARD
	PROPOSED BOLLARD
	EXISTING TRANSFORMER
	PROPOSED TRANSFORMER
	EXISTING EROSION CONTROL FENCE
	PROPOSED EROSION CONTROL FENCE
	EXISTING DIRECTION OF DRAINAGE
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THAT PART OF THE EAST 1/2 OF SECTION 19, TOWN 2, RANGE 9 EAST, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE NORTH LINE OF SAID SECTION DISTANT S89°15'00"W 690.73 FEET FROM THE NORTHEAST CORNER OF SECTION 19 AND PROCEEDING THENCE S89°15'00"W ALONG SAID NORTH LINE 267.00 FEET; THENCE S00°53'30"E 540.50 FEET TO NORTHEASTERLY LINE OF PERE MARQUETTE RAILROAD RIGHT-OF-WAY; THENCE S3°03'04"E ALONG SAID NORTHEASTERLY LINE 615.72 FEET; THENCE N00°53'30"W 800.44 FEET; THENCE S89°15'00"W 33.00 FEET; THENCE N00°53'30"W 277.00 FEET TO THE POINT OF BEGINNING, CONTAINING 5.361 ACRES GROSS (4.993 ACRES NET), MORE OR LESS, SUBJECT TO EASEMENTS AND RESTRICTIONS, RIGHT OF WAY, RECORDED OR OTHERWISE.

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**MISS DIG**  
3 FULL WORKING DAYS BEFORE YOU DIG, OR WORK NEAR OVERHEAD WIRES CALL MISS DIG 1-800-482-7171 FOR THE LOCATION OF UNDERGROUND FACILITIES

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Email: landmark@landmarkengineeringco.com

SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST  
CITY OF WESTLAND  
WAYNE COUNTY, MICHIGAN  
SCALE 1 INCH = 40 FEET

CLIENT: WESTLAND PRINCIPLES, LLC  
LAYOUT AND DIMENSIONS PLAN  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

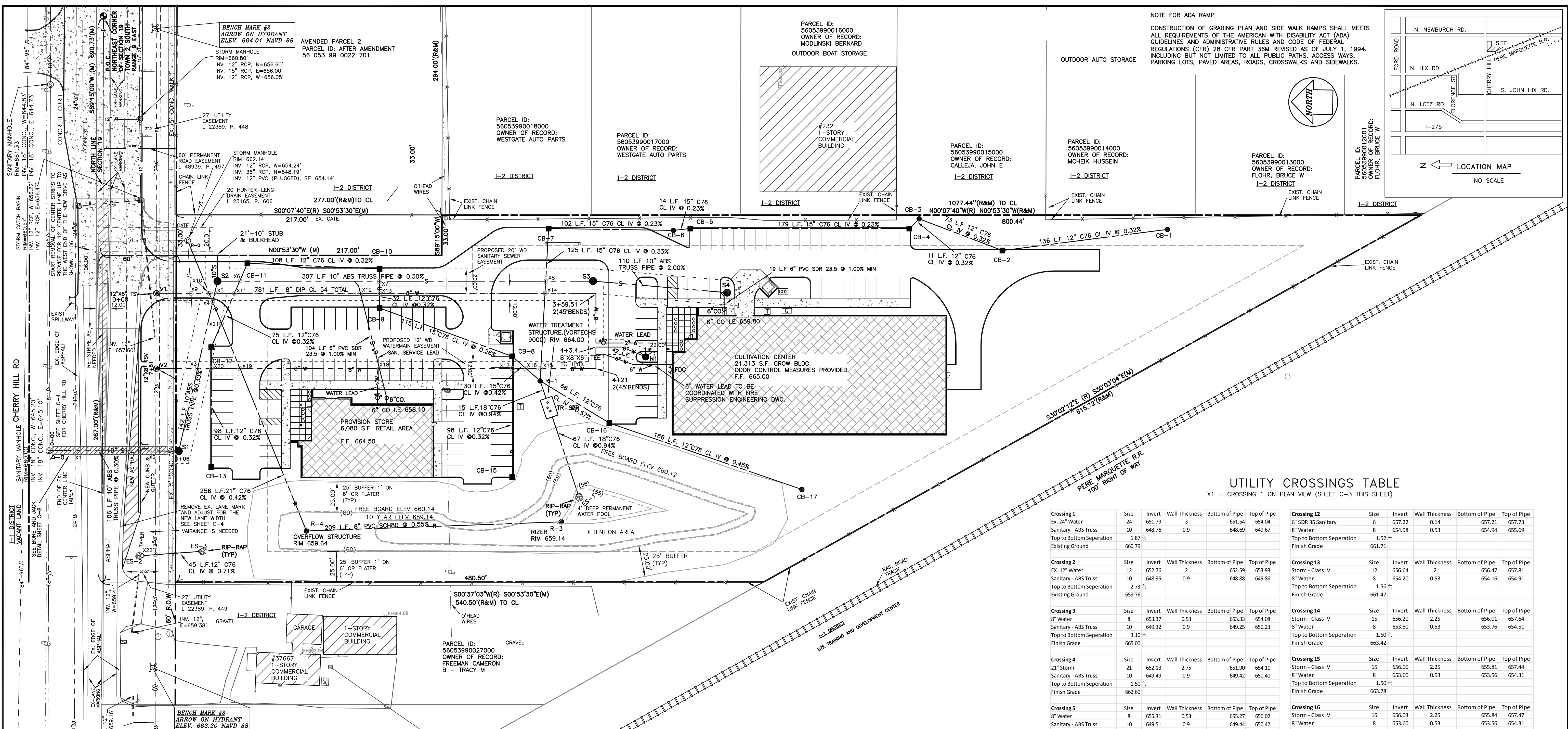
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STATE OF MICHIGAN  
HASSAN M. ODEH  
No. 6201037763  
REGISTERED PROFESSIONAL ENGINEER

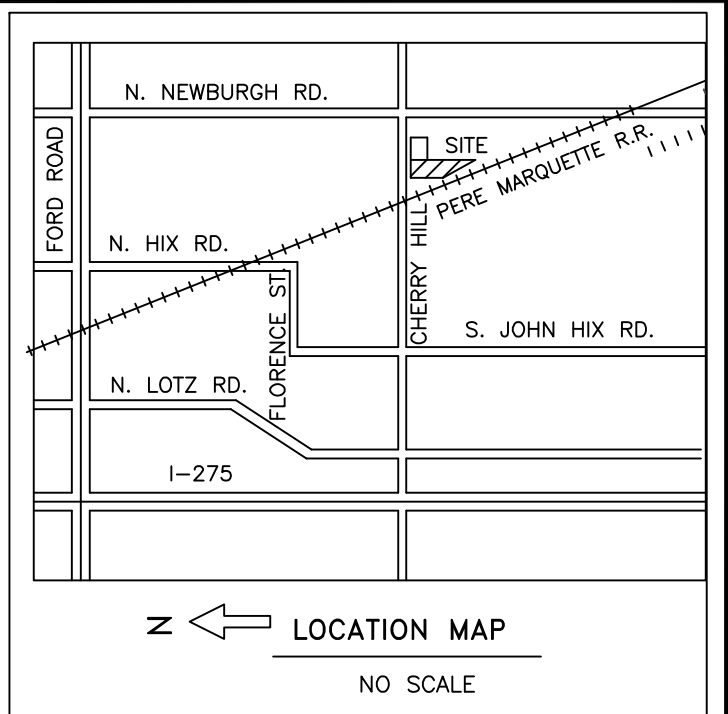
DATE	REVISIONS
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DATE: 3/1/2021  
DR. BY: H.M.O  
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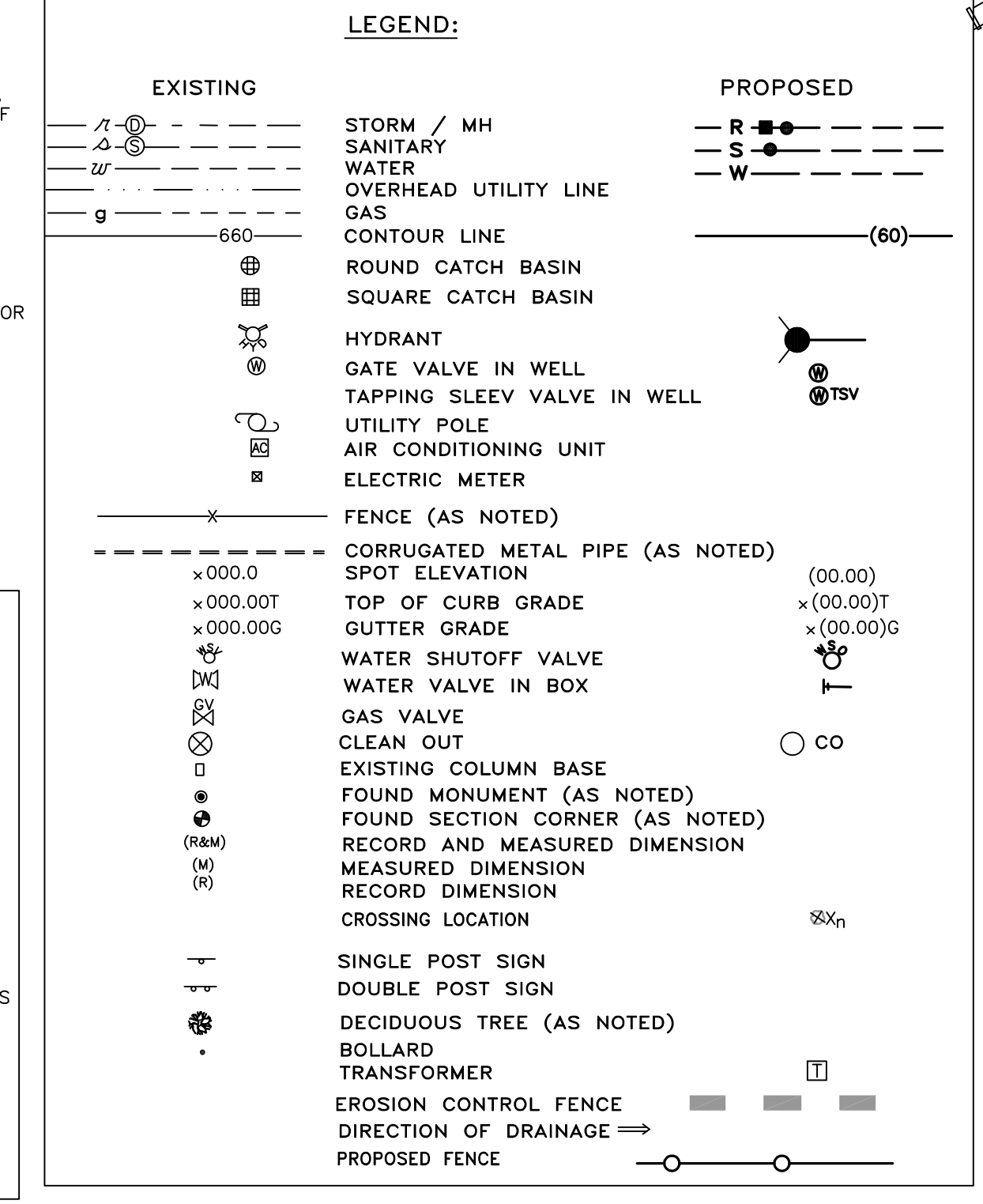


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UTILITY CROSSINGS TABLE  
 X1 = CROSSING 1 ON PLAN VIEW (SHEET C-3 THIS SHEET)

Crossing	Size	Invert	Wall Thickness	Bottom of Pipe	Top of Pipe
Crossing 1	Ex. 24" Water	24	651.79	3	651.54
	Sanitary - ABS Truss	10	648.76	0.9	648.69
	Top to Bottom Separation	1.87 ft			
	Existing Ground	660.79			
Crossing 2	Ex. 12" Water	12	652.76	2	652.59
	Sanitary - ABS Truss	10	648.95	0.9	648.88
	Top to Bottom Separation	2.73 ft			
	Existing Ground	659.76			
Crossing 3	8" Water	8	653.37	0.53	653.33
	Sanitary - ABS Truss	10	649.32	0.9	649.25
	Top to Bottom Separation	3.10 ft			
	Finish Grade	665.00			
Crossing 4	21" Storm	21	652.13	2.75	651.90
	Sanitary - ABS Truss	10	649.49	0.9	649.42
	Top to Bottom Separation	1.50 ft			
	Finish Grade	662.60			
Crossing 5	8" Water	8	655.31	0.53	655.27
	Sanitary - ABS Truss	10	649.51	0.9	649.44
	Top to Bottom Separation	4.85 ft			
	Finish Grade	661.98			
Crossing 6	Storm - Class IV	12	656.67	2	656.50
	Sanitary - ABS Truss	10	652.68	0.9	652.61
	Top to Bottom Separation	3.89 ft			
	Finish Grade	661.45			
Crossing 7	Storm - Class IV	12	656.67	2	656.50
	Sanitary - ABS Truss	10	652.68	0.9	652.61
	Top to Bottom Separation	2.04 ft			
	Finish Grade	663.27			
Crossing 8	Storm - Class IV	12	657.65	2	657.48
	Sanitary - ABS Truss	10	653.08	0.9	653.01
	Top to Bottom Separation	2.04 ft			
	Finish Grade	663.27			
Crossing 9	Storm - Class IV	12	654.46	2	654.29
	8" Water	8	655.70	0.53	655.66
	Top to Bottom Separation	0.03 ft			
	Finish Grade	662.24			
Crossing 10	Storm - Class IV	12	652.10	2.75	651.87
	8" Water	8	655.80	0.53	655.76
	Top to Bottom Separation	1.68 ft			
	Finish Grade	662.03			
Crossing 11	Storm - Class IV	12	657.34	2	657.17
	8" Water	8	654.96	0.53	654.92
	Top to Bottom Separation	1.50 ft			
	Finish Grade	661.78			
Crossing 12	6" SDR 35 Sanitary	6	657.22	0.14	657.21
	8" Water	8	654.98	0.53	654.94
	Top to Bottom Separation	1.52 ft			
	Finish Grade	661.71			
Crossing 13	Storm - Class IV	12	656.64	2	656.47
	8" Water	8	654.20	0.53	654.16
	Top to Bottom Separation	1.56 ft			
	Existing Ground	661.47			
Crossing 14	Storm - Class IV	15	656.20	2.25	656.01
	8" Water	8	653.80	0.53	653.76
	Top to Bottom Separation	1.50 ft			
	Finish Grade	663.42			
Crossing 15	Storm - Class IV	15	656.00	2.25	655.81
	8" Water	8	653.60	0.53	653.56
	Top to Bottom Separation	1.50 ft			
	Finish Grade	663.78			
Crossing 16	Storm - Class IV	15	656.03	2.25	655.84
	8" Water	8	653.60	0.53	653.56
	Top to Bottom Separation	1.53 ft			
	Finish Grade	663.48			
Crossing 17	Storm - Class IV	12	658.21	2	658.04
	8" Water	8	654.29	0.53	654.25
	Top to Bottom Separation	3.04 ft			
	Finish Grade	662.70			
Crossing 18	6" SDR 35 - Sanitary	6	657.85	0.14	657.84
	8" Water	8	655.63	0.53	655.59
	Top to Bottom Separation	1.50 ft			
	Finish Grade	662.41			
Crossing 19	Storm - Class IV	21	652.38	2.75	652.15
	8" Water	8	655.90	0.53	655.86
	Top to Bottom Separation	1.50 ft			
	Finish Grade	662.46			
Crossing 20	Storm - Class IV	12	657.65	2	657.48
	8" Water	8	654.70	0.53	654.66
	Top to Bottom Separation	2.07 ft			
	Finish Grade	662.01			
Crossing 21	Storm - Class IV	12	657.41	2	657.24
	Storm - Class IV	21	652.21	2.75	651.98
	Top to Bottom Separation	3.05 ft			
	Finish Grade	662.39			
Crossing 22	Storm - Class IV	12	658.57	2	658.40
	Ex. 12" Water	21	654.00	0.6	653.95
	Top to Bottom Separation	2.60 ft			
	Finish Grade	660.80			



SERVICE LEADS NOTE:  
 SANITARY SEWER LEADS SHALL BE 6" PVC SCH 23.5 AT 1% MIN. OR AS APPROVED BY THE ENGINEER.  
 ALL NEW SANITARY LEADS CONNECTION TO THE PROPOSED MAIN SHALL BE WYE CONNECTION.  
 1" WATER LEADS SHALL BE TYPE K COPPER OR AS APPROVED BY THE CITY ENGINEER.  
 STORM LEADS FOR ROOF DRAINAGE SHALL BE 6" PVC SCH 40 PVC.  
 SANITARY & WATERMAIN MATERIAL NOTES:  
 ALL SANITARY MAIN LINE SHALL 10"ABS TRUSS PIPE OR AS APPROVED BY THE ENGINEER.  
 WATER MAIN SHALL BE 8" DIP CL 54.

AMENDED PARCEL 3: PARCEL ID: AFTER AMENDMENT 56 053 99 0028 701  
 THAT PART OF THE EAST 1/2 OF SECTION 19, TOWN 2, RANGE 9 EAST, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE NORTH LINE OF SAID SECTION DISTANT S89°15'00"W 690.73 FEET FROM THE NORTHEAST CORNER OF SECTION 19 AND PROCEEDING THENCE S89°15'00"W ALONG SAID NORTH LINE 267.00 FEET; THENCE S00°53'30"E 540.50 FEET TO NORTHEASTERLY LINE OF PERE MARQUETTE RAILROAD RIGHT-OF-WAY; THENCE S3°03'04"E ALONG SAID NORTHEASTERLY LINE 615.72 FEET; THENCE N00°53'30"W 800.44 FEET; THENCE S89°15'00"W 33.00 FEET; THENCE N00°53'30"W 277.00 FEET TO THE POINT OF BEGINNING, CONTAINING 5.361 ACRES GROSS (4.993 ACRES NET), MORE OR LESS, SUBJECT TO EASEMENTS AND RESTRICTIONS, RIGHT OF WAY, RECORDED OR OTHERWISE.

NOTE: CONTRACTOR SHALL EXPOSE THE EXISTING GAS OR ANY OTHER EXISTING UTILITY LINE AT THE AREA OF CROSSING WITH PROPOSED SANITARY SEWERS AND/OR WATER MAIN PRIOR TO STARTING CONSTRUCTION OF SEWERS OR WATER. CONTRACTOR SHALL VERIFY THAT THE EXISTING UTILITY LINE WILL NOT CONFLICT WITH THE PROPOSED SEWERS OR WATER, AND INFORM ENGINEER (TO REVISE DESIGN PLANS) IF CONFLICT EXISTS.

3 FULL WORKING DAYS BEFORE YOU DIG, OR WORK NEAR OVERHEAD WIRES CALL MISS DIG 1-800-482-7171 FOR THE LOCATION OF UNDERGROUND FACILITIES  
 NOTE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.  
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LANDMARK ENGINEERING CO.  
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 Fax: 248-557-3059  
 Email: landmark@landmarkengineeringco.com

SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST  
 CITY OF WESTLAND  
 WAYNE COUNTY, MICHIGAN

SCALE 1 INCH = 40 FEET

CLIENT: WESTLAND PRINCIPLES, LLC  
 UTILITIES PLAN  
 KINSHIP PROVISIONING AND CULTIVATION  
 PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

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HASSAN M. ODEH  
 ENGINEER  
 No. 6201037763  
 PROFESSIONAL ENGINEER

8/16/2022 CONSTRUCTION PLANS  
 2/23/2022 PER OHM REVIEW  
 2/2/2022 PER OHM REVIEW  
 1/4/2022

REVISIONS

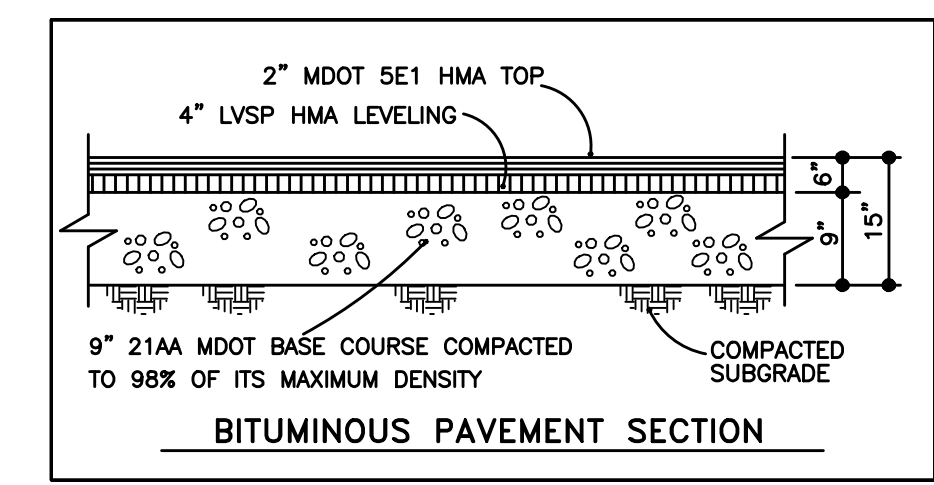
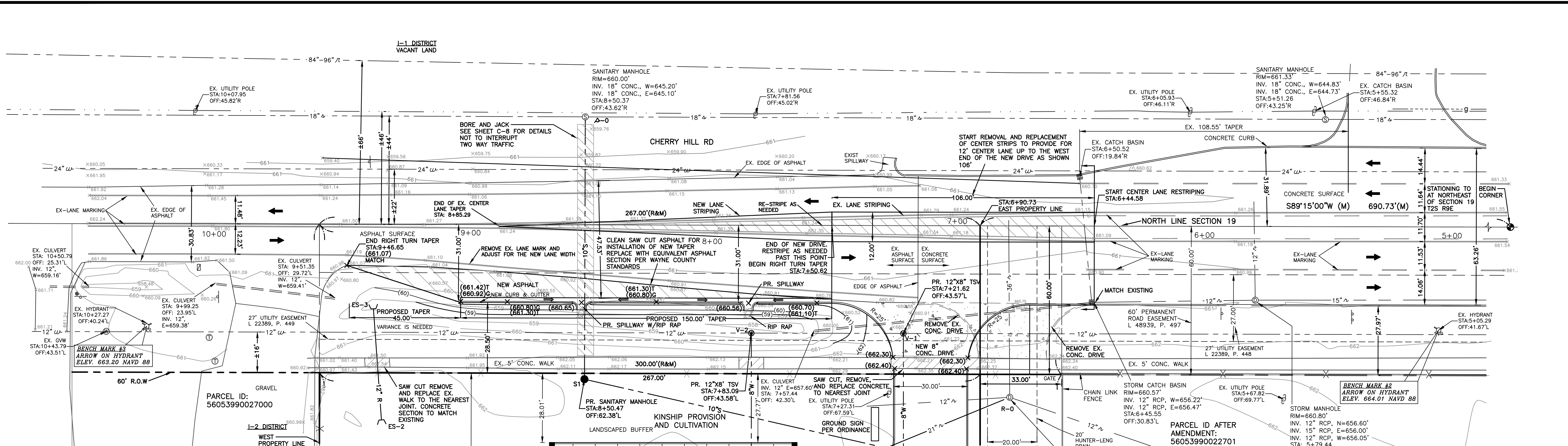
DATE: 3/1/2021  
 DR. BY: H.M.O  
 CH. BY: H.M.O

PROPERTY OWNER: WESTLAND PRINCIPLES, LLC  
 ATTN: CURT MOLINO  
 26621 EAST RIVER ROAD  
 GROSSE ILE, MI 48138  
 Phone: 313-218-4069  
 EMAIL: curt.molino@yahoo.com

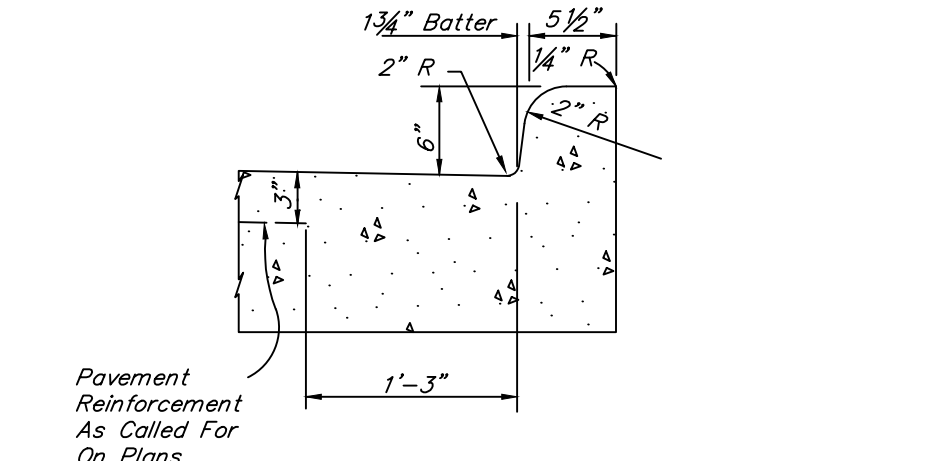
WAYNE COUNTY DPS PLAN REVIEW R 21-149

ALL MATERIAL AND INSTALLATION MUST CONFORM TO THE CURRENT ENGINEERING DESIGN STANDARDS OF THE CITY OF WESTLAND AND WAYNE COUNTY.

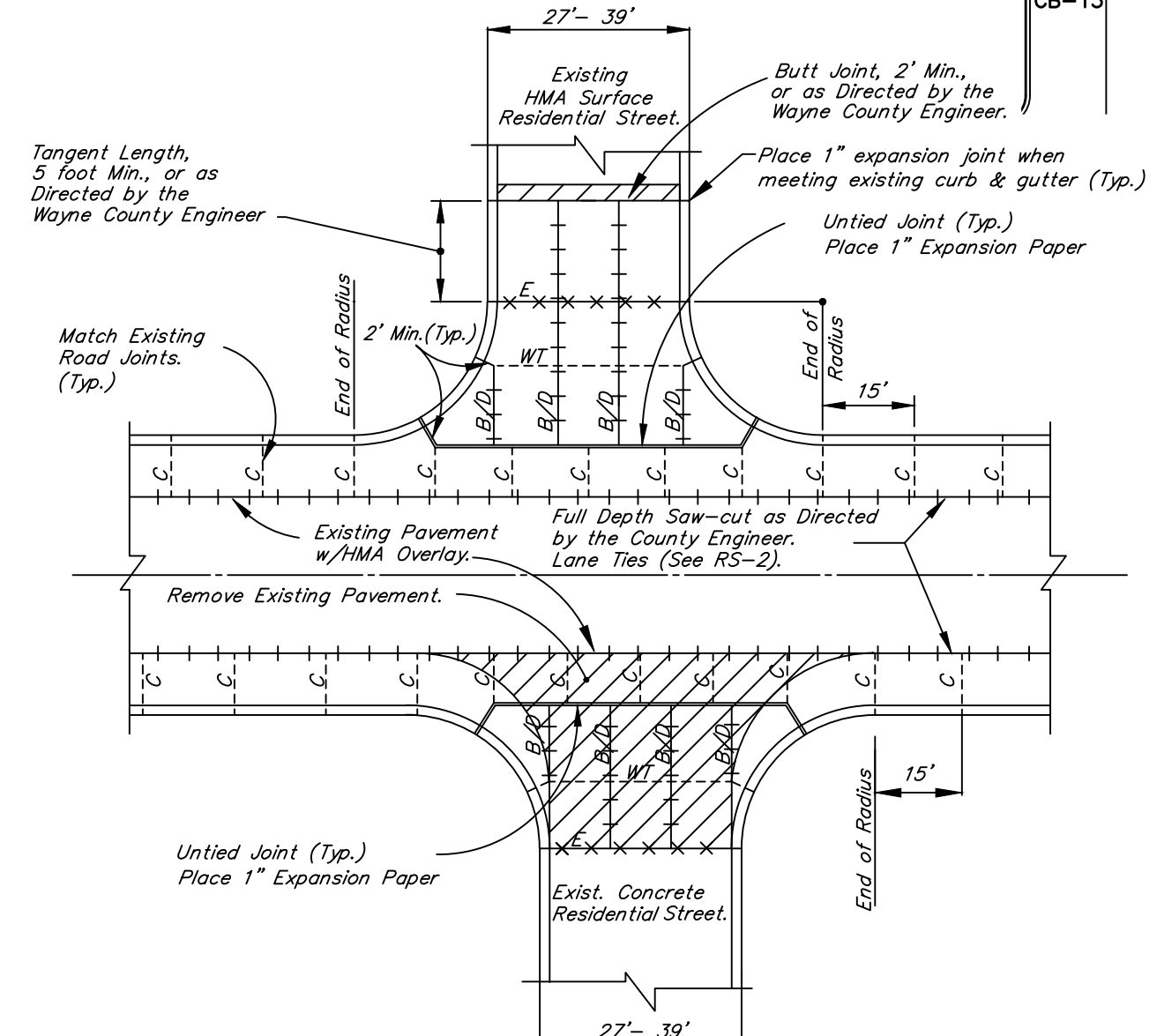
JOB NO. 1210  
 SHEET NO. C-3



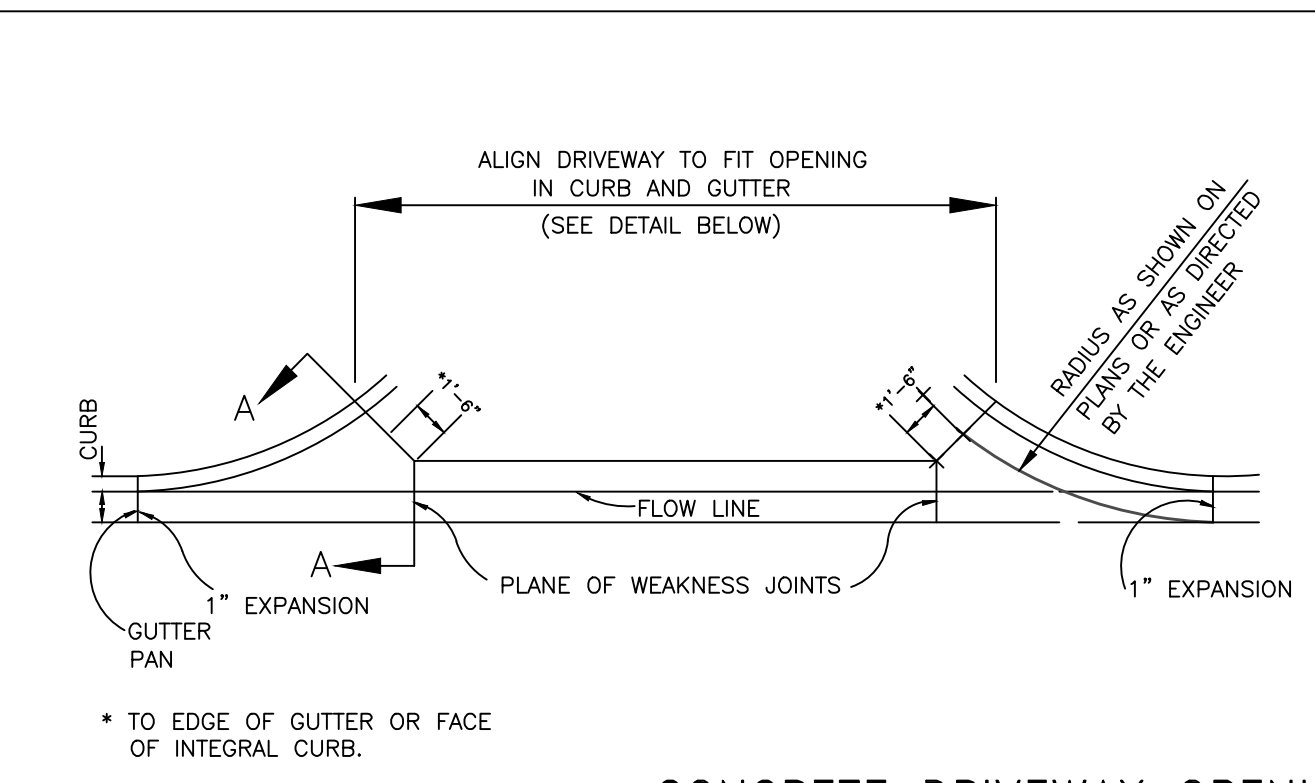
NOTE:  
 1. ASPHALT WIDENING WITHIN THE RIGHT OF WAY SECTION  
 2. WE HAVE NOT REVIEWED THIS PROJECT FOR SOIL CONTENT WE SUGGEST THE CLIENT CONTACT A SOIL ENGINEER WITH REGARD TO SOIL CONDITIONS AND MODIFY PAVEMENT SECTION AS REQUIRED.



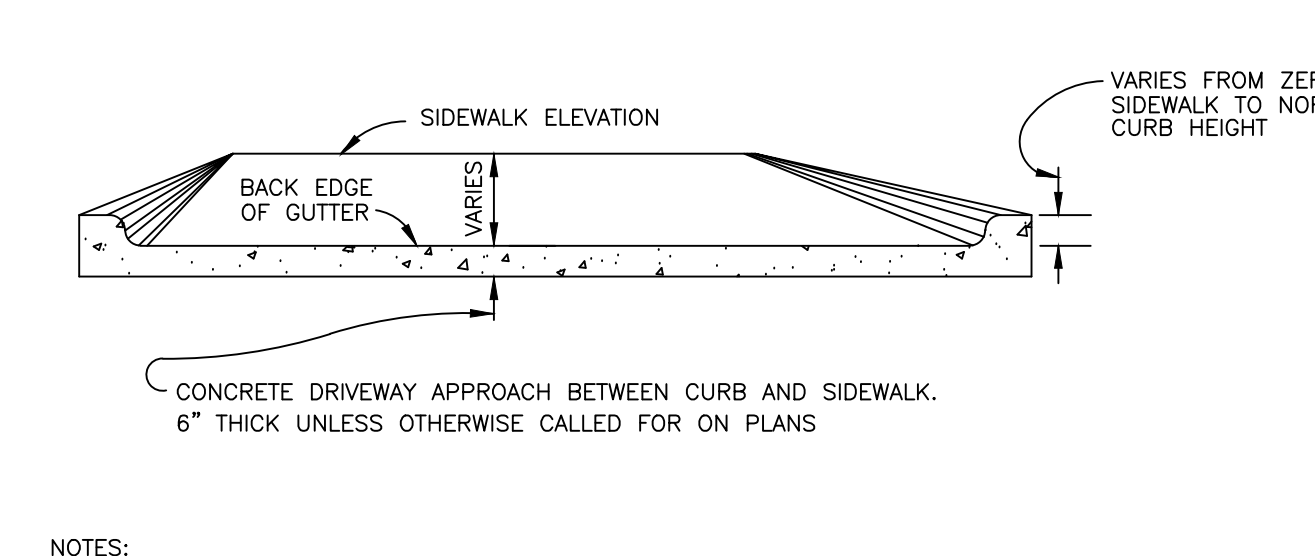
STRAIGHT CURB AND GUTTER TYPE 3 WAYNE COUNTY PERMIT STANDARDS (RS-3, SHEET 1)  
 N.T.S.



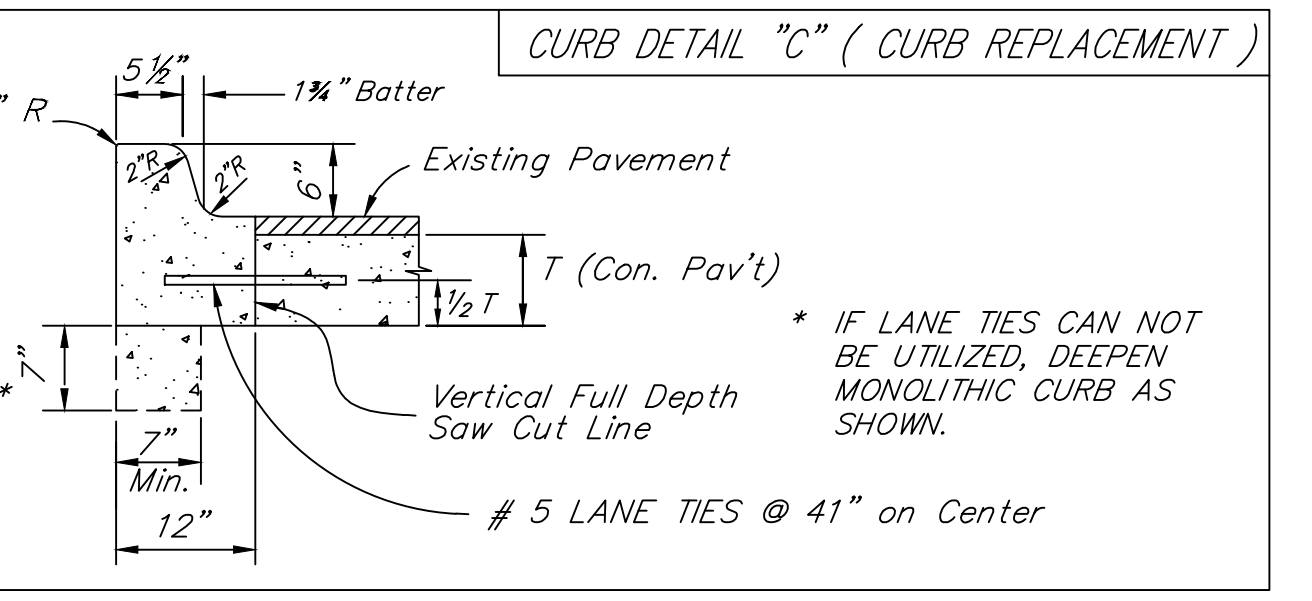
PRIMARY ROAD - NON-REINFORCED CONCRETE BASE COURSE WIDENING AT RESIDENTIAL STREET WAYNE COUNTY PERMIT STANDARDS (P-5, SHEET 1)  
 N.T.S.



CONCRETE DRIVEWAY OPENING - DETAIL M



CONCRETE DRIVEWAY APPROACH (to be used with details L & M)



CURB DETAIL "C" (CURB REPLACEMENT) WAYNE COUNTY PERMIT STANDARDS (D-07, SHEET 1)  
 N.T.S.

NOTICE:  
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GENERAL NOTES (WAYNE COUNTY PERMIT STANDARDS, RS-1)  
 REVISION DATE: 8/01/2007

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH WAYNE COUNTY SPECIFICATIONS WHICH ARE DEFINED AS THE CURRENT MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AS MODIFIED BY WAYNE COUNTY SPECIAL PROVISIONS.
- PAVING STANDARD PLAN DETAILS MAY BE SHOWN WITH WIRE FABRIC REINFORCEMENT. USE OF REINFORCEMENT SHALL BE REQUIRED AS CALLED FOR ON THE PLANS.
- A TRANSVERSE END OF POUR JOINT, SYMBOL (H), SHALL BE CONSTRUCTED WHEN THERE IS AN INTERRUPTION IN CONCRETE PAVING FOR MORE THAN 1/2 HOUR. TRANSVERSE END OF POUR JOINT, SYMBOL (H), SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT MDOT STANDARD PLAN, R-39 SERIES (REINFORCED CONCRETE PAVEMENT) AND R-39P SERIES (PLAIN CONCRETE PAVEMENT). THIS NOTE APPLIES TO BOTH CONCRETE BASE AND FINISHED CONCRETE PAVEMENT.
- WHEN IT IS ANTICIPATED THAT CONSTRUCTION TRAFFIC WILL BE USING THE PAVEMENT, ENDINGS WILL BE PROTECTED BY MEANS OF A TEMPORARY CONCRETE HEADER AS SHOWN ON RS-4.
- THE EXPANSION JOINT FOAM ROD SHALL BE A SOLID ROUND HEAT RESISTANT POLYURETHANE FOAM CAPABLE OF WITHSTANDING THE TEMPERATURE OF THE SEALANT. DENSITY OF THE FOAM SHALL BE 2-4 LB./CFT.
- WIRE FABRIC REINFORCEMENT SHALL LAY FLAT WHEN DELIVERED TO THE WORK AREA. THE USE OF SPREADER BARS WILL BE REQUIRED FOR LIFTING BUNDLES OF REINFORCEMENT.
- WHERE THE LANE WIDTH OF THE PAVEMENT DIFFERS FROM WIRE FABRIC REINFORCEMENT STANDARDS, SPECIAL SHEETS OF THE REQUIRED WIDTH MAY BE USED OR STANDARD SHEETS MAY BE CUT TO THE REQUIRED SIZE OR SPLIT SHEETS MAY BE ADDED TO STANDARD SHEETS TO OBTAIN THE REQUIRED SIZE. SIDE LAPS SHALL NOT BE LESS THAN THE SPACING OF THE LONGITUDINAL WIRES.
- THE ENDS OF THE WIRE FABRIC REINFORCEMENT SHEETS SHALL BE FASTENED IN AT LEAST TWO PLACES AT EACH LAP TO PREVENT HORIZONTAL AND VERTICAL DISPLACEMENT.
- WHEN CONCRETE PAVEMENT REPAIRS ARE LONGER THAN 20 FEET, TRANSVERSE PLANE OF WEAKNESS JOINTS (WT) SHALL BE PLACED IN-LINE WITH EXISTING TRANSVERSE JOINTS, WORKING CRACKS, OR AT 15 FEET MAXIMUM AND 6 FEET MINIMUM SPACINGS.
- EXISTING CONCRETE PAVEMENTS WITH HMA SURFACE REQUIRING SAW-CUTTING FOR REMOVAL SHALL HAVE THE SAW CUTS EXTEND COMPLETELY THRU THE CONCRETE PAVEMENT. SAWED OVER-CUTS OCCURRING IN ADJACENT SLAB, GUTTER OR SHOULDER, WHICH WILL REMAIN IN PLACE, SHALL BE SEALED.

- CONSTRUCTION NOTES:
- CONTRACTOR SHALL PROCURE AND CONFORM TO ALL CONSTRUCTION PERMITS REQUIRED
  - CONTRACTOR SHALL ERECT AND MAINTAIN BARRICADES, WARNING SIGNS, TRAFFIC CONES PER CITY, COUNTY, AND MDOT REQUIREMENTS. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES. ALL TRAFFIC CONTROL MEASURES SHALL BE APPROVED AND IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITY.
  - CONTRACTOR TO MAINTAIN TWO WAY TRAFFIC AT ALL TIMES WITHIN CHERRY HILL RD.
  - CONTRACTOR TO RESTORE ANY DISTURBANCE IN THE R.O.W. TO ORIGINAL CONDITION OR BETTER

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SECTION 19 TOWN 2 SOUTH - RANGE 9 EAST  
 CITY OF WESTLAND  
 WAYNE COUNTY, MICHIGAN

CLIENT: WESTLAND PRINCIPLES, LLC  
 RIGHT TURN DECELERATION LANE AND CENTERLINE EXTENSION AND KINSHIP PROVISION AND CULTIVATION  
 PART OF THE EAST 1/2 OF

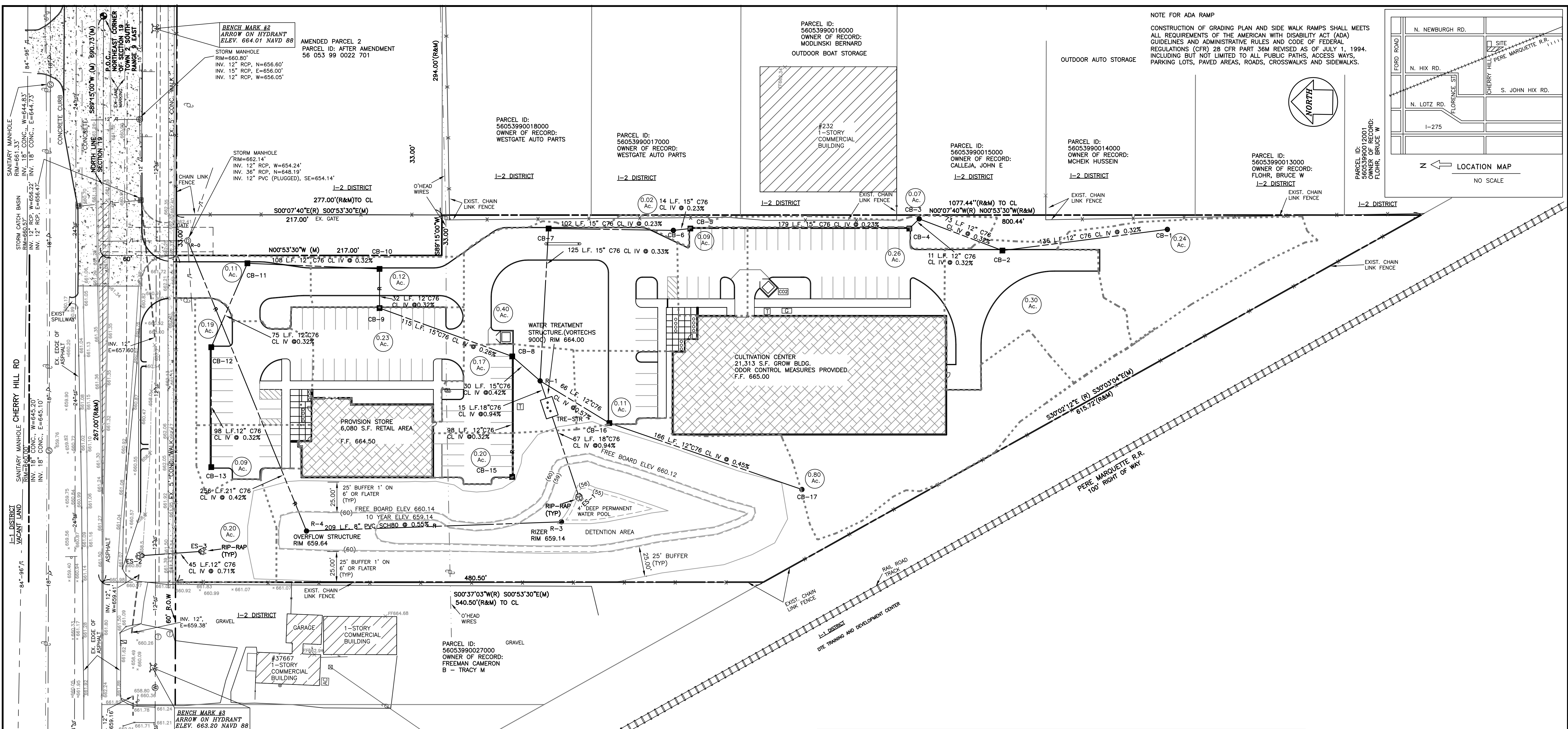
CAD NO. 1210DecelLane.dwg

DATE: 8-16-2022  
 CONSTRUCTION PLANS

DR. BY: OHO  
 CH. BY: HMO

BOOK NO.  
 JOB NO. 1210

FILE NO. C-4



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Civil Engineering - Land Surveying  
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Plymouth, Michigan 48170  
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SECTION 19 TOWN 2 SOUTH, RANGE 9  
CITY OF WESTLAND  
WAYNE COUNTY, MICHIGAN

SCALE 1 INCH = 40 FEET

CLIENT: WESTLAND PRINCIPLES, LLC  
DRAINAGE AREA MAP  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

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STATE OF MICHIGAN  
HASSAN M. ODEH  
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PROFESSIONAL ENGINEER

8/16/2022 CONSTRUCTION PLANS  
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REVISIONS

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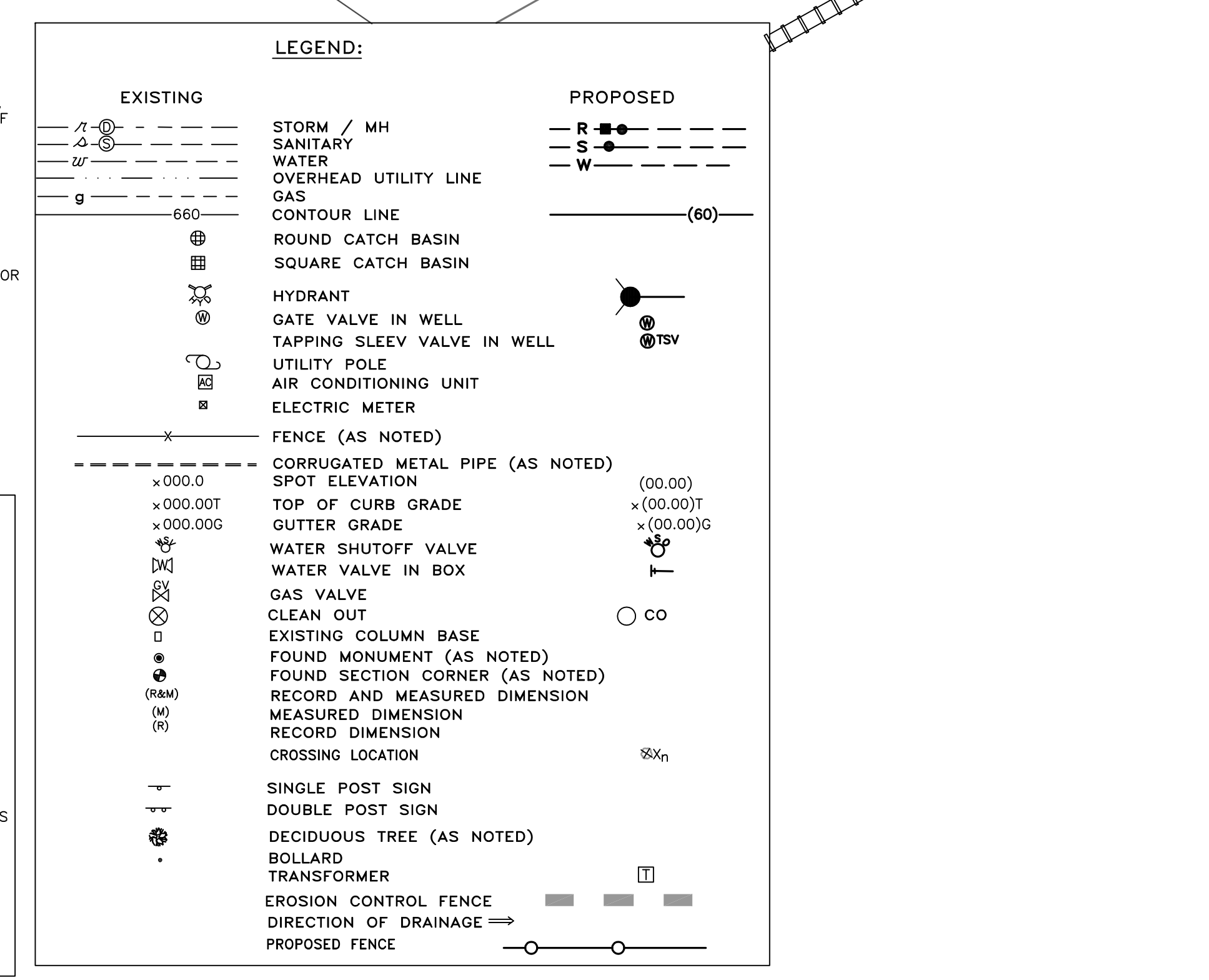
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JOB NO. 1210  
SHEET NO. C-5

**STORM SEWER SYSTEM DESIGN**

$Q = A^*(1.486/n) \times R^{2/3} \times S^{1/2}$   $n = 0.013$   $Q = CIA$   $I_{10} = 151.8/(T+19.9)$

Structure No.	Incremental Area (A)	Total Area (A)	Runoff Coefficient (C)	Equivalent Area (EA)	Time (T)	Rainfall Intensity (I)	Flow Q(CAL)	Pipe Capacity @ 8 Full	Diameter of Pipe	Length of Pipe to Next Structure	Slope of Pipe	Slope of HGL	Velocity of Flow	Time of Flow	INVERT ELEV.				H.G.L. ELEV.				
															Upper End	Lower End	Upper End	Lower End	STRUCTURE RIM	COVER D/T/P	HGL BELOW RIM (FT)		
CB-1	0.24	0.24	0.40	0.096	15.00	4.350	0.4	2.0	12	136	0.32%	0.32%	2.57	0.88	658.37	657.93	659.17	658.73	661.50	2.13	2.33		
CB-2	0.30	0.54	0.63	0.189	0.285	15.88	4.242	1.2	12	73	0.32%	0.32%	2.57	0.47	657.83	657.60	658.63	658.40	662.20	3.37	3.57		
CB-3	0.07	0.61	0.40	0.028	0.313	16.36	4.187	1.3	2.0	12	11	0.32%	0.32%	2.57	0.07	657.50	657.46	658.30	658.26	660.21	1.71	1.91	
CB-4	0.26	0.87	0.95	0.247	0.560	16.43	4.178	2.3	3.1	15	179	0.23%	0.23%	2.52	1.18	657.36	656.95	658.36	657.95	661.40	2.79	3.04	
CB-5	0.09	0.96	0.95	0.086	0.646	17.61	4.047	2.6	3.1	15	14	0.23%	0.23%	2.52	0.09	656.85	656.82	657.85	657.82	662.45	4.35	4.60	
CB-6	0.02	0.98	0.30	0.006	0.652	17.70	4.037	2.6	3.1	15	102	0.23%	0.23%	2.52	0.67	656.72	656.48	657.72	657.48	662.40	4.43	4.68	
CB-7	R-1	0.40	1.38	0.69	0.276	0.928	18.38	3.966	3.7	3.7	15	125	0.33%	0.33%	3.02	0.69	656.38	655.97	657.38	656.97	661.20	3.57	3.82
R-1	TRE-STR	3.40			2.621	19.07	3.896	10.2	10.2	18	15	0.94%	0.94%	5.76	0.04	655.77	655.63	656.97	656.83	664.00	6.73	7.03	
TRE-STR	ES-1	3.40			2.621	19.11	3.891	10.2	10.2	18	67	0.94%	0.94%	5.76	0.19	655.63	655.00	656.83	656.20				
CB-13	CB-12	0.09	0.09	0.95	0.086	0.086	15.00	4.350	0.4	2.0	12	98	0.32%	0.32%	2.57	0.64	657.90	657.58	658.70	658.38	662.45	3.55	3.75
CB-12	CB-11	0.19	0.28	0.90	0.171	0.257	15.64	4.271	1.1	2.0	12	75	0.32%	0.32%	2.57	0.49	657.48	657.24	658.28	658.04	661.55	3.07	3.27
CB-11	CB-10	0.11	0.39	0.95	0.105	0.361	16.13	4.213	1.5	2.0	12	108	0.32%	0.32%	2.57	0.70	657.14	656.80	657.94	657.60	661.00	2.86	3.06
CB-10	CB-9	0.12	0.51	0.95	0.114	0.475	16.83	4.133	2.0	2.0	12	32	0.32%	0.32%	2.57	0.21	656.70	656.60	657.50	657.40	661.20	3.50	3.70
CB-9	CB-8	0.23	0.74	0.95	0.219	0.694	17.04	4.109	2.8	3.3	15	115	0.26%	0.26%	2.68	0.71	656.50	656.20	657.50	657.20	661.70	3.96	4.21
CB-8	R-1	0.17	1.11	0.95	0.162	1.045	17.75	4.032	4.2	4.2	15	30	0.42%	0.42%	3.41	0.15	656.10	655.97	657.10	656.97	662.50	5.15	5.40
R-1	TRE-STR	1.11				17.90					15												
CB-15	CB-8	0.20	0.20	0.95	0.190	0.190	15.00	4.350	0.8	2.0	12	98	0.32%	0.32%	2.57	0.64	658.50	658.18	659.29	658.98	663.00	3.50	3.71
CB-17	CB-16	0.80	0.80	0.70	0.560	0.560	15.00	4.350	2.4	2.4	12	166	0.45%	0.45%	3.04	0.91	657.25	656.51	658.05	657.31	661.50	3.25	3.45
CB-16	R-1	0.11	0.91	0.80	0.088	0.648	15.91	4.239	2.7	2.7	12	66	0.57%	0.57%	3.42	0.32	656.41	656.03	657.21	656.83	662.50	5.09	5.29



AMENDED PARCEL 3: PARCEL ID: AFTER AMENDMENT  
56 053 99 0028 701

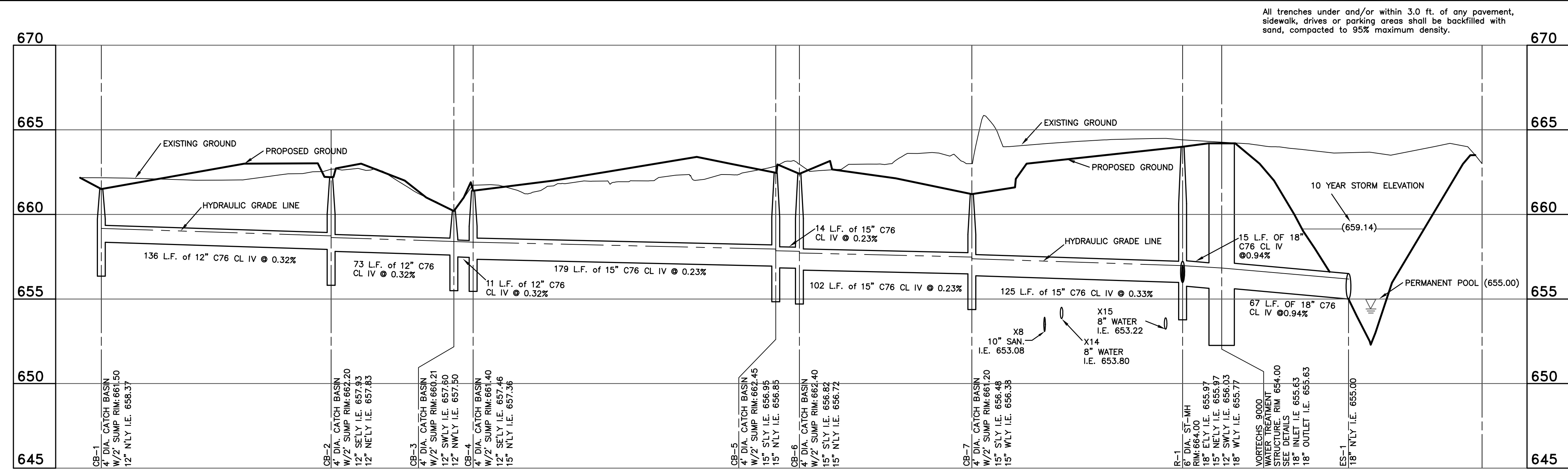
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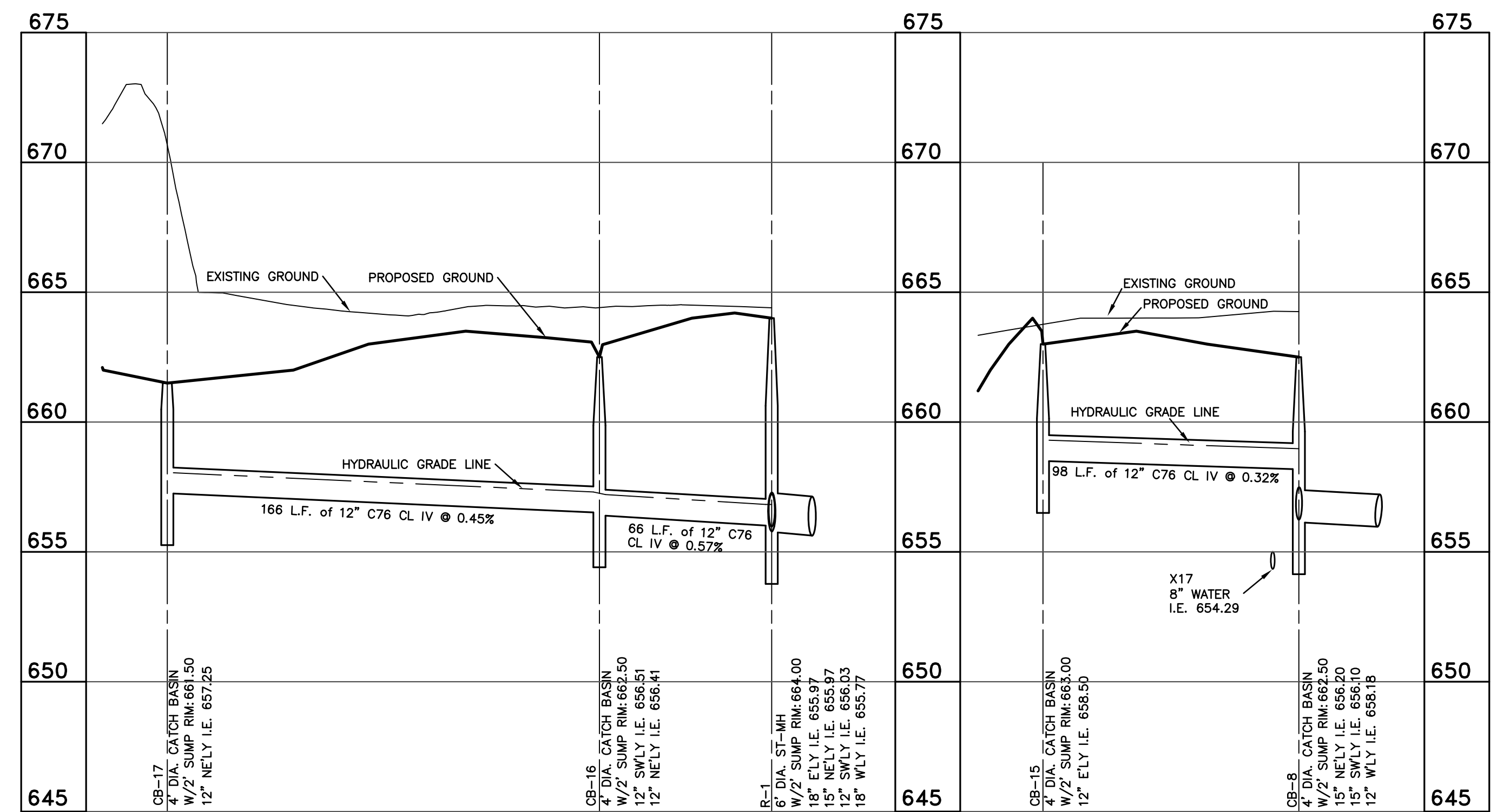
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**MISS DIG**  
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BEFORE YOU DIG,  
OR WORK NEAR OVERHEAD WIRES  
CALL MISS DIG  
1-800-482-7171  
FOR THE LOCATION OF  
UNDERGROUND FACILITIES



\*NOTE Xn INDICATES LOCATION AND DESIGNATION OF CROSSING REFERENCE PLAN AND CROSSING TABLE

SCALE: H: 1" = 40', V: 1" = 4'  
STORM SEWER PROFILES  
CB1 - POND



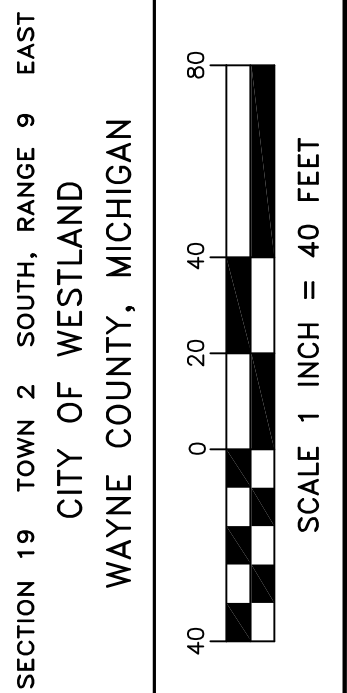
SCALE: H: 1" = 40', V: 1" = 4'  
STORM SEWER PROFILES  
CB17 - R1

\*NOTE Xn INDICATES LOCATION AND DESIGNATION OF CROSSING REFERENCE PLAN AND CROSSING TABLE

SCALE: H: 1" = 40', V: 1" = 4'  
STORM SEWER PROFILES  
CB15 - CB-8

All trenches under and/or within 3.0 ft. of any pavement, sidewalk, drives or parking areas shall be backfilled with sand, compacted to 95% maximum density.

**LANDMARK ENGINEERING CO.**  
Civil Engineering - Land Surveying  
9401 General Dr., Suite 101  
Plymouth, Michigan 48170  
Tel: 248-557-3000  
Fax: 248-557-3059  
Email: landmark@landmarkengineeringco.com



CLIENT: WESTLAND PRINCIPLES, LLC  
STORM PROFILES  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

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REVISIONS	
DATE:	8/16/2022
DR. BY:	H.M.O
CH. BY:	H.M.O
JOB NO.	1210
SHEET NO.	C-6

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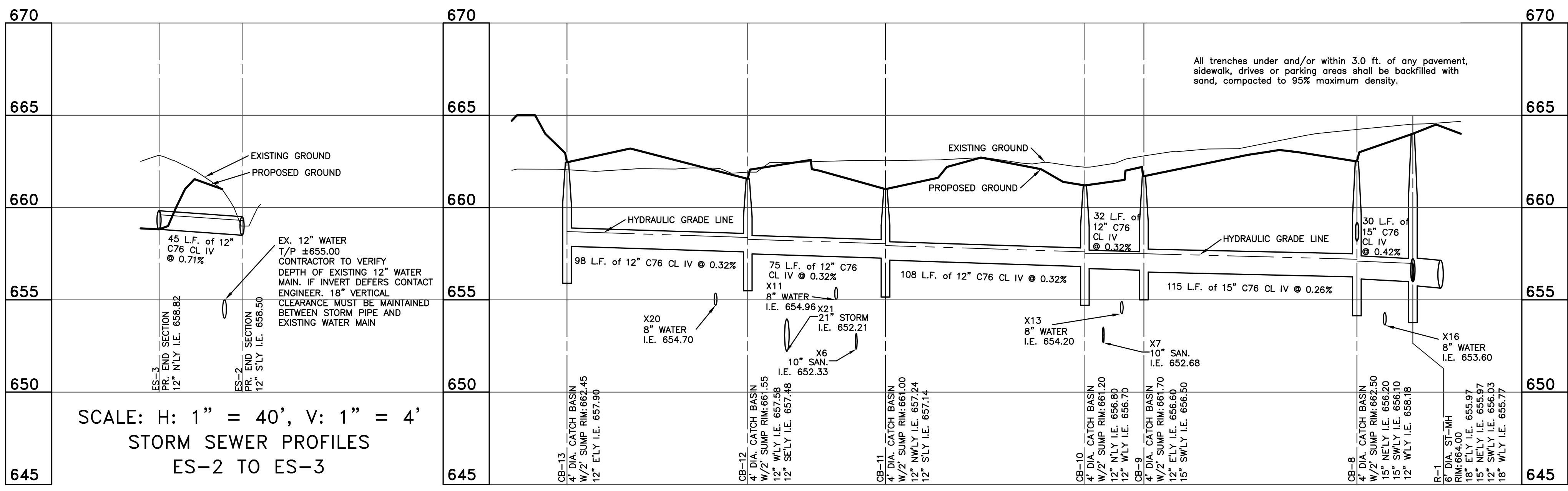
**MISS DIG**  
3 FULL WORKING DAYS  
**BEFORE YOU DIG,**  
OR WORK NEAR OVERHEAD WIRES  
CALL MISS DIG  
1-800-482-7171  
FOR THE LOCATION OF  
UNDERGROUND FACILITIES

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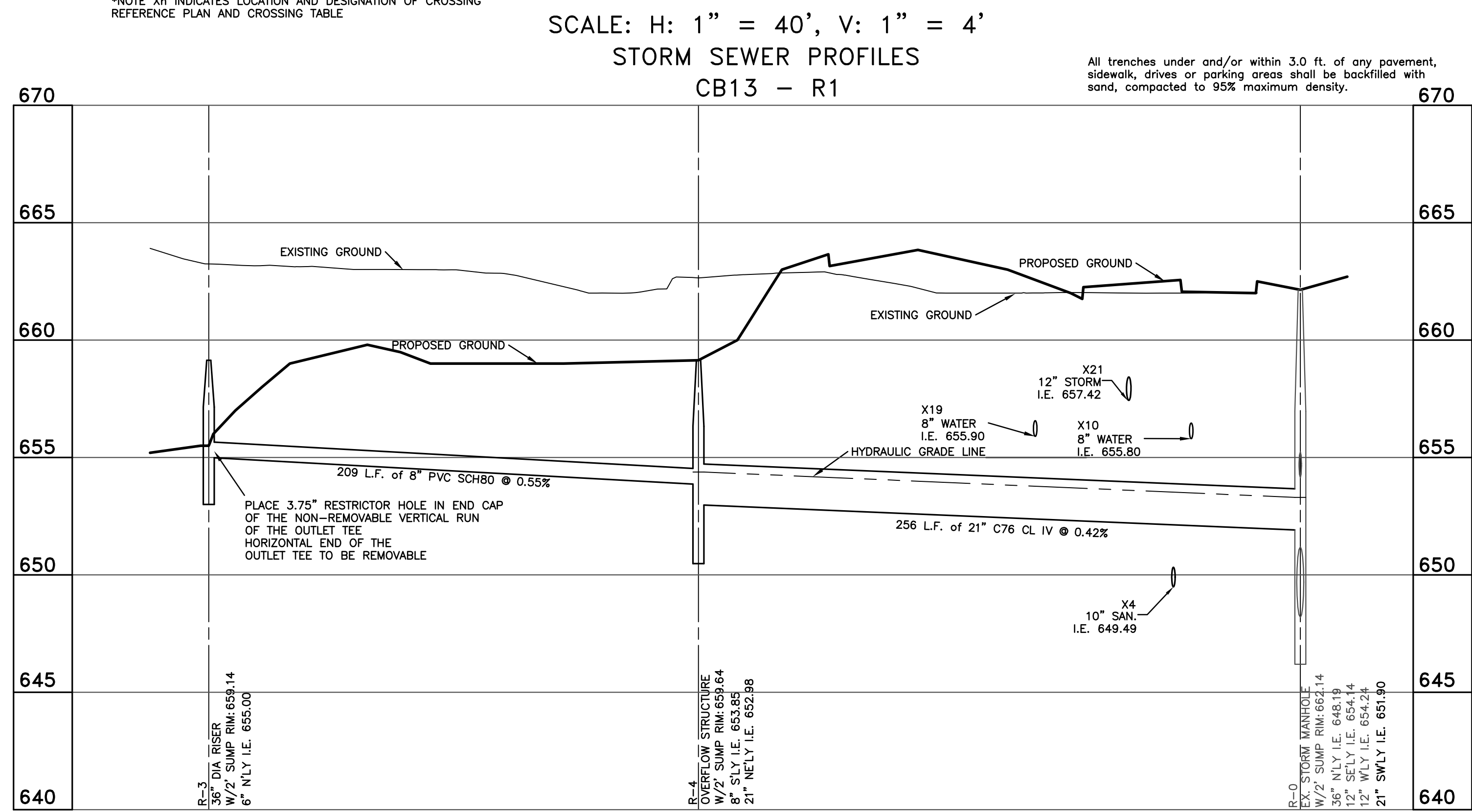
PROPERTY OWNER:  
WESTLAND PRINCIPLES, LLC  
ATTN: CURT MOLINO  
26621 EAST RIVER ROAD  
GROSSE ILE, MI 48138  
Phone: 313-218-4069  
EMAIL: curt.molino@yahoo.com

WAYNE COUNTY DPS PLAN REVIEW R 21-149  
ALL MATERIAL AND INSTALLATION MUST CONFORM TO THE CURRENT ENGINEERING DESIGN STANDARDS OF THE CITY OF WESTLAND AND WAYNE COUNTY.



SCALE: H: 1" = 40', V: 1" = 4'  
STORM SEWER PROFILES  
ES-2 TO ES-3

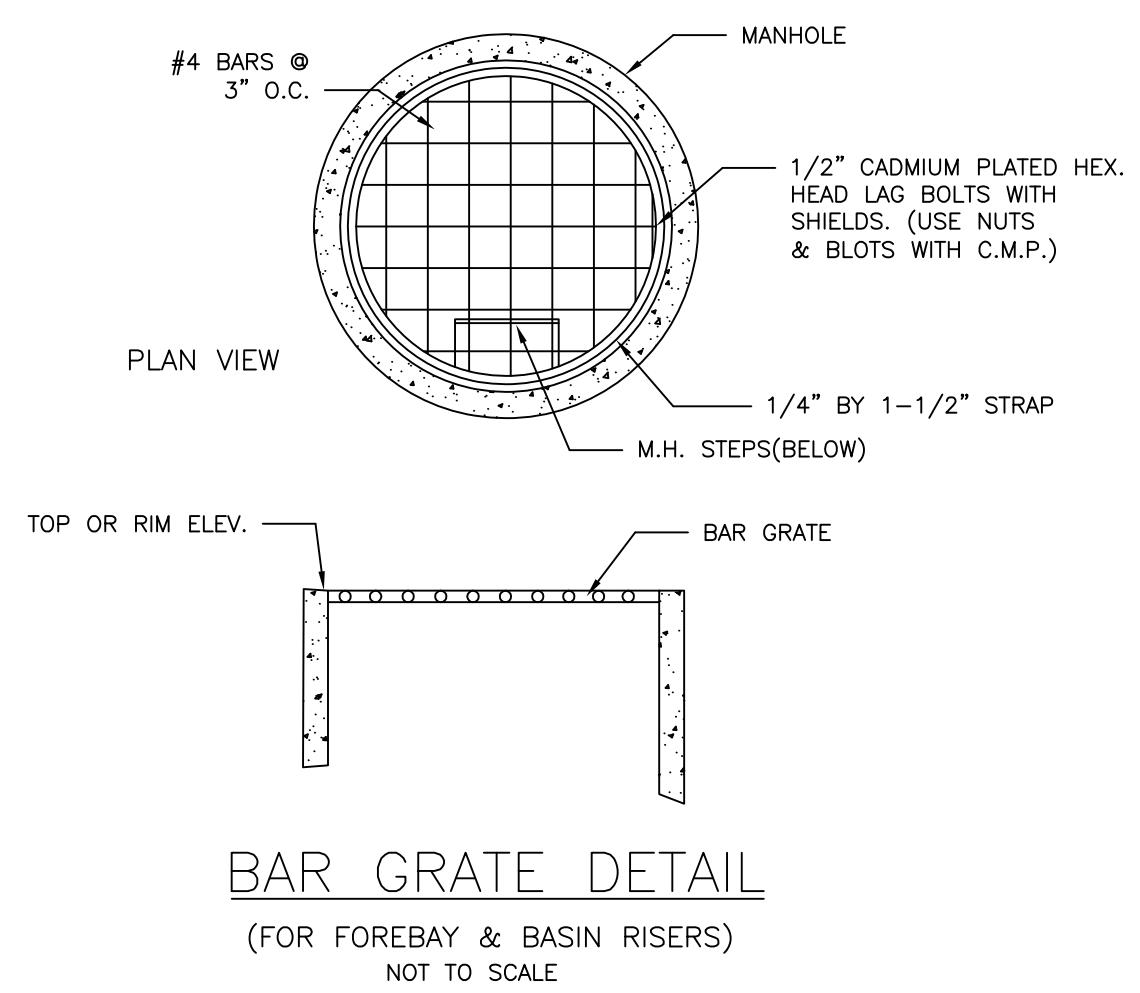
\*NOTE Xn INDICATES LOCATION AND DESIGNATION OF CROSSING  
REFERENCE PLAN AND CROSSING TABLE



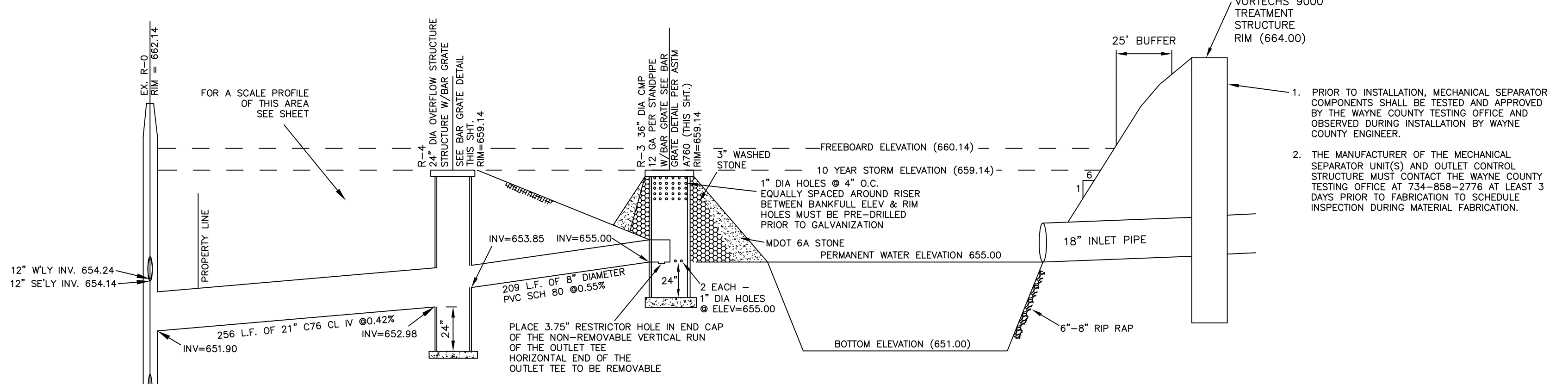
SCALE: H: 1" = 40', V: 1" = 4'  
STORM SEWER PROFILES  
CB13 - R1

\*NOTE Xn INDICATES LOCATION AND DESIGNATION OF CROSSING  
REFERENCE PLAN AND CROSSING TABLE

SCALE: H: 1" = 40', V: 1" = 4'  
STORM SEWER PROFILES  
DETENTION POND TO EX. R0



Detention Note:  
Following seeding and planting in the detention basin, snow fence shall be installed at the freeboard elevation around all ponds and forebays. This snow fence shall remain in place and maintained properly during the duration of the project until the final Certificate of Occupancy is granted at the site.



DETENTION BASIN OUTLET SECTION

NOTE:  
CONTRACTOR SHALL EXPOSE THE EXISTING GAS OR ANY OTHER EXISTING UTILITY LINE AT THE AREA OF CROSSING WITH PROPOSED SANITARY SEWERS AND/OR WATER MAIN PRIOR TO STARTING CONSTRUCTION OF SEWERS OR WATER. CONTRACTOR SHALL VERIFY THAT THE EXISTING UTILITY LINE WILL NOT INTERFERE WITH THE PROPOSED SEWERS OR WATER, AND INFORM ENGINEER (TO REVISE DESIGN PLANS) IF CONFLICT EXISTS.

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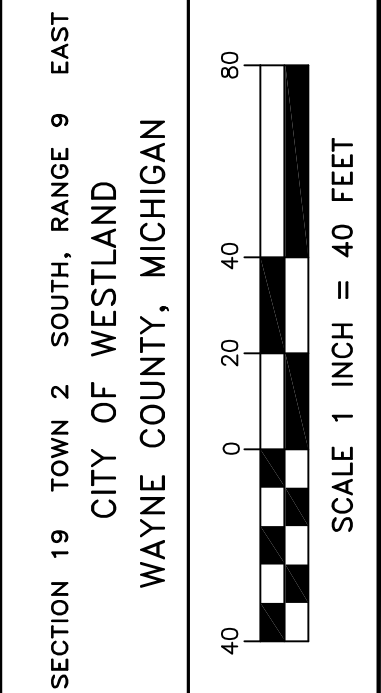
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1. PRIOR TO INSTALLATION, MECHANICAL SEPARATOR COMPONENTS SHALL BE TESTED AND APPROVED BY THE WAYNE COUNTY TESTING OFFICE AND OBSERVED DURING INSTALLATION BY WAYNE COUNTY ENGINEER.
2. THE MANUFACTURER OF THE MECHANICAL SEPARATOR UNIT(S) AND OUTLET CONTROL STRUCTURE MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT 734-858-2778 AT LEAST 3 DAYS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING MATERIAL FABRICATION.

PROPERTY OWNER:  
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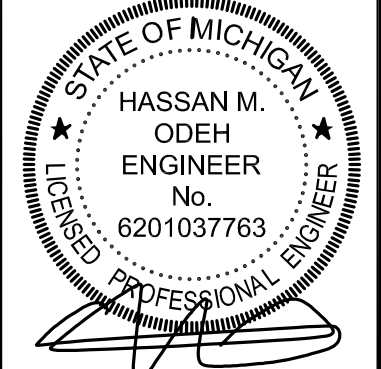
**LANDMARK ENGINEERING CO.**  
Civil Engineering - Land Surveying  
9401 General Dr., Suite 101  
Plymouth, Michigan 48170  
Tel: 248-557-3000  
Fax: 248-557-3059  
Email: landmark@landmarkengineeringco.com



SECTION 19 TOWN 2 SOUTH, RANGE 9  
CITY OF WESTLAND  
WAYNE COUNTY, MICHIGAN  
CLIENT: WESTLAND PRINCIPLES, LLC  
STORM PROFILES  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

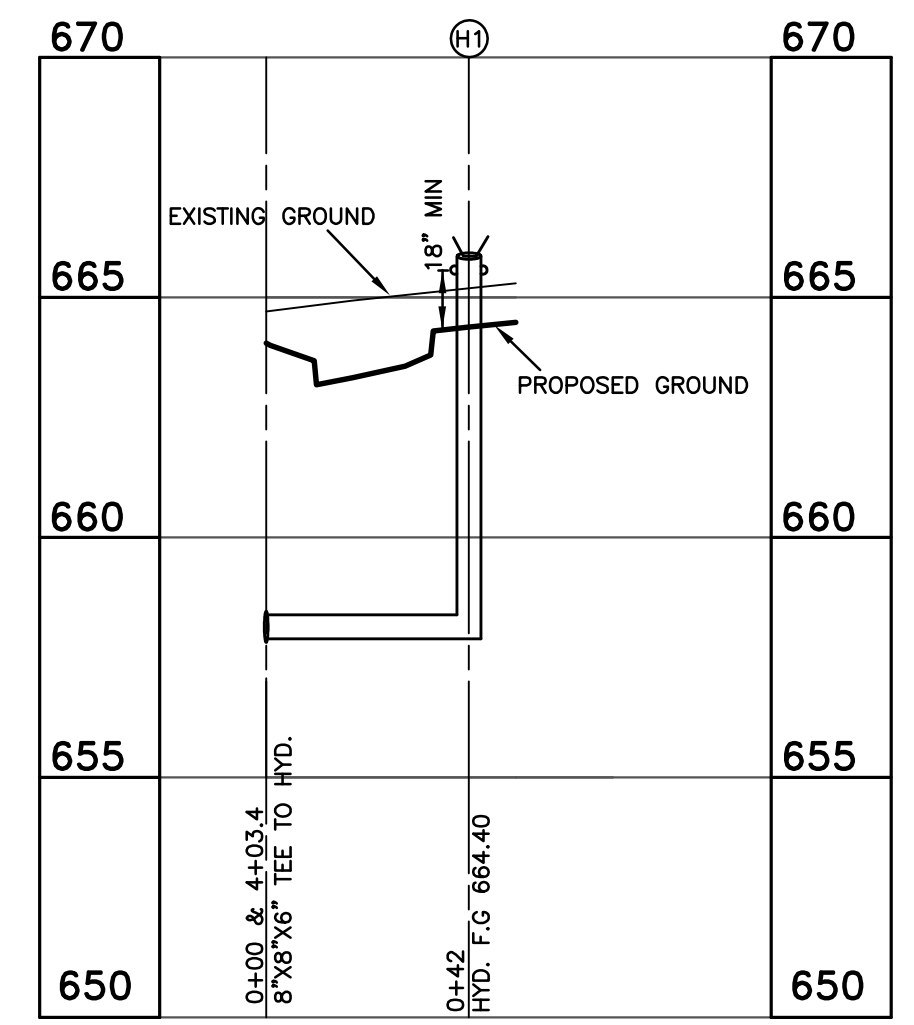
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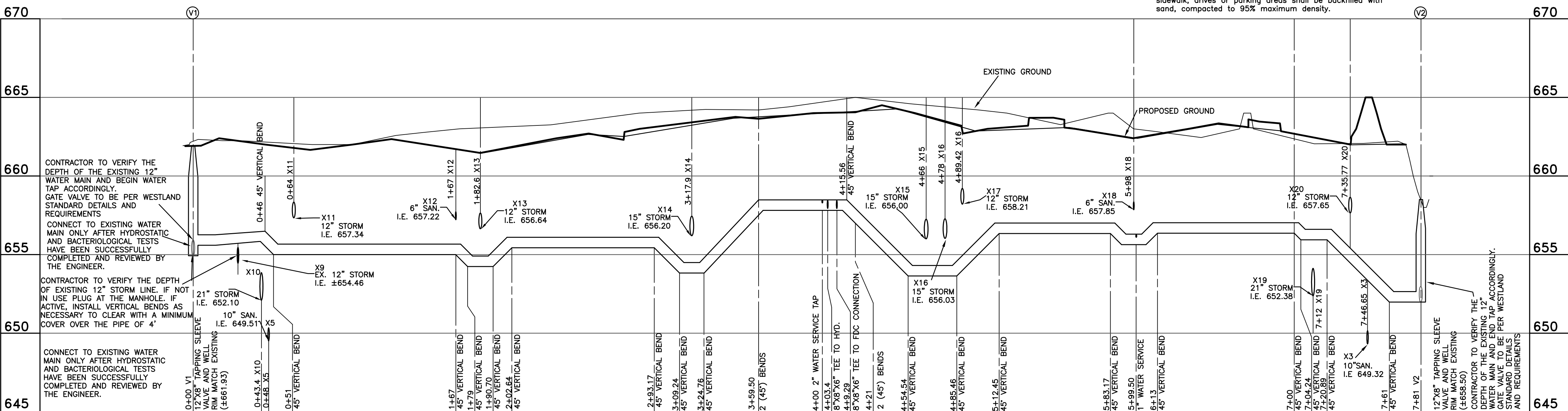


REVISIONS	
DATE:	8/16/2022
DR. BY:	H.M.O
CH. BY:	H.M.O
JOB NO.	1210
SHEET NO.	C-7





SCALE: H: 1" = 40', V: 1" = 4'  
WATER MAIN PROFILE



SCALE: H: 1" = 40', V: 1" = 4'  
WATER MAIN PROFILE

NOTE:  
10 States Standard Art 8.8.3 (b) states:  
"At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible, Special structural support for the water and sewer pipes may be required".

SEE RULE 4.16 HORIZONTAL DIRECTIONAL DRILLING (HDD) (this sheet)

**BORE AND JACK CASING DETAILS**

- THE CONTRACTOR SHALL ABIDE BY ALL ROAD COMMISSION SAFETY PRECAUTION INCLUDING THE MICHIGAN MANUAL TRAFFIC CONTROL DEVICES.
- THE SHEETING OF THE FRONT AND SIDE FACES OF THE BORING PIT WILL BE REQUIRED IF UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.
- THE CASING PIPE MUST ALWAYS PRECEDE THE AUGER HEAD.
- CASING PIPE SHALL BE STEEL, CAST IRON OR DUCTILE IRON, SHALL CONFORM TO ASTM SPEC A-139 GRADE B AND SHALL BE FURNISHED IN 20' LENGTHS, PREPARED FOR FIELD WELD.
- THE CASING SHALL BE 20" OD WITH A MINIMUM WALL THICKNESS OF 15/32".
- PLACE BORE PITS A MINIMUM OF 10' FROM THE EDGE OF PAVEMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE AGENCY HAVING JURISDICTION OVER THE LOCATION OF PROPOSED BORING 72 HOURS PRIOR TO BEGINNING BORING.
- THE CONTRACTOR SHALL PROTECT AND/OR RESTORE ALL PROPERTY WITHIN THE R.O.W.

**RULE 4.16 Horizontal Directional Drilling (HDD)**

4.16.1 The Horizontal Directional Drilling (HDD) method consists of augering, jacking or drilling a "steerable" rod with a device that also senses the location of the head. The head is then pulled out of the hole with a cone, reamer or wing cutter that provides the desired diameter. Underground utility installations utilizing this operation shall use an approved directionally-drilled method that shall ensure the safety of the right-of-way facilities and provide minimal inconvenience to vehicular traffic.

4.16.2 For Directional Drilling, the following requirements must be followed:

a) Equipment

- Shall be of type with radio location bearing head.
- Location equipment shall be used to track bore head location.
- Back reaming by approved methods only.
- Contractor back reaming is not allowed.
- Proper drilling lubricant shall be provided.
- Only steerable type boring is allowed.
- Hammer moles are not allowed.

b) Materials

- Approved material for direction drilling include: medium density polyethylene (MDPE) high density polyethylene (HDPE), steel, fusible PVC, restrained joint PVC and ductile iron pipes, and shall conform to the current ASTM Standards. Alternate materials shall be approved by the County Engineer.
- Plastic pipe for directionally-drilled pipe shall meet the requirements of ASTM D 2513; SDR 11. Plastic pipe may be used for medium pressure gas pipelines (pressure less than 100 PSI), as a carrier pipe or as a casing for other utility facilities. The minimum plastic pipe wall thickness, pipe joining methods, and testing requirements for a gas pipeline installation shall meet the requirements of the Michigan Gas Safety Code.
- Steel pipe for directionally-drilled pipe shall meet the requirements identified in the MDOT Standard Specifications for Construction, and, when applicable, the Michigan Gas Safety Code.
- Flowable Fill material shall conform to the specification indicated in Rule 4.13. 5. A drilling fluid of water and bentonite or a polymer shall be used to lubricate and line the drilled hole.

c) Operations

- Alignment of the utility shall be installed as indicated in the plans or permit. The path of the proposed bore must be marked in advance of the boring to check for conflicts with utility and structures.
- All shafts or pits shall be located at least ten (10') feet off the edge of pavement or behind the curb on primary roads and five (5') feet off the edge of pavement or behind the curb on residential streets. All access pits, open excavations, equipment and supplies within the right-of-way shall be protected with suitable fencing and plastic drums to prohibit access to the work site. Equipment shall not be used in lieu of fencing to protect access pits.
- The required piping shall be assembled in a manner that does not obstruct adjacent roadways or public facilities.
- Sufficient space shall be allocated to fabricate and layout the product pipeline into one continuous pipe length, thus enabling the pull back to be conducted during a single operation.
- When boring near electrical supply cables, proper care shall be taken to protect the operator, locator and others from shock hazards.
- The drill path alignment shall be as straight as possible to minimize the frictional resistance during pullback and maximize the length of the pipe that can be installed during a single pull.
- The minimum radius of curvature of the directional drill should be 1,200 times the nominal diameter of the pipe to be installed.
- Directionally drilled pipe shall serve as a carrier pipe or as a casing for a carrier pipe. The ends of each section of MDPE and HDPE pipe shall be inspected and cleaned as necessary to be free of debris immediately prior to joining the pipes by means of thermal butt-fusion. The polyethylene pipe shall be of the same type, grade and class of the polyethylene compound used in the process.
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- The handling of the joined pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp or jagged objects. Sections of the pipes with cuts and gouges exceeding ten (10%) percent of the pipe wall thickness or kinked sections shall be removed and the ends rejoined.
- Pipe rollers, skates or other protective devices shall be used to prevent damage to the pipe, eliminate ground drag, reduce pulling force and reduce the stress on the pipe and joints.
- Pipe diameters greater than twenty (20') inches, an intermediate pre-reaming is required before pulling the utility into place.
- Where "heads" are used to develop the conduit opening, holes with diameters larger than two (2') inches shall be developed by increasing the head size by one (1") inch increments.
- The diameter of the cone, reamer or wing cutter shall not exceed the diameter of the carrier pipe by more than one and one-half (1 1/2) times. An approved flowable fill shall be pumped into the void between the carrier pipe and drill hole displacing the drilling fluid when the cone, reamer or wing cutter exceeds the pipe diameter by two (2') inches.

**SANITARY SEWER BASIS OF DESIGN (FOR ULTIMATE SITUATION)**

PROPOSED 2 BUILDINGS  
PROVISION STORE-6,080 S.F. RETAIL AREA WITH 12 EMPLOYEES PER SHIFT

CULTIVATION CENTER-21,313 S.F. AREA WITH 20 EMPLOYEES PER SHFT  
POPULATION DENSITY:  
MAXIMUM NUMBER OF PERSONS WORKING IN ONE SHFT 32 PERSONS  
SEWAGE FLOW COMPUTATION:  
STANDARD USAGE = 100 GAL/PERSON/DAY  
QAvg = 32 x 100 = 3,200 G.P.D. = 0.00495 c.f.s.  
QMax = 0.00495 c.f.s. x 4.26 peaking factor = 0.021 c.f.s.

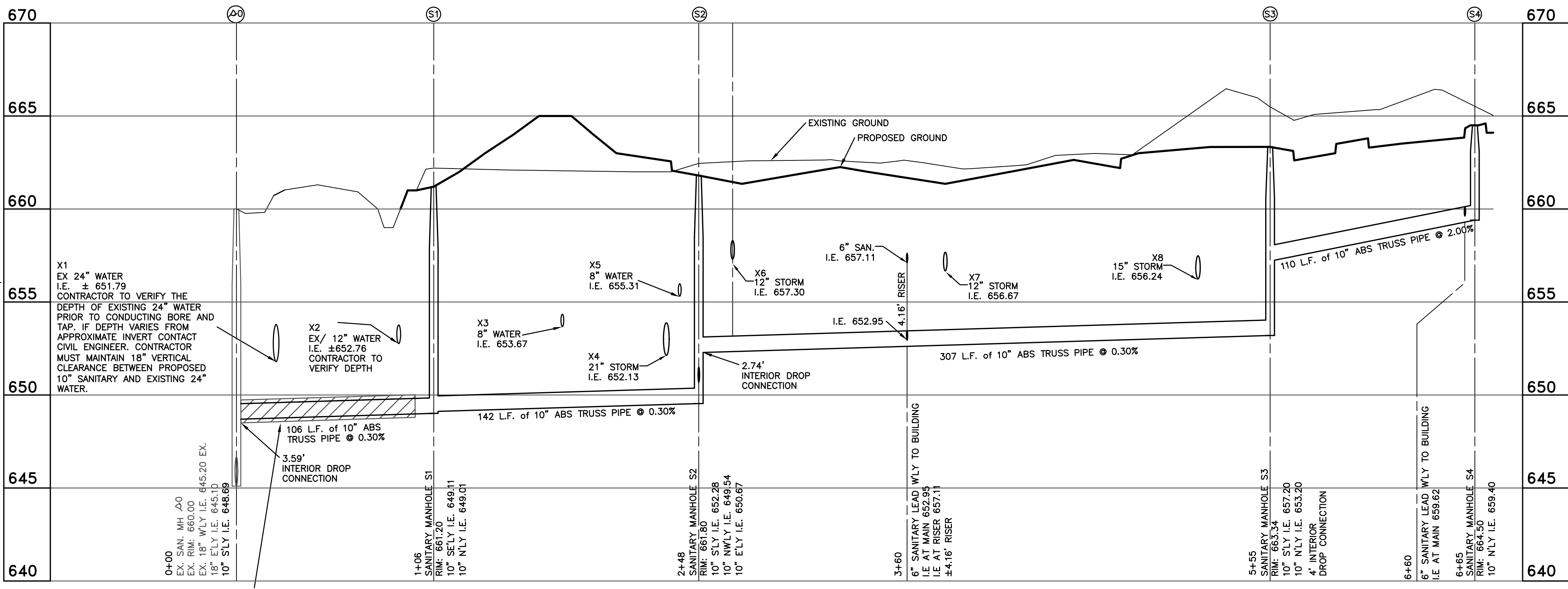
SEWER TO BE CONSTRUCTED 10" @ 0.30% MIN. WITH FLOW CAPACITY OF 1.20 c.f.s.

10" PIPE SHALL BE PVC TRUSS PIPE OR ABS TRUSS MEETING ASTM-D2680 PER WESTLAND STANDARD

6" LEADS SHALL BE SDR 23.5 PLASTIC

**RULE 4.16 Horizontal Directional Drilling (HDD) Continue**

- When back reaming pilot holes and dragging product, the use of compaction type cutter heads is prohibited. The Contractor shall use a cutting lead suitable to cutting a hole large enough to accommodate the product and lubricating fluid.
- Trace wire is required for all non-metallic pipe installation for post construction location purposes.
- The drilling fluid in the annular region outside of the pipe shall not be removed after installation and remain in place to provide support for the pipe and neighboring soil. Plain water will not be used as a lubricating fluid on bores exceeding two (2') inches in diameter.
- To monitor possible heaving or settling of pavement, a survey along the centerline of the bore shall be performed one (1) day prior to initiating the operation. All elevations shall be taken at ten (10') foot intervals and recorded to the nearest one hundredth (0.1) of a foot. Thirty (30) days after completion of the bore, a second survey shall be performed, comparing all elevations to the check for any heaving or settling of the pavement. A copy of each survey shall be provided to the Permit Office.
- After boring operations and connections are completed, the Contractor shall backfill all excavations with a suitable material approved by the Permit Office and restore all disturbed areas to the same or better than original conditions.
- The Contractor shall provide the Permit Office with a log of the bores on all conduits over two (2') inches in diameter showing the final depth and path of the conduit under the roadway.
- Failure
- Should anything prevent completion of the directionally-drilled operations, the remainder of the pipe shall be constructed by methods approved by the County Engineer or the partially completed directionally-drilled pipe shall be abandoned in place, and the carrier pipe shall be backfilled completely with flowable fill.
- In the event of damage to the pavement or roadside due to drilling operations, the Contractor shall repair the pavement or roadside as directed by the County Engineer before further boring operations may continue.
- If any settlement or other change in grade of the roadway, curbs or ditches occurs, the road and/or drainage facilities shall be repaired or reconstructed as directed by the County Engineer.



SCALE: H: 1" = 40', V: 1" = 4'  
SANITARY PROFILE

NOTE:  
All new sanitary leads connection to the main shall be wye connection.

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WAYNE COUNTY DPS PLAN REVIEW R 21-149

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Email: landmark@landmarkengineeringco.com

SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST  
CITY OF WESTLAND  
WAYNE COUNTY, MICHIGAN

SCALE 1 INCH = 40 FEET

CLIENT: WESTLAND PRINCIPLES, LLC  
STORM AND SANITARY PROFILES  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

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STATE OF MICHIGAN  
HASSAN M. ODEH  
ENGINEER  
No. 6201037763  
PROFESSIONAL ENGINEER

REVISIONS
DATE: 8/16/2022 CONSTRUCTION PLANS
DR. BY: H.M.O
CH. BY: H.M.O
JOB NO. 1210
SHEET NO. C-8



### EXHIBIT "B"

STORM WATER MANAGEMENT SYSTEM  
LONG TERM MAINTENANCE PLAN  
KINSHIP PROVISIONING AND CULTIVATION

TABLE 1

STORM WATER MANAGEMENT SYSTEM LONG-TERM MAINTENANCE SCHEDULE

MAINTENANCE ACTIVITIES	SYSTEM COMPONENTS					FREQUENCY
	MANUFACTURED TREATMENT SYSTEM *	UNDERGROUND DETENTION SYSTEM *	STORM STRUCTURES (CATCH BASINS & MANHOLES)	STORM SEWER COLLECTION SYSTEM	OUTLET CONTROL STRUCTURE	
INSPECT FOR SEDIMENT ACCUMULATION	X	X	X	X	X	ANNUALLY
INSPECT FOR FLOATABLES, DEAD VEGETATION & DEBRIS	X	X	X	X	X	ANNUALLY & AFTER MAJOR EVENTS
INSPECT FOR COMPONENTS DURING WET WEATHER & COMPARE TO AS-BUILT PLANS.	X	X	X	X	X	ANNUALLY
<b>PREVENTATIVE MAINTENANCE</b>						
REMOVE ACCUMULATED SEDIMENT BY VACUUM TRUCK	X	X		X		AS NEEDED *
REMOVE FLOATABLES, DEAD VEGETATION & DEBRIS	X	X	X	X		AS NEEDED
SWEEPING OF PAVEMENT SURFACES (STREETS AND PARKING)					X	AS NEEDED
<b>REMEDIAL ACTIONS</b>						
STRUCTURAL REPAIRS OR REPLACEMENT IN KIND	X	X	X	X	X	AS NEEDED
MAKE ADJUSTMENTS, REPAIRS TO ENSURE PROPER FUNCTIONING	X	X	X	X	X	AS NEEDED
OIL AND GASOLINE SPILLS					X	CLEAN OUT IMMEDIATELY

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CLIENT: WESTLAND PRINCIPLES, LLC  
DATE: 8-16-2022  
1210EA01.DWG  
JOB NO. 1210  
SCALE 1 INCH = 100 FEET  
SHEET 2 OF 2

### EXHIBIT "B"

STORM WATER MANAGEMENT SYSTEM  
LONG TERM MAINTENANCE PLAN  
KINSHIP PROVISIONING AND CULTIVATION

PROPERTY INFORMATION KINSHIP PROVISIONING AND CULTIVATION  
(±690 feet west of Newburgh Rd.)  
on the south side of Cherry Hill Road  
Part of the E 1/2 of Sec. 19, T2S., R9E  
Westland MI 48186

PROPERTY OWNER: WESTLAND PRINCIPLES, LLC  
ATTN: CURT MOLINO  
26621 EAST RIVER ROAD  
GROSSE ILE, MI 48138  
Phone: 313-218-4069  
EMAIL: curt.molino@yahoo.com

PERMIT NO. / REVIEW NO.: W.C.D.P.S. PLAN REVIEW No. R21-149

#### A. PHYSICAL LIMITS OF THE STORM WATER MANAGEMENT SYSTEM

The storm water management system (SWMS) subject to this Long-term Maintenance Plan (Plan) is depicted on Exhibit A to the Permit and includes without limitation the storm sewers, swales, manholes, catch basins, storm water inlets, manufactured treatment structure system, underground detention system, outlet structure and closed conduits that convey flow from the underground detention system into a storm manhole within the same property.

For the purposes of this plan, this storm water management system and all of its components as shown on Exhibit A is referred to as Kinship Provisioning and Cultivation Development.

#### B. TIME FRAME FOR LONG-TERM MAINTENANCE RESPONSIBILITY

WESTLAND PRINCIPLES, LLC, is responsible for maintaining the Kinship Provisioning and Cultivation Development, including complying with applicable requirements of the local or Wayne County soil erosion and sedimentation control program, until Wayne County releases the construction permit. Long-term maintenance responsibility for the Kinship Provisioning and Cultivation Development commences when defined by maintenance permit issued by the County. Long Term Maintenance continues in perpetuity.

#### C. MANNER OF ENSURING MAINTENANCE RESPONSIBILITY

City of Westland has assumed responsibility for long-term maintenance of Kinship Provisioning and Cultivation Development. The resolution by which the City of Westland has assumed maintenance responsibility is attached to the permit as Exhibit C, WESTLAND PRINCIPLES, LLC, through an agreement to reimburse for maintenance, repairs, restoration and any necessary construction of the Storm Water Management System (the "Maintenance Agreement") with The City of Westland, has agreed to perform the maintenance activities required by this plan. City of Westland retain the right to enter the property and perform the necessary maintenance of Kinship Provisioning and Cultivation Development if WESTLAND PRINCIPLES, LLC, fails to perform the required maintenance activities.

To ensure that Kinship Provisioning and Cultivation Development is maintained in perpetuity, the map of the physical limits of the storm water management system (Exhibit A), this plan (Exhibit B), the resolution attached as Exhibit C and the Maintenance Agreement between the City of Westland and the Property Owner will be recorded with Wayne County Register of Deeds. Upon recording, a copy of the recorded document will be provided to the County.

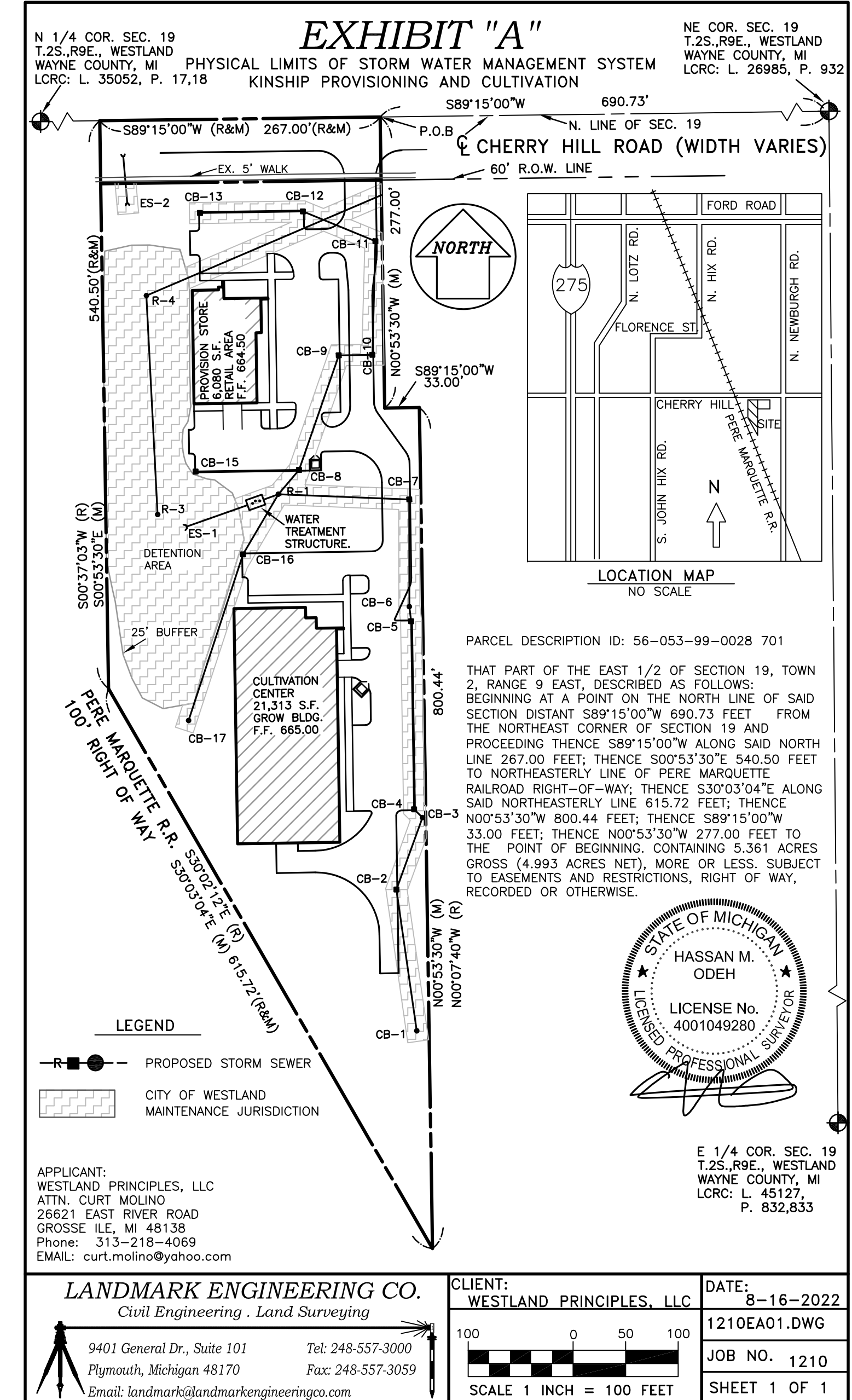
#### D. LONG TERM MAINTENANCE PLAN AND SCHEDULE

Table 1 identifies the maintenance activities to be performed, organized by category (monitoring / inspection, preventative maintenance, remedial actions). Table 1 also identifies site-specific work needed to ensure that the storm water management system function properly.

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1210EA01.DWG  
JOB NO. 1210  
SCALE 1 INCH = 100 FEET  
SHEET 1 OF 1

NOT FOR CONSTRUCTION  
FOR REVIEW

**LANDMARK ENGINEERING CO.**  
Civil Engineering - Land Surveying  
9401 General Dr., Suite 101  
Plymouth, Michigan 48170  
Tel: 248-557-3000  
Fax: 248-557-3059  
Email: landmark@landmarkengineeringco.com

SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST  
CITY OF WESTLAND  
WAYNE COUNTY, MICHIGAN  
SCALE 1 INCH = 100 FEET

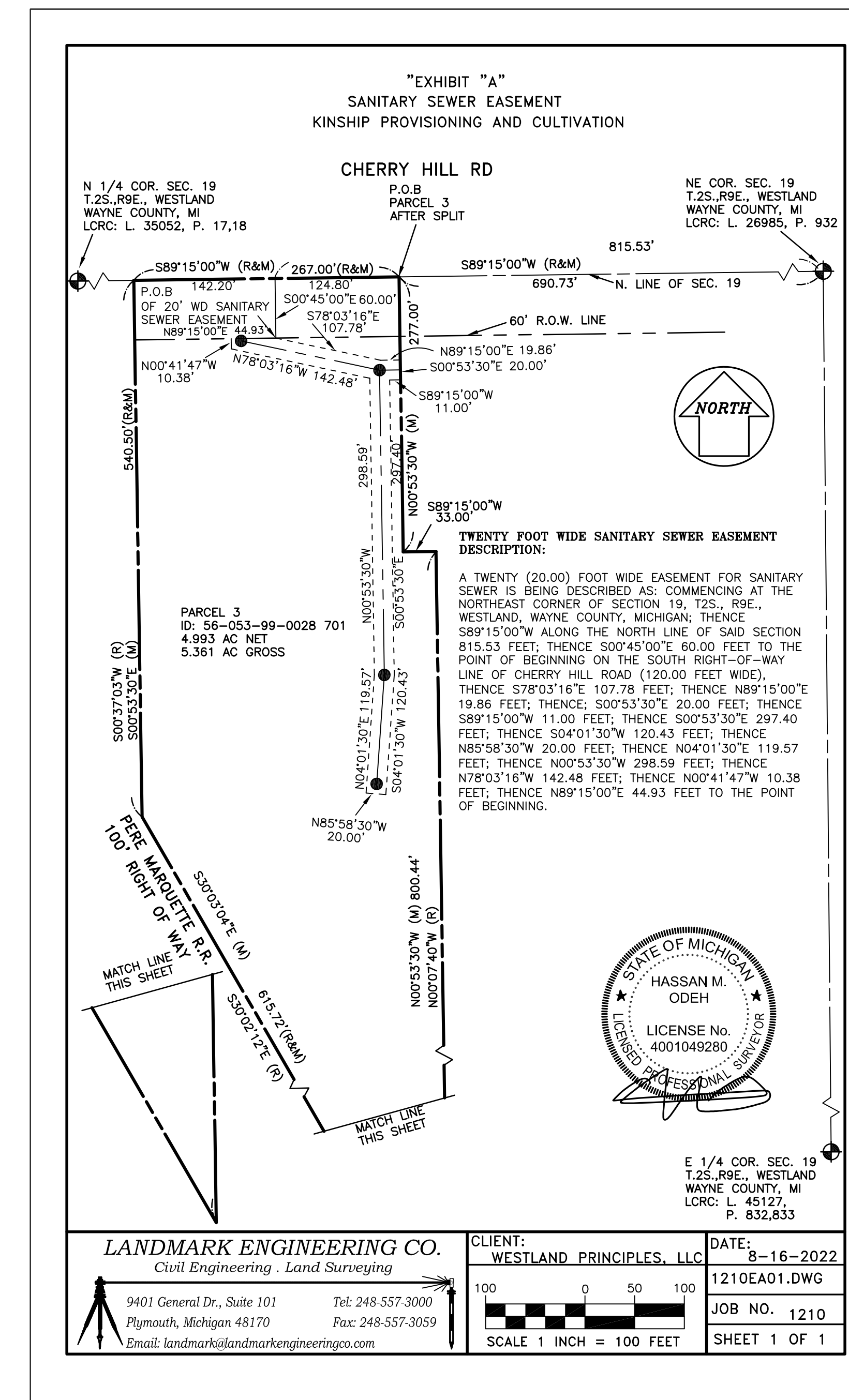
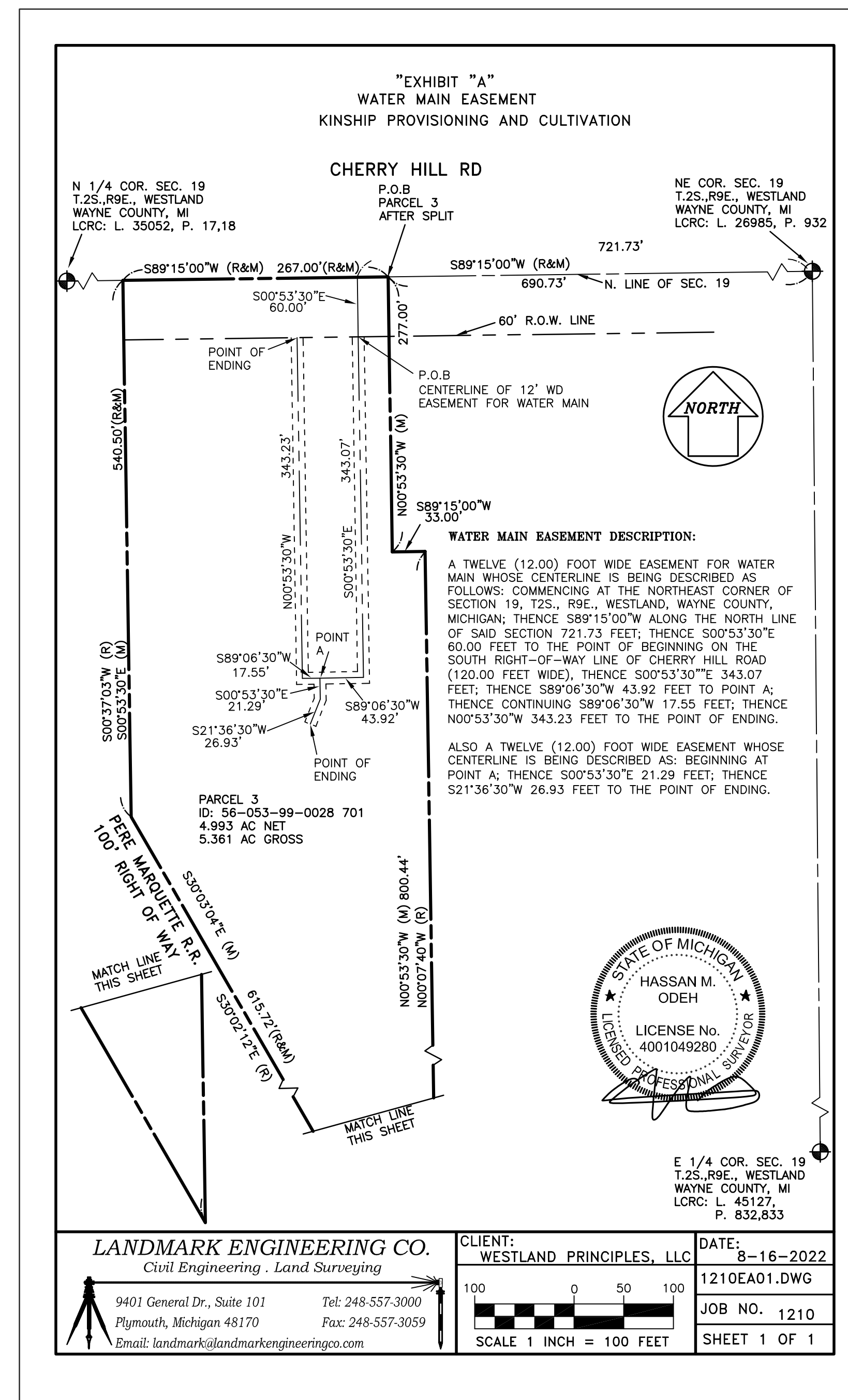
CLIENT: WESTLAND PRINCIPLES, LLC  
STORM MAINTENANCE EXHIBITS  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 1210EA01.DWG

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SEAL  
STATE OF MICHIGAN  
HASSAM M. ODEH  
ENGINEER  
No. 6201037763  
LICENSED PROFESSIONAL ENGINEER

REVISIONS  
DATE: 8/16/2022  
DR. BY: H.M.O.  
CH. BY: H.M.O.  
BOOK NO. X-  
JOB NO. 1210  
FILE NO. C-10



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Civil Engineering - Land Surveying  
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Plymouth, Michigan 48170  
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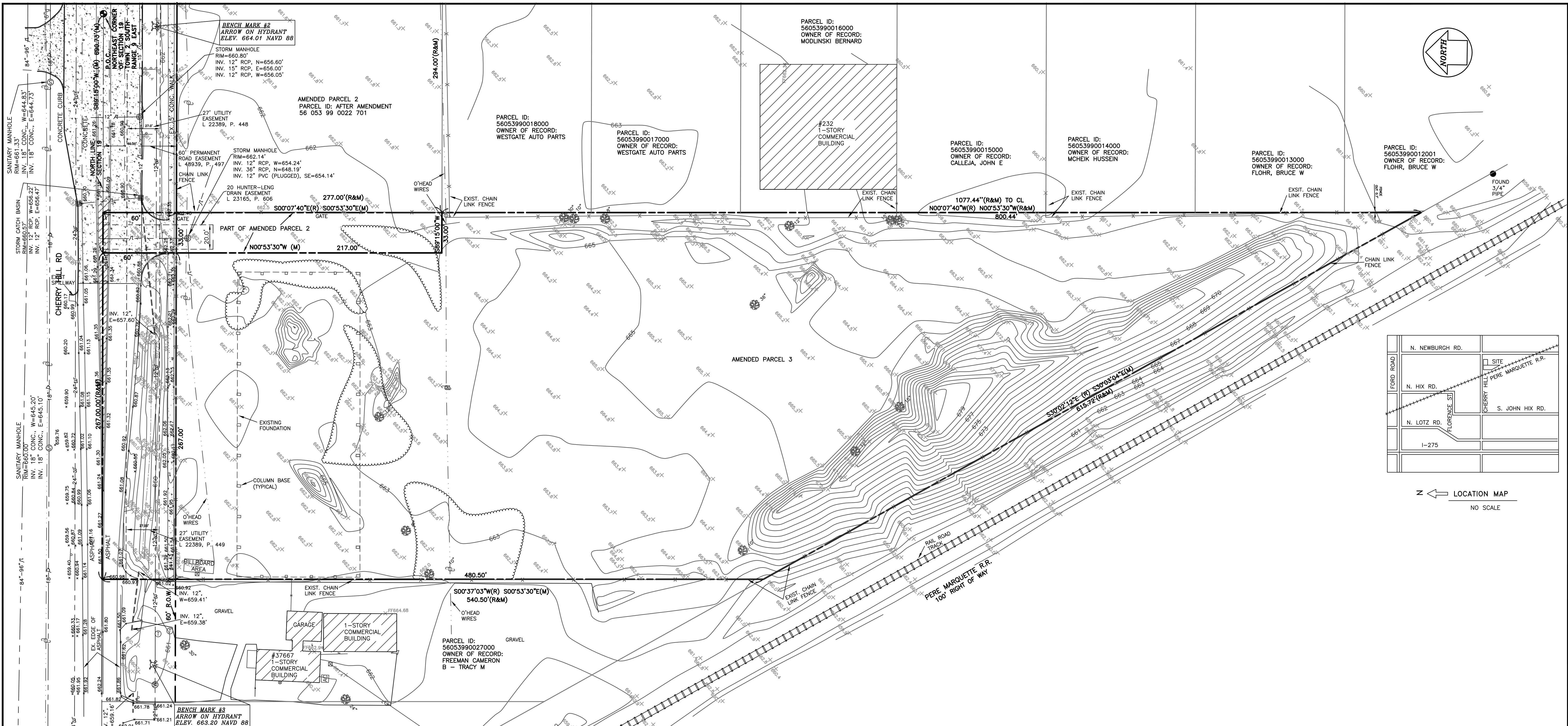
CLIENT: WESTLAND PRINCIPLES, LLC  
WATER AND SANITARY EASEMENTS  
KINSHIP PROVISIONING AND CULTIVATION  
PART OF THE EAST 1/2 OF

CAD NO. 1210EA01.DWG

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REVISIONS	
DATE:	8/16/2022
DR. BY.	H.M.O
CH. BY.	H.M.O
BOOK NO.	X-
JOB NO.	1210
FILE NO.	C-11



AMENDED PARCEL 3: (AFTER LOT SPLIT)

PARCEL ID: AFTER AMENDMENT 56 053 99 0028 701

THAT PART OF THE EAST 1/2 OF SECTION 19, TOWN 2, RANGE 9 EAST, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE NORTH LINE OF SAID SECTION DISTANT 589'15"00" W 690.73 FEET FROM THE NORTHEAST CORNER OF SECTION 19 AND PROCEEDING THENCE 589'15"00" W ALONG SAID NORTH LINE 267.00 FEET; THENCE S00°53'30"E 540.50 FEET TO NORTHEASTERLY LINE OF PERE MARQUETTE RAILROAD RIGHT-OF-WAY; THENCE S30°03'04"E ALONG SAID NORTHEASTERLY LINE 615.72 FEET; THENCE N00°53'30"W 800.44 FEET; THENCE S89°15'00"W 33.00 FEET; THENCE N00°53'30"W 277.00 FEET TO THE POINT OF BEGINNING, CONTAINING 5.361 ACRES GROSS (4.993 ACRES NET), MORE OR LESS, SUBJECT TO EASEMENTS AND RESTRICTIONS, RIGHT OF WAY, RECORDED OR OTHERWISE.

BOUNDARY AND TOPOGRAPHIC SURVEY  
 PREPARED BY KEM-TEC (800-295-7222)  
 PROJECT No: 20-03323 DATED 1/15/2021  
 FOR REFERENCE ONLY

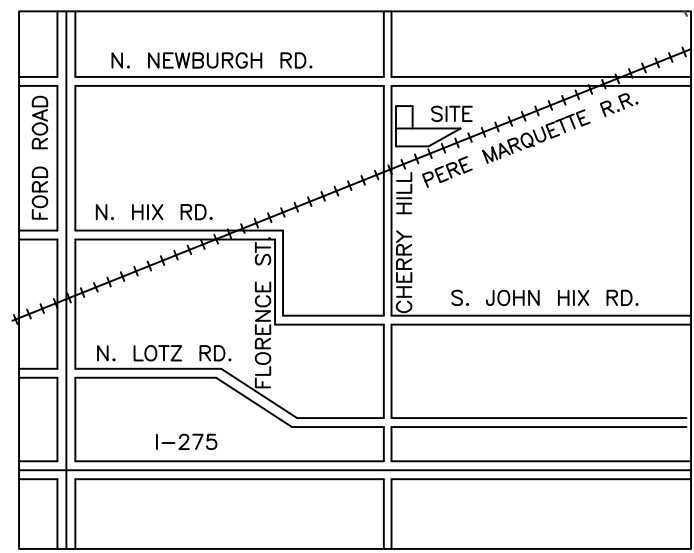
**MISS DIG**  
 3 FULL WORKING DAYS  
**BEFORE YOU DIG,**  
 OR WORK NEAR OVERHEAD WIRES  
**CALL MISS DIG**  
**1-800-482-7171**  
 FOR THE LOCATION OF  
 UNDERGROUND FACILITIES

**NOTICE:**  
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

**NOTE:**  
 THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITIES CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE VARIOUS UTILITY LINES SHOWN HEREON ARE BASED UPON FIELD DATA WHEREVER POSSIBLE. ADDITIONAL INFORMATION REGARDING UNDERGROUND UTILITIES HAS NOT BEEN AVAILABLE TO US.

**LEGEND:**

EXISTING	PROPOSED



**LANDMARK ENGINEERING CO.**  
 Civil Engineering - Land Surveying  
 9401 General Dr., Suite 101  
 Plymouth, Michigan 48170  
 Tel: 248-557-3000  
 Fax: 248-557-3059  
 Email: landmark@landmarkengineeringco.com

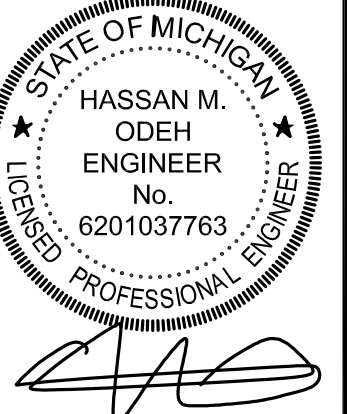
SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST  
 CITY OF WESTLAND  
 WAYNE COUNTY, MICHIGAN

SCALE 1 INCH = 40 FEET

CLIENT: KINSHIP CANABIS CO  
 SITE PLAN  
 TOPOGRAPHIC SURVEY BY OTHERS  
 KINSHIP PROVISIONING AND CULTIVATION  
 PART OF THE EAST 1/2 OF

CAD No. 2010SP01.DWG

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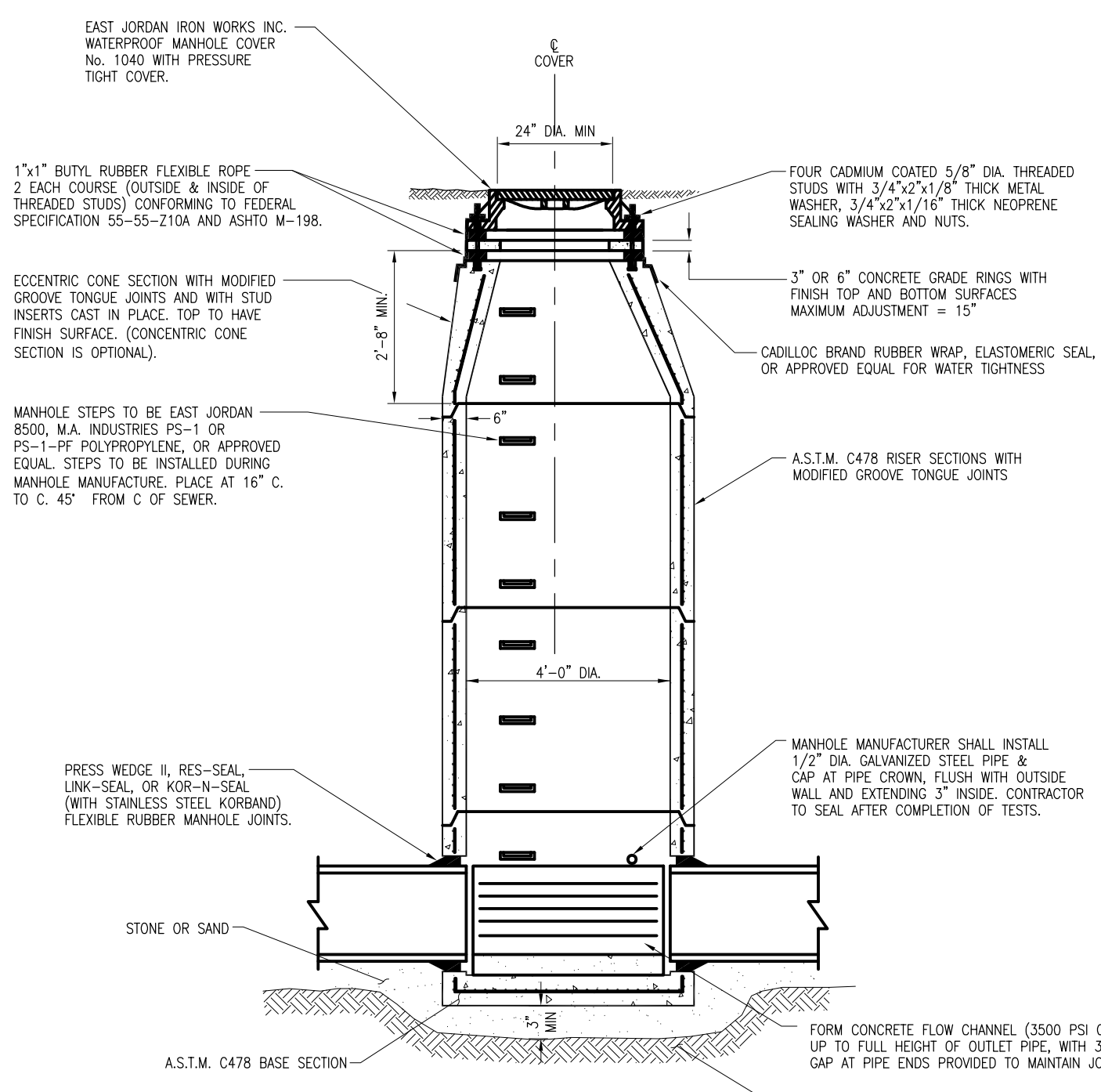
11/12/2021  
 ADD LANE MARKING  
 REVISIONS

2/26/2021  
 DR. BY: H.M.O  
 CH. BY: H.M.O  
 BOOK NO. -  
 JOB NO. 1210  
 FILE NO. TS-1

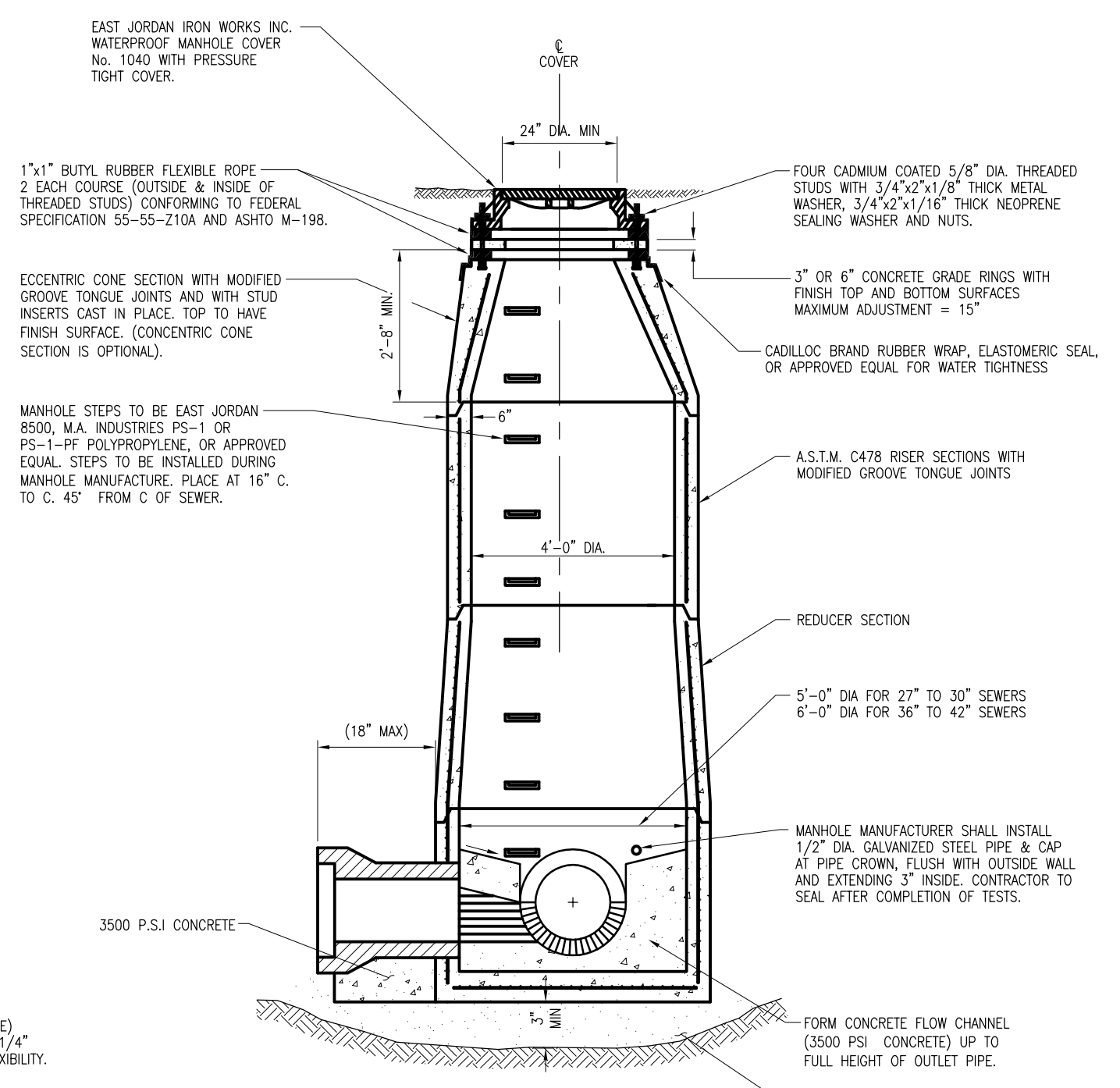
BOUNDARY AND TOPOGRAPHIC SURVEY  
 PREPARED BY KEM-TEC (800-295-7222)  
 PROJECT No: 20-03323 DATED 1/15/2021  
 FOR REFERENCE ONLY

**SANITARY SEWER CONSTRUCTION NOTES**

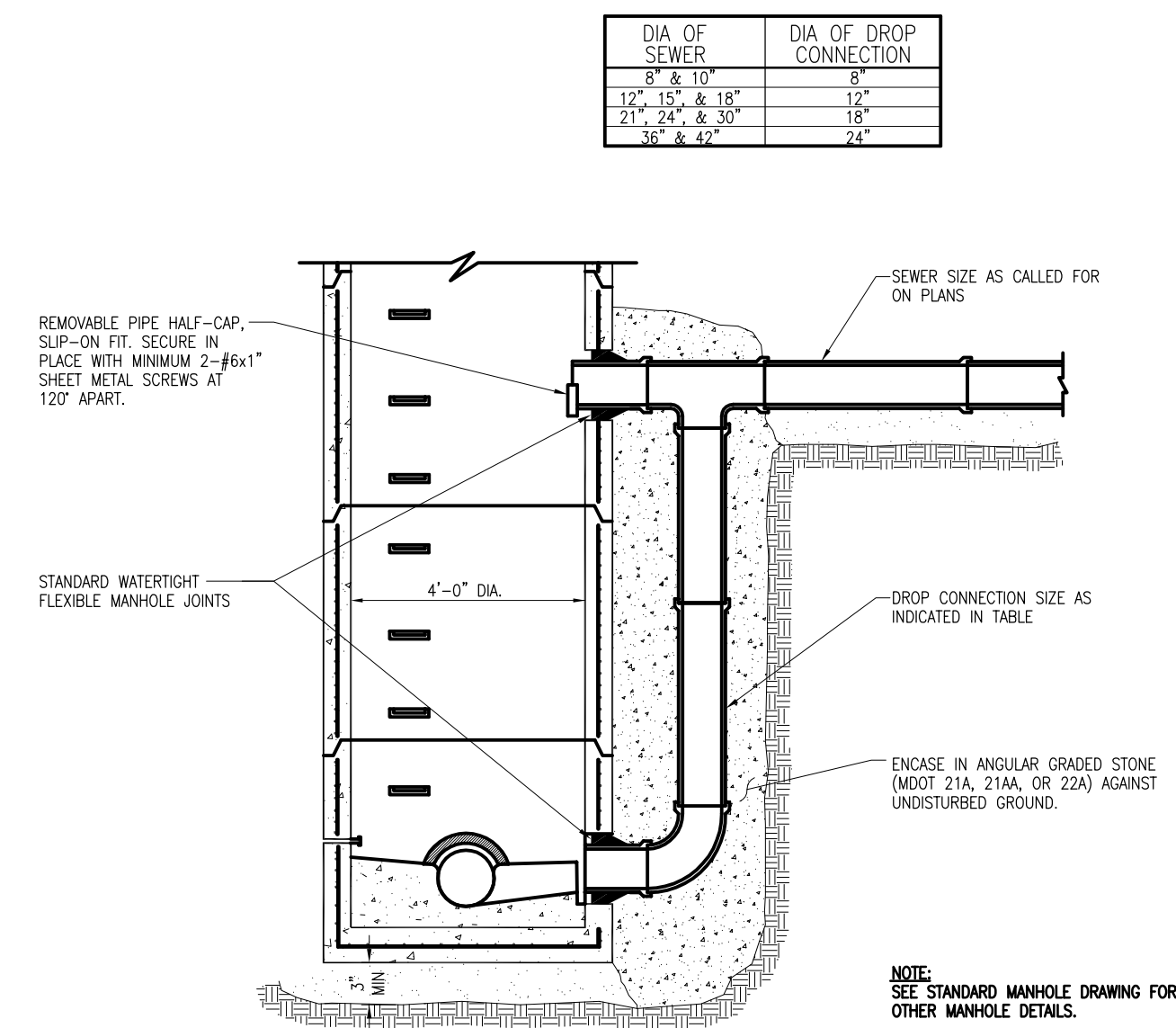
- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF WESTLAND AND THE WAYNE COUNTY DEPARTMENT OF ENVIRONMENT (W.C.D.O.E.) FACILITIES MANAGEMENT DIVISION. ALL SANITARY SEWER CONSTRUCTION SHALL HAVE FULL TIME INSPECTION DIRECTED BY A PROFESSIONAL ENGINEER PROVIDED BY OR CAUSED TO BE PROVIDED BY THE CITY OF WESTLAND.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY NECESSARY INSPECTION PERMITS AND TO COMPLY WITH ANY COUNTY OR CITY REQUIREMENTS. THE SANITARY SEWER CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION PERMIT OFFICE AT (734) 595-6504 AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE CITY OF WESTLAND AT LEAST 3 WORKING DAYS BEFORE THE START OF CONSTRUCTION.
- ALL SANITARY SEWERS AND STUBS SHALL BE SUBJECT TO INFILTRATION/EXFILTRATION OR AIR TESTING. INFILTRATION AND EXFILTRATION FOR ANY SECTION OF SANITARY SEWER BETWEEN MANHOLES SHALL NOT EXCEED 100 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOUR PERIOD PER SECTION 33.9.3 OF THE CURRENT EDITION OF THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES. AIR TESTS IN LIEU OF INFILTRATION TESTS SHALL BE AS SPECIFIED BY ASTM TEST F1417 (PLASTIC PIPE) OR C924 (CONCRETE PIPE). FINAL AIR TESTS MUST BE WITNESSED BY CITY PERSONNEL AND MUST BE SCHEDULED IN ADVANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CITY AND COUNTY CHARGES AND SHOULD CONTACT THEM PRIOR TO BIDDING TO CONFIRM THESE FEES AND CHARGES.
- A VIDEOTAPE (WITH LOG AND LEAD LOCATIONS) SHALL BE SUBMITTED TO AND APPROVED BY THE CITY OF WESTLAND PRIOR TO FINAL SEWER ACCEPTANCE. A VIDEOTAPE SHALL BE PERFORMED A MINIMUM OF 30 DAYS AFTER CONSTRUCTION IS COMPLETED. IN ADDITION, A NINE-POINT MANHOLE TEST IS REQUIRED FOR ALL FLEXIBLE PIPES AND SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 33.8.5b OF THE CURRENT EDITION OF THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES. THE COMPLETED INSTALLATION SHALL HAVE NO PIPE DEFLECTIONS GREATER THAN 5%. IF THE PIPE FAILS ANY OF THE REQUIRED TESTS OR VIDEOTAPE REVIEW, THE CONTRACTOR SHALL FIX OR REPAIR THE NONCONFORMITY AT HIS COST. THE CONTRACTOR SHALL THEN RE-TEST AND RE-VIDEOTAPE THE SEWER AT HIS COST UNTIL FINAL ACCEPTANCE OF THE SEWER IS ACHIEVED.
- THREE (3) WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL TELEPHONE MISS DIG (1-800-482-7171) FOR UNDERGROUND FACILITIES LOCATIONS.
- ALL ELEVATIONS SHALL BE BASED UPON WAYNE COUNTY DATUM (USC&GS)
- AT ALL CONNECTIONS TO AN EXISTING W.C.D.O.E. SEWER OR TO EXTENSIONS THERETO, A WATERTIGHT BULKHEAD WITH A CAPPED 1 INCH DIAMETER PIPE SHALL BE PROVIDED TO PERMIT MEASURING INFILTRATION. A TEMPORARY 12 INCH DEEP SUMP SHALL ALSO BE PROVIDED IN THE FIRST MANHOLE UPSTREAM FROM THE CONNECTION, WHICH WILL BE FILLED IN AFTER SUCCESSFUL COMPLETION OF ANY INFILTRATION TEST UP TO THE STANDARD FILLET PROVIDED FOR THE FLOW CHANNEL.
- ONLY MODIFIED GROOVE TONGUE, ASTM C425, ASTM C443, O-RING, UNILOC, AMMT, NOBEL, RING-TITE, FLUID-TITE OR EQUAL, AS APPROVED BY THE W.C.D.O.E. MAY BE USED FOR SEWER JOINTS. ALL JOINTS SHALL MEET REQUIREMENTS OF ASTM C425 OR C443.
- ALL BUILDING LEADS AND RISERS SHALL BE 6 INCH S.D.R., 23.5 ABS PIPE WITH CHEMICALLY FUSED JOINTS, SCHEDULE 40 PVC WITH RUBBER GASKET JOINT, OR AN APPROVED EQUAL PIPE AND JOINT. SEWER PIPE WYE OPENINGS SHALL CONTAIN FACTORY INSTALLED PREMIUM JOINT MATERIAL OF THE TYPE IDENTICAL TO THAT OF THE BUILDING LEAD PIPE USED. BUILDING LEADS TO BE FURNISHED WITH REMOVABLE AIRTIGHT AND WATERTIGHT STOPPERS.
- ALL SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE BEDDING DETAILS.
- ALL NEW MANHOLES SHALL HAVE APPROVED FLEXIBLE, WATERTIGHT SEALS WHERE PIPES PASS THROUGH WALLS. MANHOLES SHALL BE PRECAST SECTIONS WITH MODIFIED GROOVE TONGUE AND RUBBER GASKET TYPE JOINTS. PRECAST MANHOLE SECTIONS SHALL BE W.C.D.O.E. APPROVED MODIFIED ECCENTRIC CONE (OR OPTIONAL CONCENTRIC CONE). ALL MANHOLES SHALL BE PROVIDED WITH BOLTED, WATERTIGHT COVERS.
- MANHOLES SHALL BE CONSTRUCTED WITH FLOW CHANNEL WALLS THAT ARE FORMED TO THE FULL HEIGHT OF THE CROWN OF THE OUTLET SEWER. A BENCH SHALL BE PROVIDED ON EACH SIDE OF THE MANHOLE FLOW CHANNEL AND SHALL HAVE A SLOPE OF NOT LESS THAN 0.5 INCHES PER FOOT. (REFER TO SECTIONS 34.4 AND 34.5 OF THE CURRENT EDITION OF THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.)
- WHEREVER EXISTING MANHOLES ARE TO BE TAPPED, THE TAP SHALL BE MADE BY CORING. THE CONTRACTOR SHALL PLACE A KOR-N-SEAL BOOT (OR APPROVED EQUAL) AFTER CORING IS COMPLETED. BLIND DRILLING WILL NOT BE PERMITTED IN LIEU OF CORING.
- AT ALL SEWER CONNECTIONS TO MANHOLES, DROP CONNECTIONS WILL BE REQUIRED WHEN THE DIFFERENCE IN INVERT ELEVATIONS EXCEEDS 18 INCHES. EXTERNAL DROP CONNECTIONS ARE STANDARD. INTERNAL DROP CONNECTIONS WILL ONLY BE ALLOWED FOR DEEP MANHOLE CONSTRUCTION AS APPROVED BY THE CITY.
- THE ELEVATION DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES MUST NOT EXCEED 6 FEET.
- MANHOLES CONSTRUCTED OR ADJUSTED AS PART OF THE SYSTEM MAINTAINED BY THE CITY OF WESTLAND SHALL BE PROVIDED WITH COVERS READING "CITY OF WESTLAND-SANITARY" PER THE DETAIL.
- NO GROUND WATER, STORM WATER, CONSTRUCTION WATER, DOWNSPOUT DRAINAGE, FOOTING, OR WEEP TILE DRAINAGE SHALL BE ALLOWED TO ENTER ANY SANITARY SEWER INSTALLATION.
- ALL WATER MAIN ENTERING THE EXCAVATIONS OR OTHER PARTS OF THE WORK SHALL BE REMOVED UNTIL ALL THE WORK HAS BEEN COMPLETED. NO SANITARY SEWER SHALL BE USED FOR THE DISPOSAL OF TRENCH WATER.
- 18 INCH MINIMUM VERTICAL SEPARATION AND 10' MINIMUM HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN SANITARY SEWER AND WATER MAIN.
- NO CLAY PIPE WILL BE ALLOWED FOR MAIN LINE SANITARY SEWER OR FOR SANITARY SEWER LEADS.
- WHERE SANITARY SEWER CLEANOUTS FALL WITHIN A PAVED AREA (PARKING LOT, SERVICE DRIVE AREA, ETC.), THE CLEANOUT SHALL HAVE A CAST IRON COVER THAT IS CENTERED IN A 2'x2'x6" CONCRETE SLAB HAVING A COMPRESSIVE STRENGTH OF 3000 PSI AT 28-DAY CURE TIME.



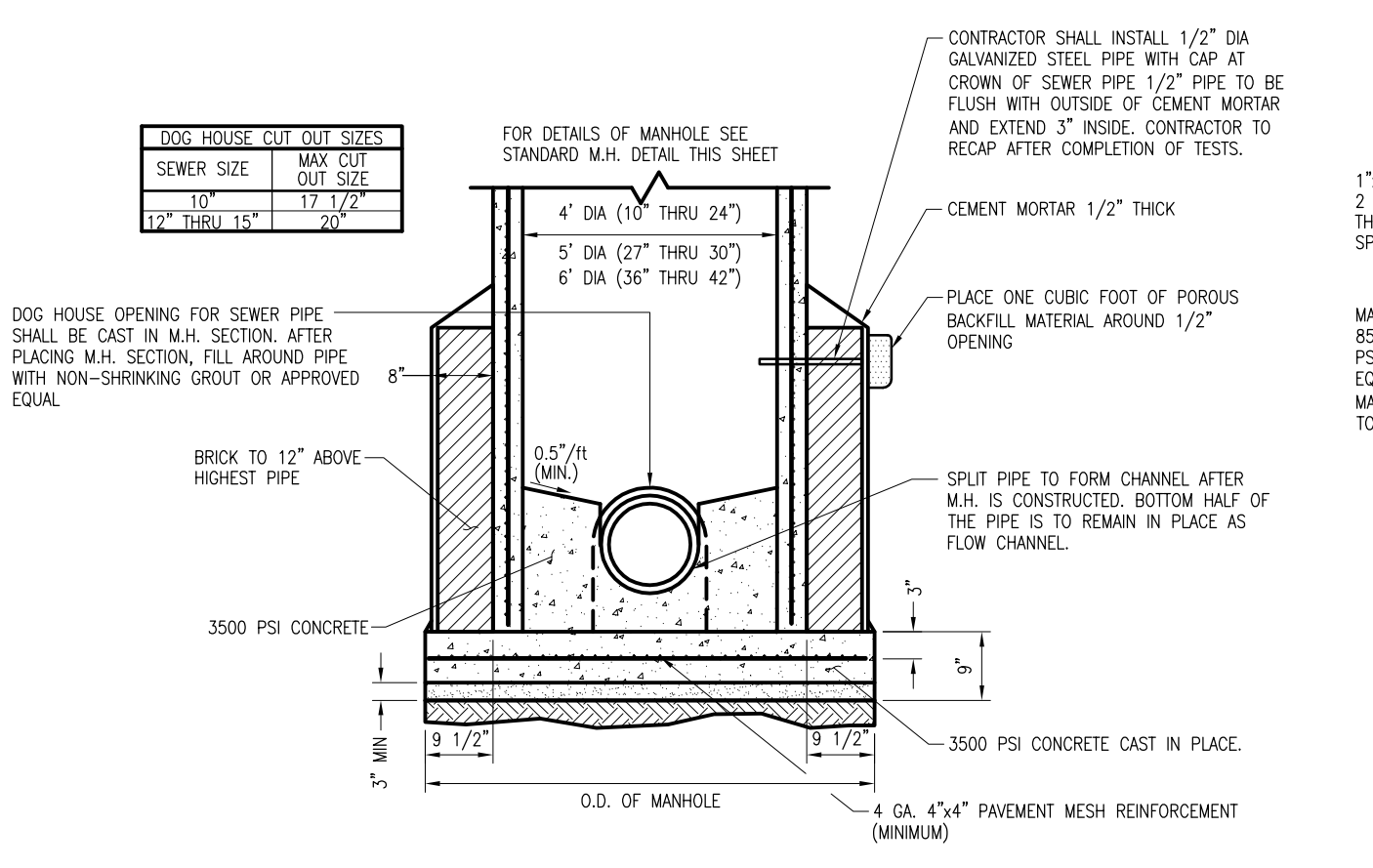
**STANDARD SANITARY MANHOLE FOR 10" THROUGH 24" SEWERS**



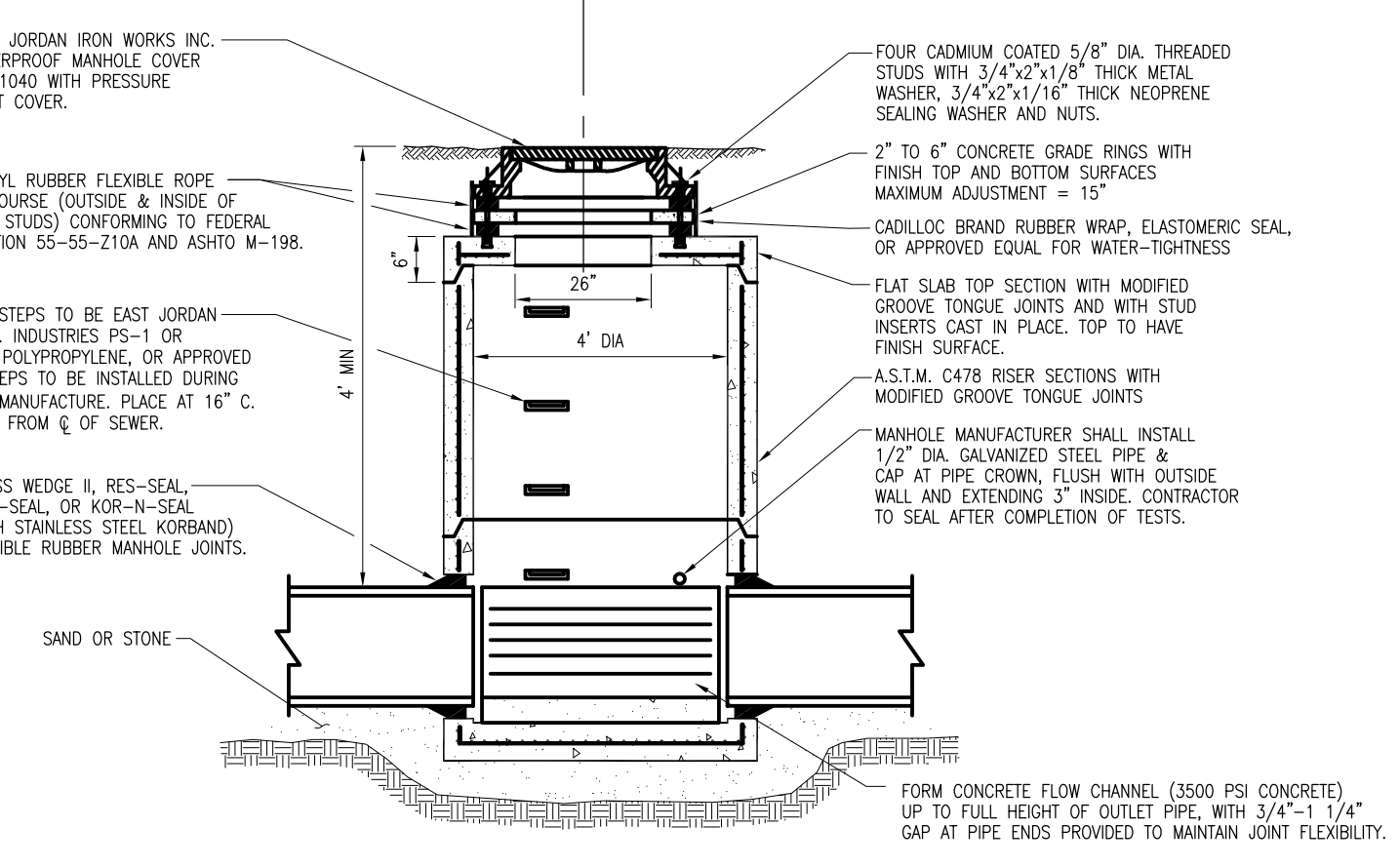
**STANDARD SANITARY MANHOLE FOR 27" THRU 42" SEWERS**



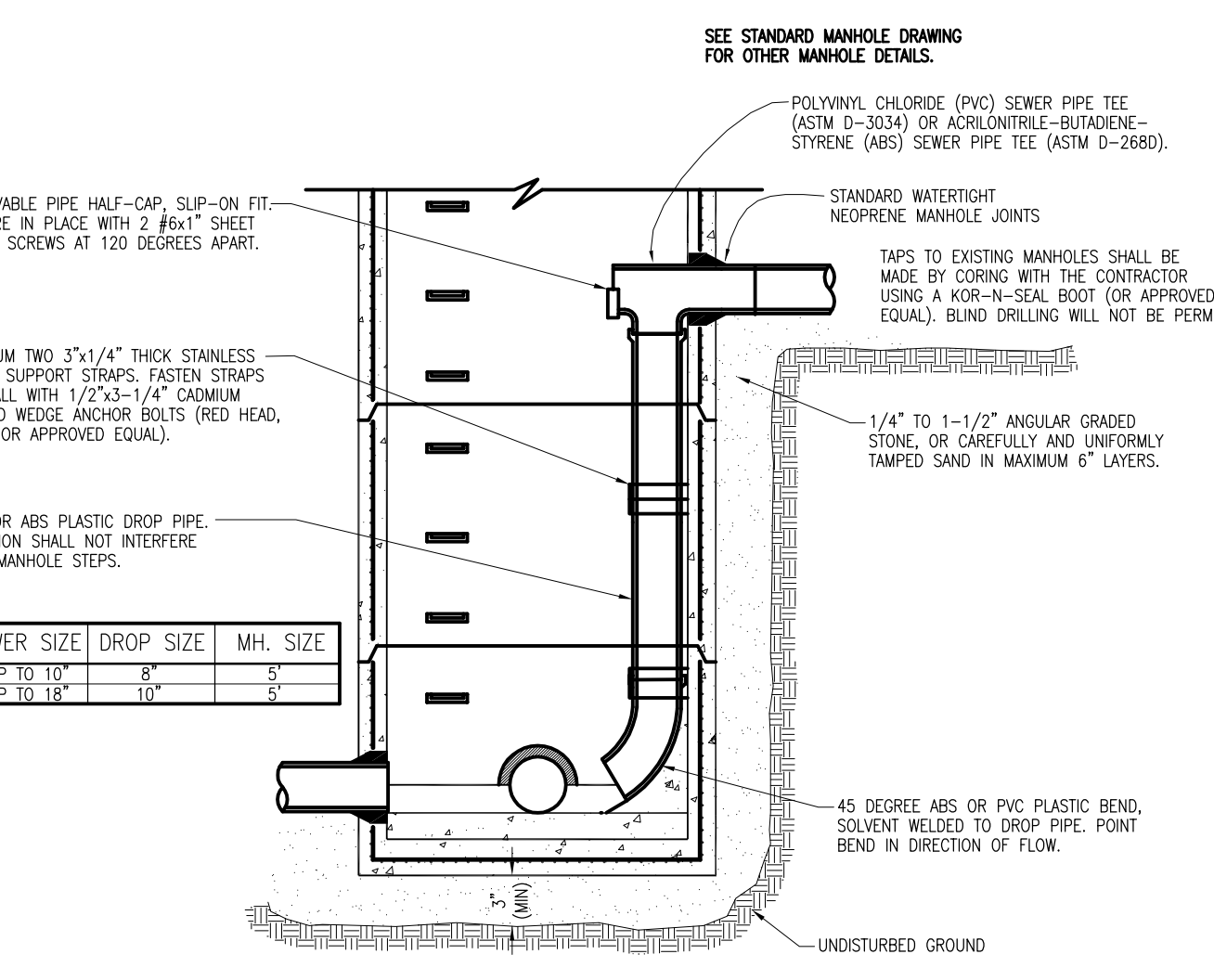
**EXTERNAL DROP MANHOLE CONNECTION**



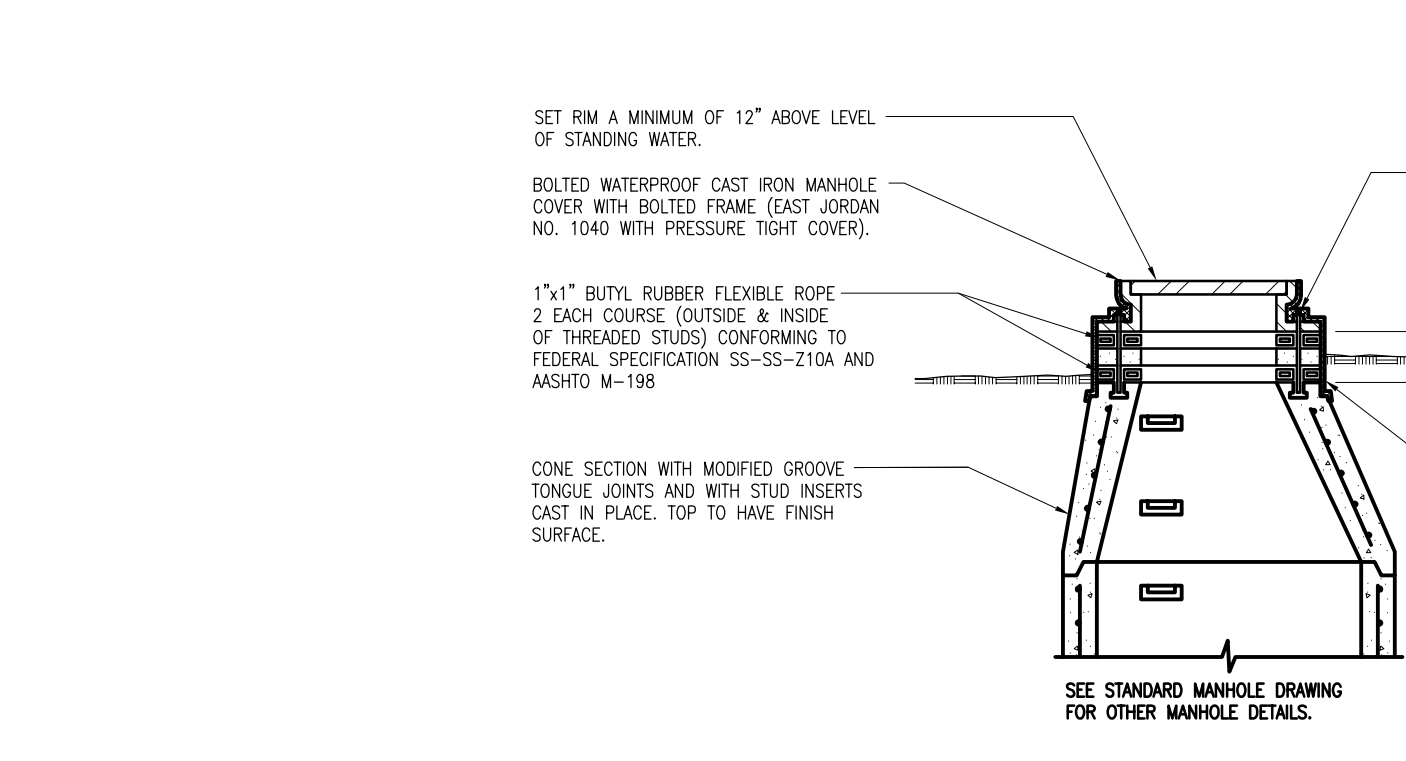
**STANDARD SANITARY MANHOLE ON EXISTING 10" THROUGH 42" DIAMETER SEWERS**



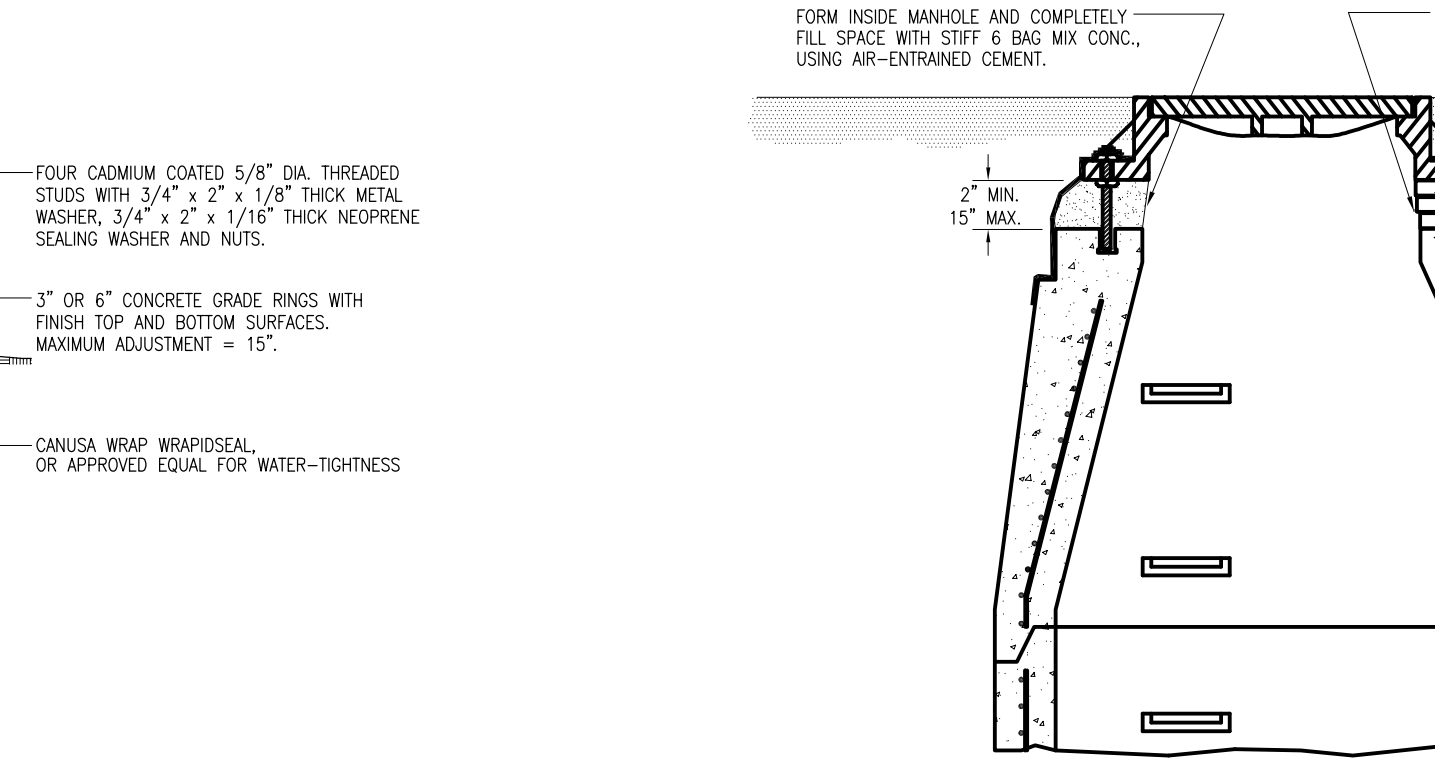
**FLAT TOP MANHOLE FOR SHALLOW MANHOLE INSTALLATIONS**



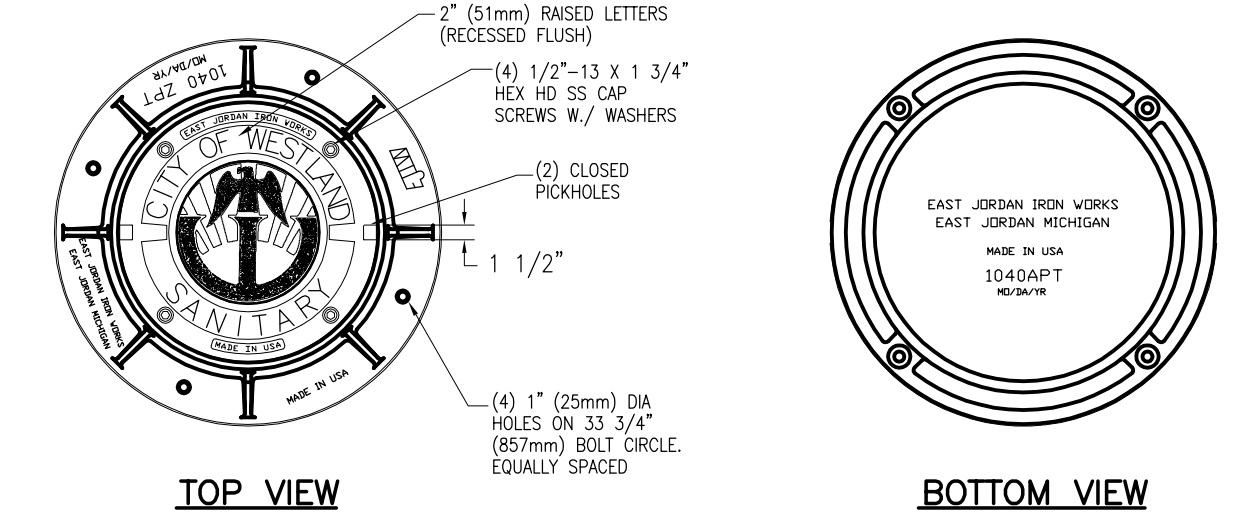
**INTERNAL DROP MANHOLE CONNECTION FOR DROP CONNECTIONS GREATER THAN 20 FEET DEPTH (ONLY AS APPROVED BY CITY OF WESTLAND)**



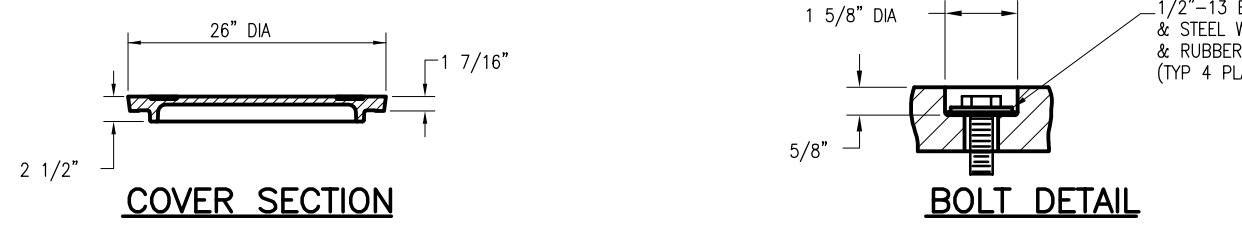
**CONSTRUCTION DETAILS FOR MANHOLE TOPS WITHIN FLOOD PRONE AREAS**



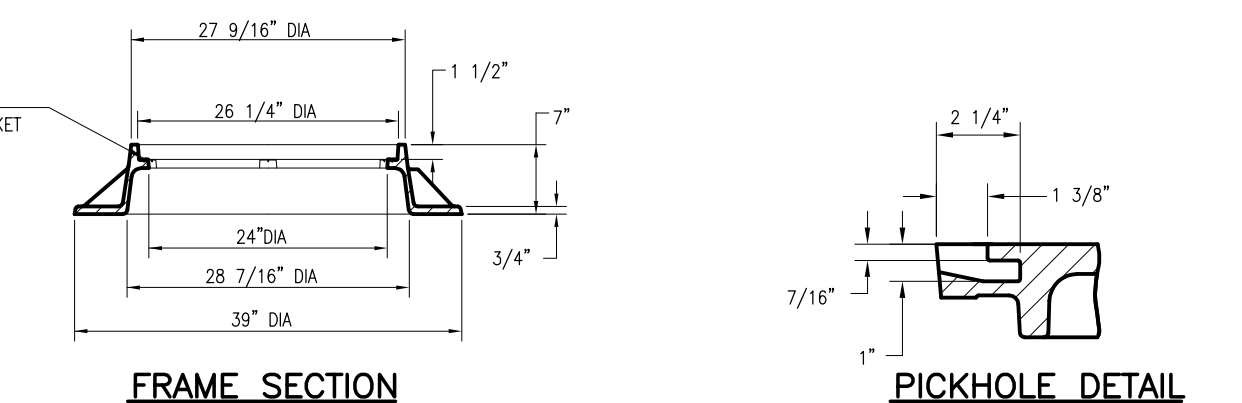
**OPTIONAL CONSTRUCTION DETAILS FOR MANHOLE TOPS WITHIN PAVEMENT AREAS**



**TOP VIEW BOTTOM VIEW**

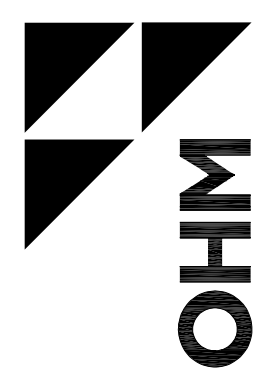


**COVER SECTION BOLT DETAIL**



**FRAME SECTION PICKHOLE DETAIL**

**CAST IRON MANHOLE COVER E.J.I.W. 1040 TYPE "A" SOLID COVER**



**OHM**

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DATE	MARCH 2005	CADD	KCN/PPR	ENG/ARCH	PROM/ER	SECTION	TOWN	RANGE	COUNTY	WAYNE	CITY/TOWNSHIP	WESTLAND	REVISIONS:	VERT DATUM	HORIZ DATUM	SCALE	V: NTS	H: NTS	JOB #
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CITY OF WESTLAND

STANDARD SANITARY SEWER DETAILS

SHEET 1 OF 2





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CITY OF WESTLAND  
STANDARD STORM SEWER DETAILS

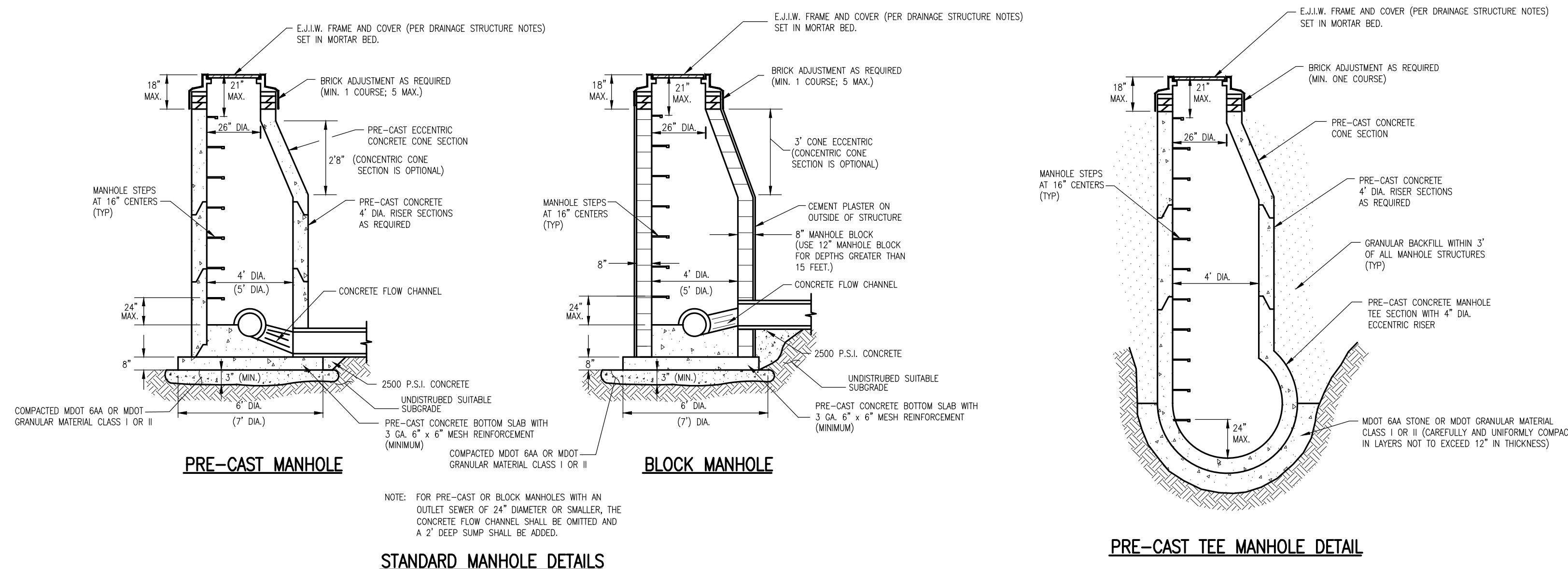
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OF 2

### GENERAL NOTES FOR STORM SEWER CONSTRUCTION

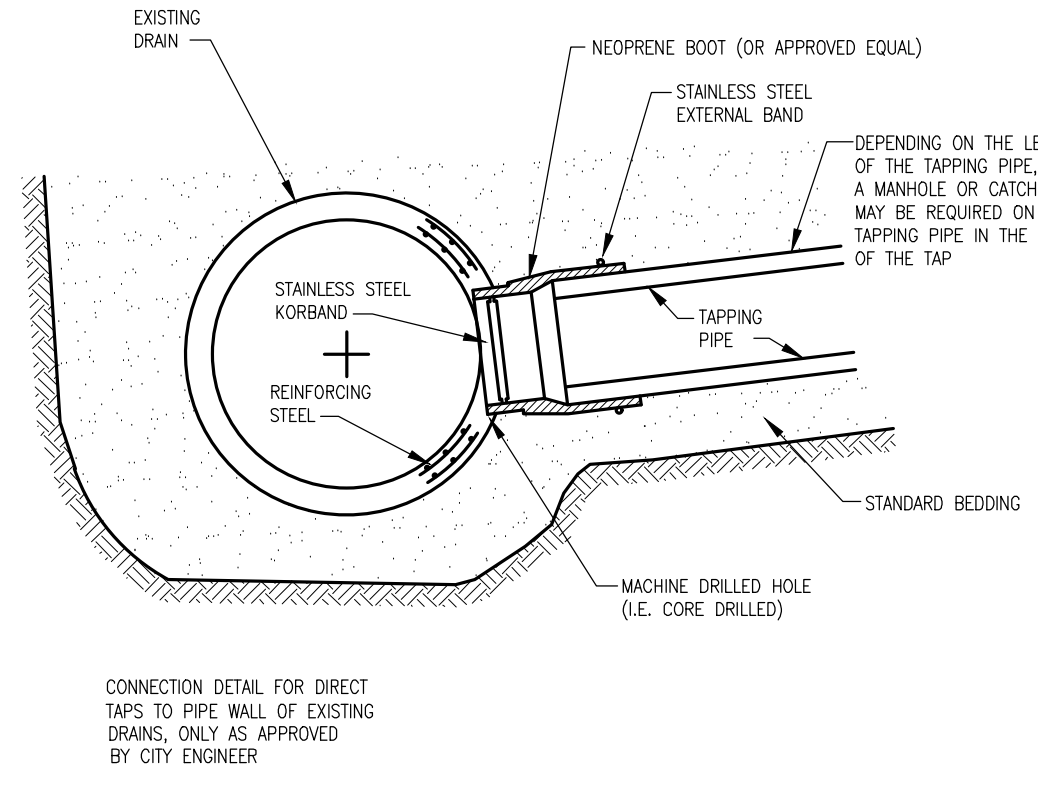
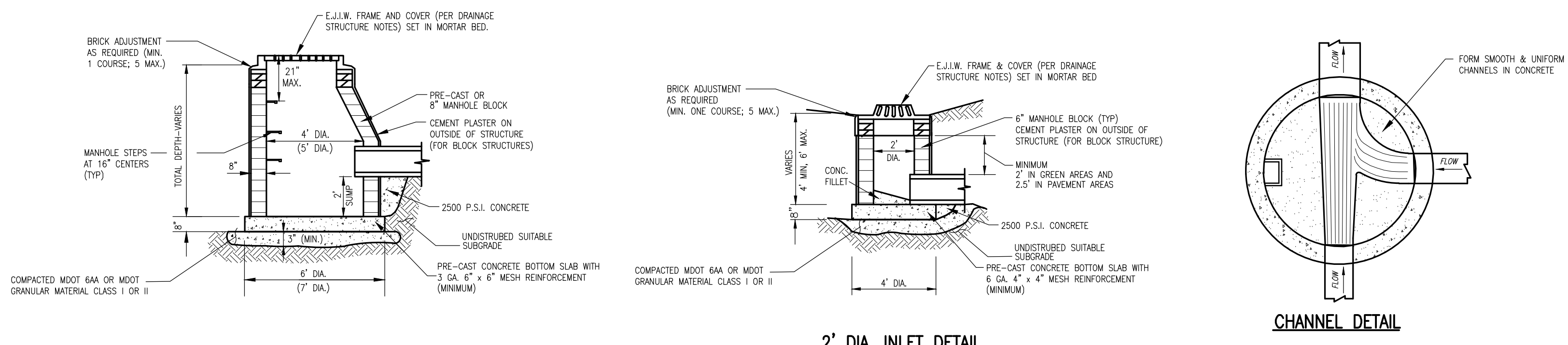
- All materials and workmanship shall be in accordance with the standards and specifications of the City of Westland.
  - Type and class of pipe shall be as specified on plans.
  - Bedding shall be used as called for on the details.
  - All end sections 18" and larger shall be provided with a galvanized bar screen.
- Contractor shall construct manholes with precast reinforced concrete in lieu of concrete, brick and block manholes in accordance with the following conditions:
  - No openings shall be made in precast units which would leave less than 12" of undisturbed precast structure wall between pipes (as measured between outside pipe walls) or would remove more than 40% of the circumference along any horizontal plane.
  - Structures for sewers larger than 18", or those not meeting the opening requirements, may be built of block or brick up to a minimum of 8" above the top of sewer, with precast units being used above this point. Where precast units rest on the block or brick, the groove in the precast unit shall be filled with mortar.
  - Openings for the outlet sewer shall be precast with a diameter of 3 inches larger than the outside diameter of the outlet pipe. All other openings shall be made in the field after the manhole has been constructed.
- All vertical openings in concrete block structure walls shall be completely filled with mortar. All vertical wall joints shall be cement pointed.
  - Concrete pipe requirements:
    - The contractor shall provide reinforced concrete pipe as specified on the plans.
    - All round reinforced concrete pipe shall meet the requirements of ASTM C76 with modified grooved tongue and rubber gasket meeting the requirements of ASTM C443.
    - All elliptical reinforced concrete pipe shall meet the requirements of ASTM C507 with tongue and grooved joints with bituminous (Dowit #10) joint material meeting the requirements of C443. Elliptical concrete pipe joints shall also be wrapped per ASTM C877 for external sealing bands for non-circular concrete pipe. In addition, elliptical concrete pipe of 42" equivalent size and larger shall require inside concrete pointing.
    - The inside joints of round pipe over 27" diameter shall be pointed with mortar upon completion of backfilling operations.
    - Where unstable ground conditions are encountered, stone bedding shall be used as directed by the Engineer in order to provide a stable foundation for pipe and manholes.
    - All pipes entering or leaving a manhole shall be adequately supported by pouring 250 psi concrete fill from undisturbed earth to springline or with approved crushed aggregate.
- HDPE pipe requirements:
  - Large diameter HDPE storm sewer may be used for underground storm water detention systems if approved by the City, depending on site conditions.
  - All HDPE storm sewer pipe that is used for underground storm water detention shall have a smooth interior.
  - HDPE pipe shall meet the requirements of ASTM M294 and D3350 with push-on type joints meeting the requirements of ASTM D3212 and F477.
- Pipe bedding and backfilling:
  - Bedding shall extend a minimum of 4" below pipe, unless otherwise noted on construction plans. Bedding shall be uniform in gradation. However, if the existing native soils meet the requirements for MDT granular material Class II (minimum 4" thick), then the storm sewer may be laid directly on the compacted native subgrade soils.
  - Backfill shall be compacted above pipe or as indicated on construction drawings. Trench backfill shall be of a suitable material and shall be free of any organic materials and rocks larger than 3" in size. Backfill shall be ramped into trench and compacted with a small dozer or other approved methods. Where trench is within a 1:1 influence of streets, alleys, sidewalks, driveways and parking areas, sand backfill shall be used which shall consist of MDT granular material Class II or III compacted in layers not to exceed 12" in thickness to a density of 95% as determined by AASHTO T99. All backfill placed within a 1:1 influence of structures shall be approved sand, placed in 1' layers and compacted. No frozen material shall be buried more than 4' below the final elevation of the ground.
  - Trenches which are to be left open overnight shall be enclosed with suitable fencing and lighted barricades, unless otherwise approved by the City.
- Sump pump lead requirements:
  - Sump pump leads shall be SDR 35, non-perforated, solid wall, PVC, ARMO Truss Pipe, or approved equal, with premium joints.
  - Sump collection system pipes shall be connected at drainage structures. However, if approved by the engineer, taps to 12" storm sewer may be made with a Fernco EZ Tap or approved equal. Taps to other size storm sewer may be made with a Romac saddle, KOR-N-TEE lateral connector for concrete pipe, or approved equal.
  - All sump pump leads shall be taken to the property line, easement line or as indicated on the plan.
  - Sump pump cleanouts shall be a minimum inside diameter of 24" and be constructed at changes of alignment, ends of sump pump mains or as indicated on the plan.

### DRAINAGE STRUCTURE REQUIREMENTS:

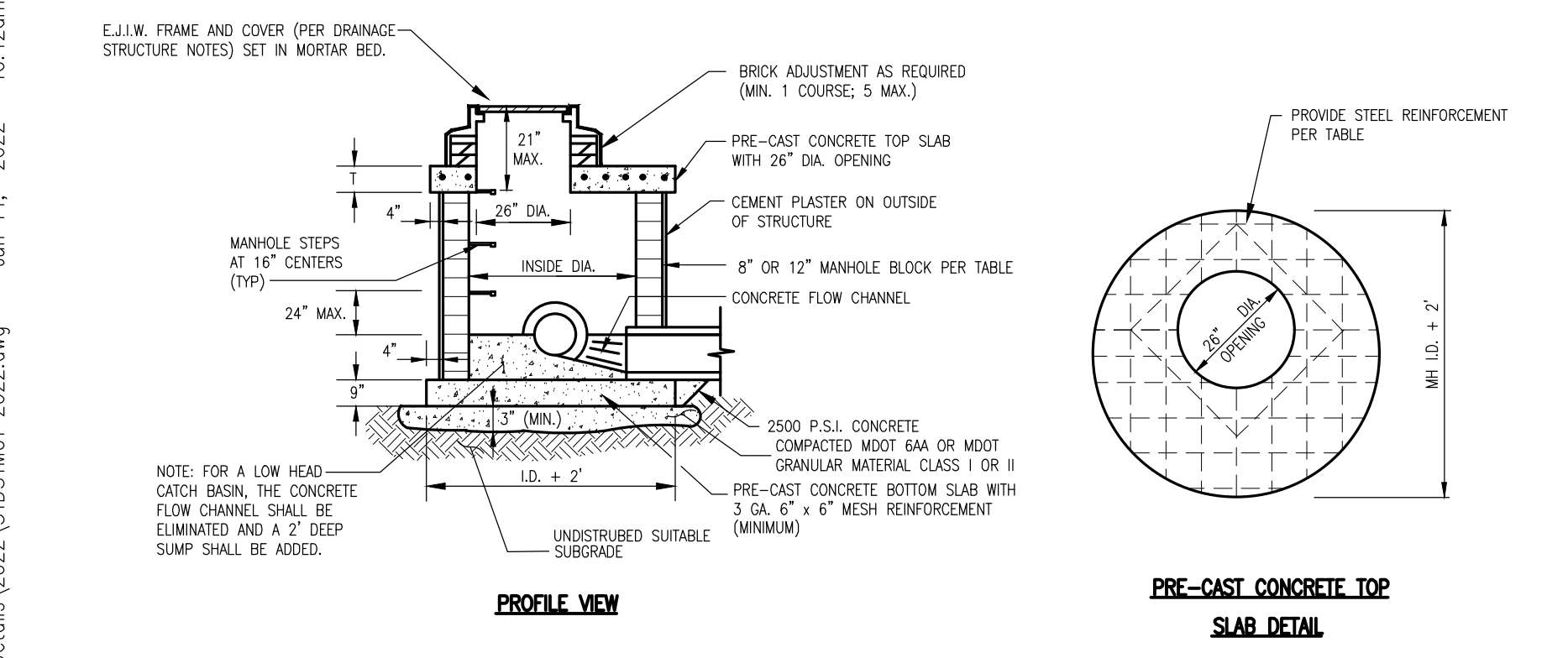
- All manholes and catch basins shall be 4' or 5' in diameter unless otherwise indicated on construction drawings. Larger diameter drainage structures (6', 7', 8', 10', 12' diameter) may be needed for large storm sewer pipe or for situations where the angles between entering pipes require a larger diameter structure in order to maintain at least 1' of structure wall between the pipes. 2' diameter inlets may be used where approved by the City Engineer.
- Manhole and catch basin steps shall be steel, encased with polypropylene plastic or approved equivalent. Acceptable steps include M.A. Industries, Inc., PSI-375 or East Jordan Iron Works 8502. Manhole steps shall be set at 16" centers.
- Manhole frame and cover shall be East Jordan Iron Works 1040, type "B" perforated cover or as per construction drawings.
- Catch Basin and inlet frame and cover shall be:
  - East Jordan Iron Works 5080, type "M2" sinusoidal cover for areas with straight face or integral curb and gutter.
  - East Jordan Iron Works 1040, type "M" cover for low points in paved parking areas.
  - East Jordan Iron Works 1040, type "O1" cover (beehive) to be used in open ditches and swales.
  - East Jordan Iron Works 1040, type "N" cover (low beehive) to be used for low points in lawn areas or rear yards.
- Manhole and Catch Basin Frames shall be set in full bed of mortar and the side shall be overlapped to prevent leakage.
- A proper channel shall be constructed within the existing manhole or other structure at which the connection is to be made in order to direct the flow to the existing outlet in a manner which will tend to create the least amount of turbulence. The channel shall be constructed to the same size as the inside diameter of the existing pipes, and shall be built to height of 1/3 the existing pipe diameter with a minimum of 2% slope on the benches.
- Standard Brick Adjustment: minimum of one course and a maximum of 5 courses of brick.
  - All bricks and blocks used for adjustment shall be concrete.
  - Block used for standard catch basins and manholes shall be 8" (for 0'-15" deep) and 12" (for 15'-25" deep). Block used for 2' diameter inlets and catch basins shall be 6".
  - Precast reinforced concrete section as minimum shall conform to ASTM C-478.
  - Concrete base for manhole, catch basin, and inlet shall be MDT grade 30P (Min.), 8" thick, 3000 psi.
- Plaster all outside masonry surfaces with 1:2 1/2 masonry cement (type II) 1/2" thick.
- When tapping into an existing structure, a brick collar shall be placed 12" thick around the pipe and extended 12" beyond the opening. If pre-cast section is tapped, bend mesh and use as reinforcement with brick collar.
- All precast riser(s) shall be placed in a full bed of mortar. All joints & liffholes shall be pointed up with mortar on the outside and inside.
  - All vertical and horizontal bars shall be tack-welded to the angle frame.
  - The bar grate screen shall be hot-dipped galvanized after fabrication is complete.
- Hinged bar grates will be required for headwalls per MDT standards.



### STANDARD MANHOLE DETAILS



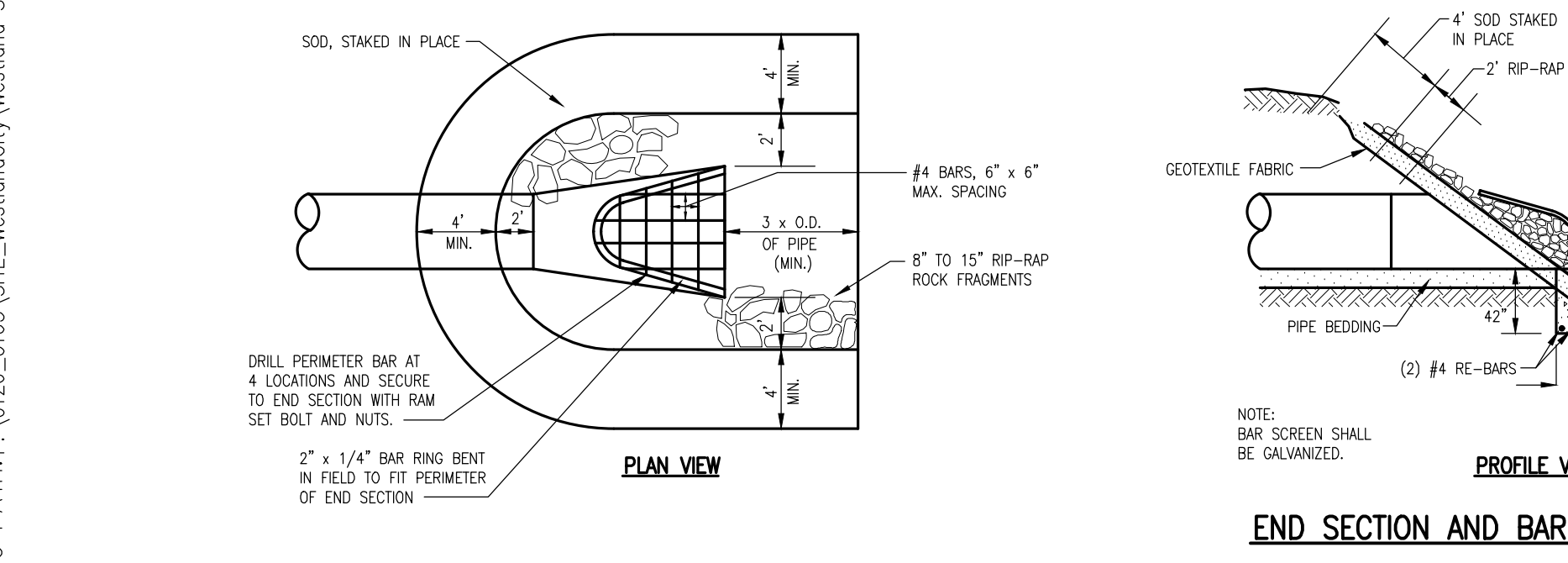
### KOR-N-TEE TAP FOR CONCRETE PIPE



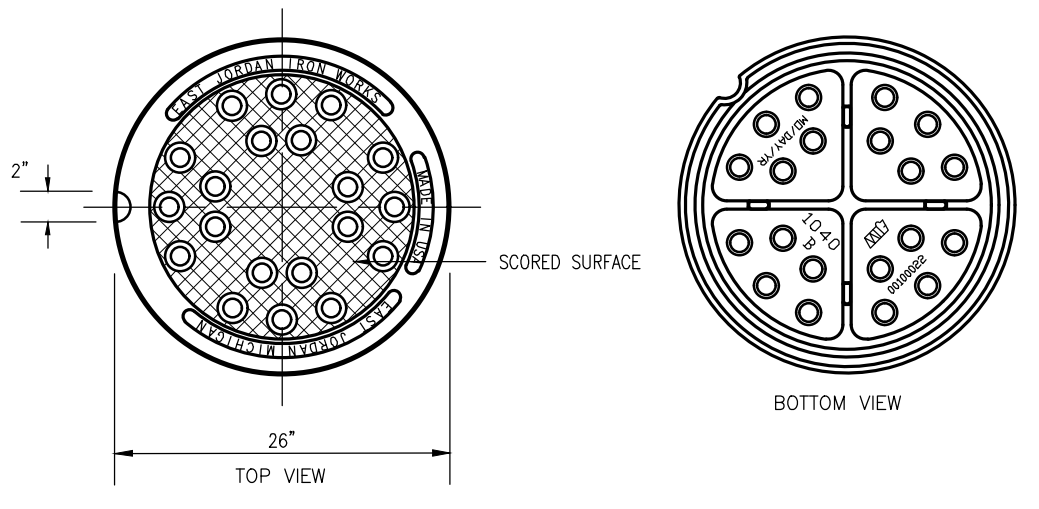
### LOW HEAD MANHOLE AND CATCH BASIN DETAIL

OUTLET PIPE DIA.	M.H. I.D.	TOP SLAB 11"	M.H. BLOCK	TOP SLAB 11"
24"	4'	9"	8"	#6 @ 9" EA. WAY
30"	4'	9"	8"	#6 @ 9" EA. WAY
36"	4'	9"	12"	#6 @ 9" EA. WAY
42"	5'	10"	12"	#6 @ 9" EA. WAY
48"	6'	11"	12"	#7 @ 9" EA. WAY
54"	7'	12"	12"	#7 @ 9" EA. WAY
60"	8'	12"	12"	#8 @ 9" EA. WAY

STEEL REINFORCEMENT TABLE



### END SECTION AND BAR SCREEN DETAIL



### FRAME SECTION CAST IRON MANHOLE COVER E.J.W. 1040 FRAME AND TYPE B PERFORATED COVER

DRAWING PATH: P:\0126\_0165\Site - Westland\City Westland Standard Details\2022\STDSTIM01\_2022.dwg Jun 14, 2022 10:12am

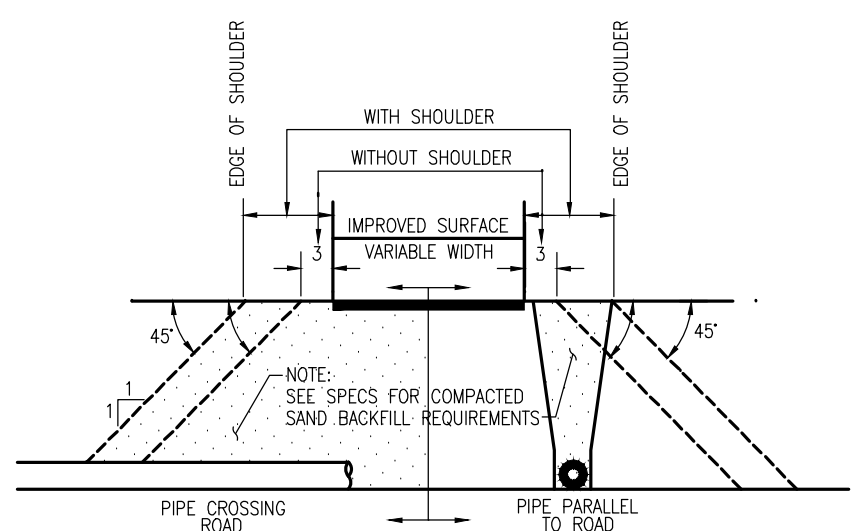
COPYRIGHT 2009 OHM ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF OHM AND THE SAME MAY NOT BE DUPLICATED, DISTRIBUTED, OR DISCLOSED WITHOUT PRIOR WRITTEN CONSENT OF OHM



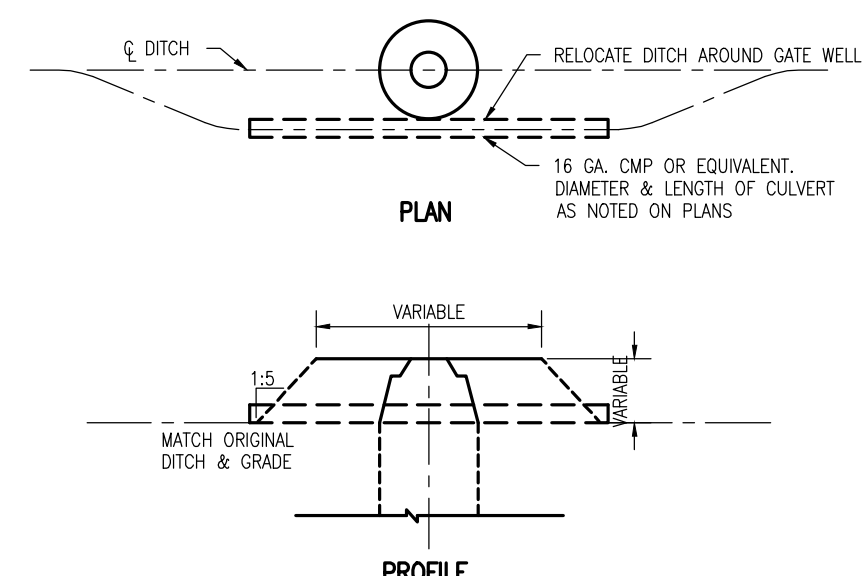




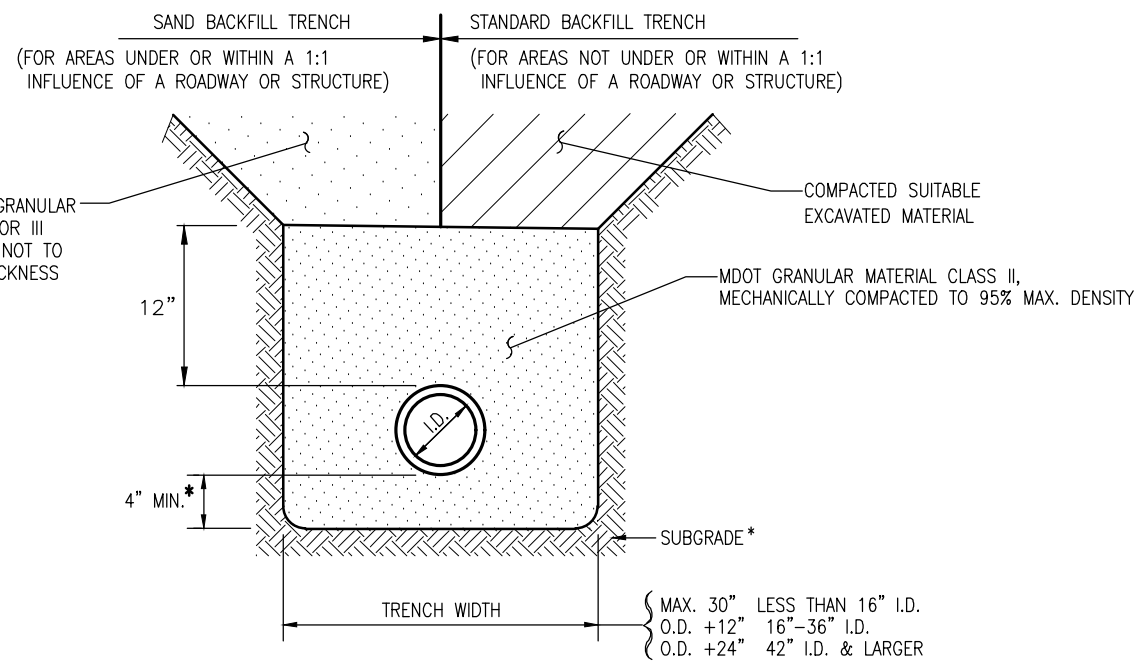
DATE	JUN 2022	CADD	BL/JK/JAC	ENG / ARCH	PROJ MGR	SECTION	TOWN	COUNTY	WAYNE	CITY/TOWNSHIP	WESTLAND	SCALE	V: NTS	H: NTS	JOB #
REVISIONS															
REVISIONS															
REVISIONS															
REVISIONS															



**BACKFILL IN THE AREA OF STREETS, ALLEYS  
SIDEWALKS, DRIVES & PARKING LOTS**

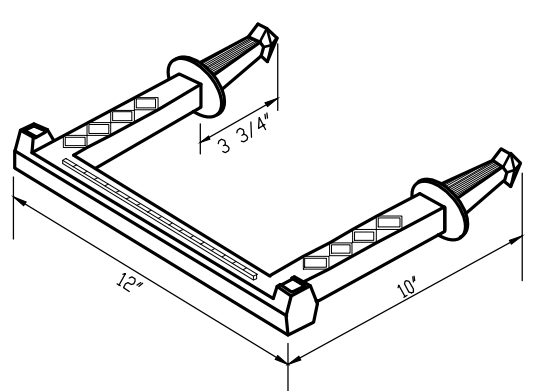


**DITCH ENCLOSURE AT GATE WELL OR HYDRANT**

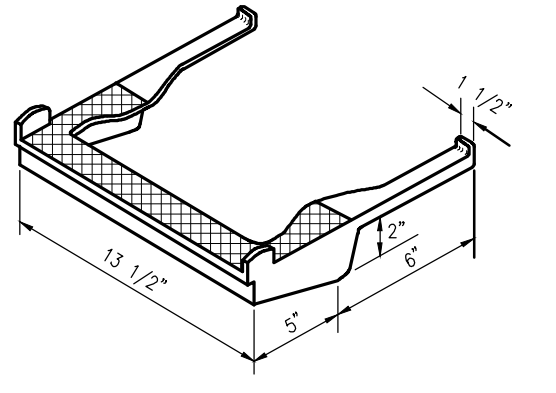


**STANDARD BEDDING AND TRENCH BACKFILL DETAIL  
FOR WATER MAIN**

\* NOTE: IF THE EXISTING SUBGRADE SOILS MEET THE REQUIREMENTS FOR ROOT GRANULAR MATERIAL CLASS II (MINIMUM 4" THICK), THEN THE WATER MAIN MAY BE LAID DIRECTLY ON THE COMPACTED NATIVE SUBGRADE SOILS.

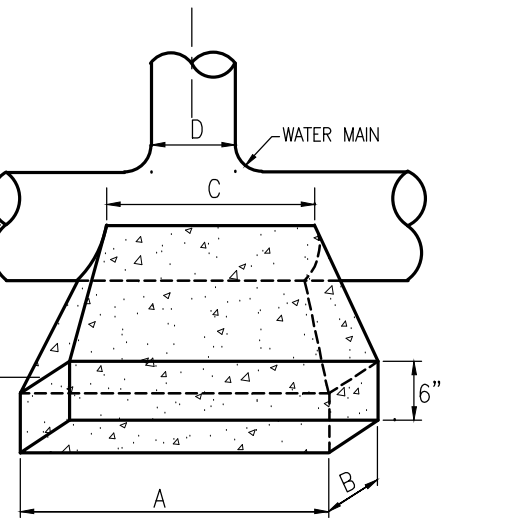
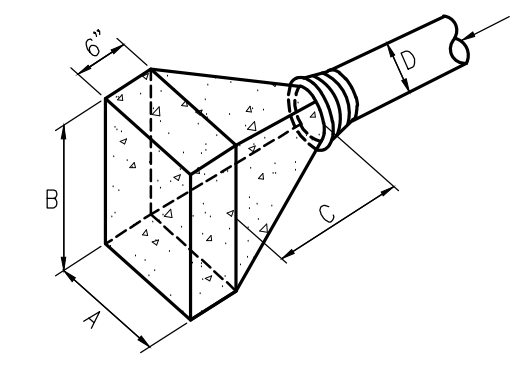
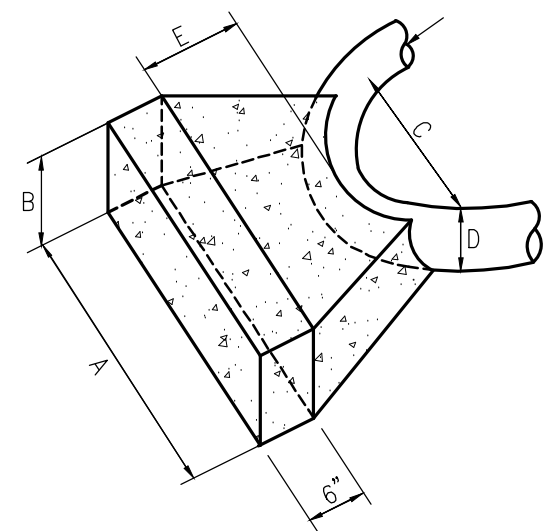


**M.A. INDUSTRIES PSI-375**



**E.J.L.W. 8502**

**STANDARD MANHOLE STEP**



**THRUST BLOCK DETAILS**

NOTE: ADDITIONAL CONCRETE TO BE PLACED PER ENGINEER'S DIRECTION FOR HYDRANTS REQUIRING THRUST BLOCKS. THE THRUST BLOCKS ARE INCIDENTAL TO HYDRANT INSTALLATION.

**FOR 90° BENDS OR SMALLER**

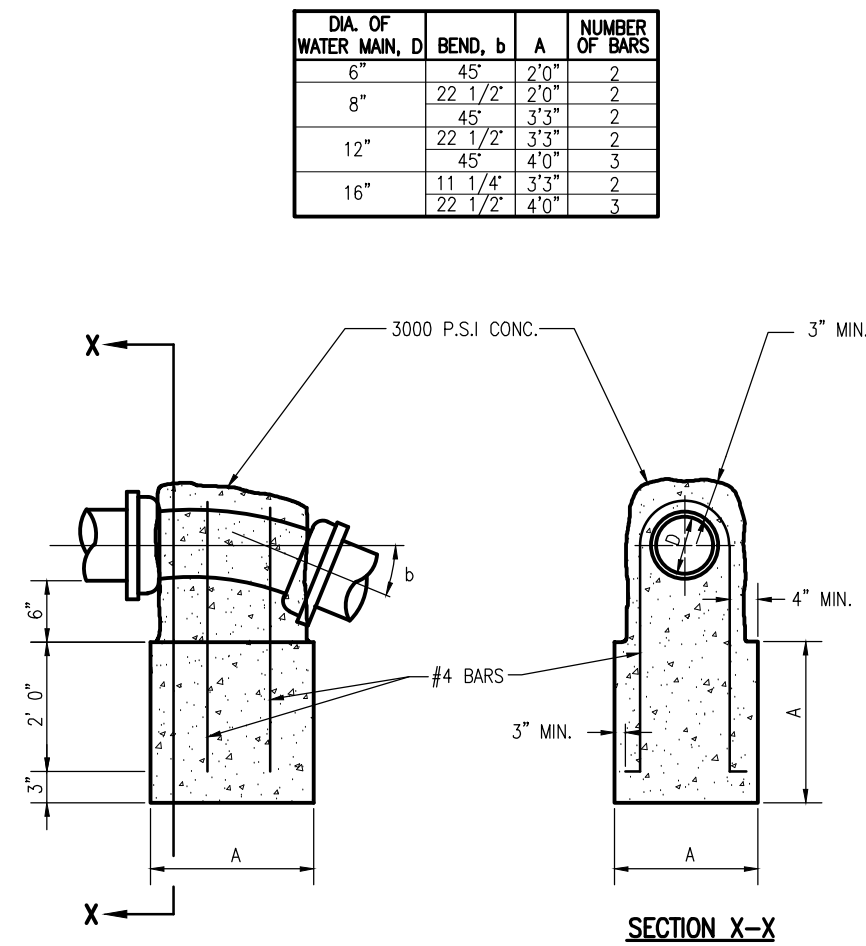
D	A	B	C	E MIN.
20"	8'	6.5'	3.5'	2.5'
16"	6'	4'	2.5'	2'
12"	4'	3'	2'	1.75'
10"	3'	3'	2'	1.75'
8"	3'	2'	2'	1.5'
6"	2'	1.5'	2'	1.25'

**FOR PLUS**

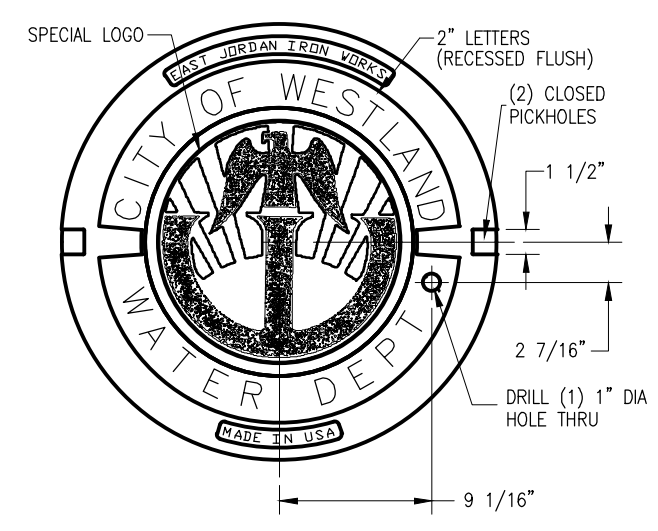
D	A	B	C	E MIN.
20"	7'	5'	2.5'	2'
16"	4'-10"	4'-10"	2'	2'
12"	4'-4"	3'	1'-9"	1'-9"
10"	3'	2'	1'-6"	1'-6"
8"	2'-10"	2'-6"	1'-6"	1'-6"
6"	1'-6"	1'-6"	3"	3"

**FOR TEES**

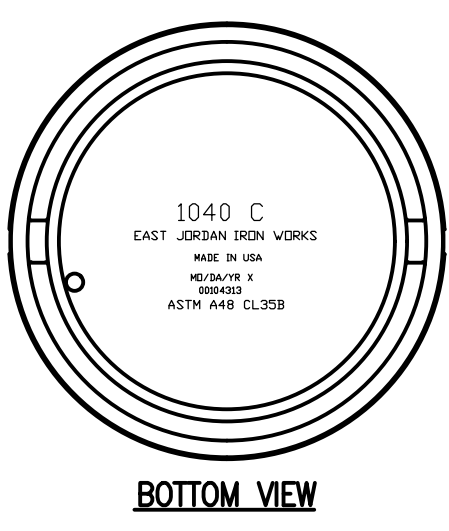
D	A	B	C	E MIN.
20"	6.5'	4.5'	3.5'	3'
16"	4'-8"	4'-8"	2.5'	2.75'
12"	4'	3'	2.5'	2.5'
10"	3'	2'	2'	2.25'
8"	2'-6"	2'	2'	2.25'
6"	2'	2'	2'	2.25'



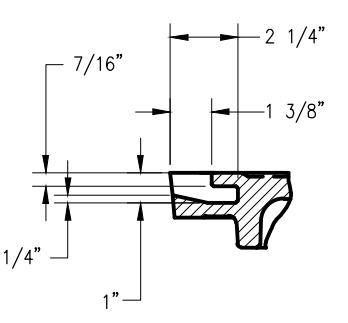
**VERTICAL ANCHORAGE DETAIL**



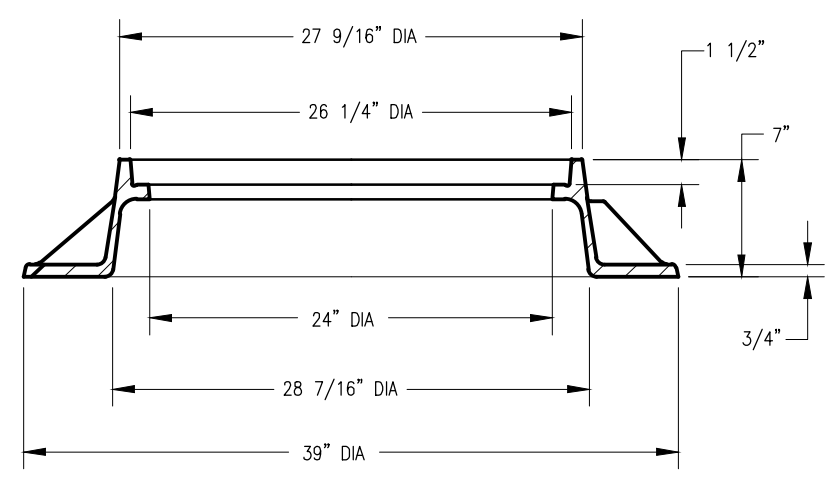
**COVER SECTION**



**BOTTOM VIEW**

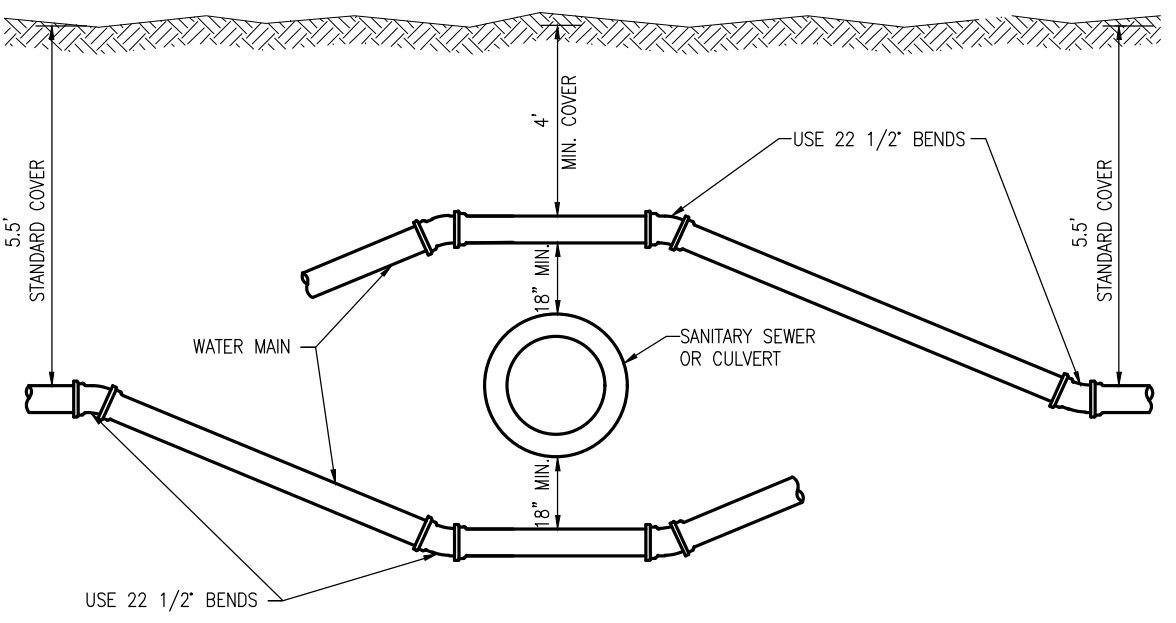


**PICKHOLE DETAIL**



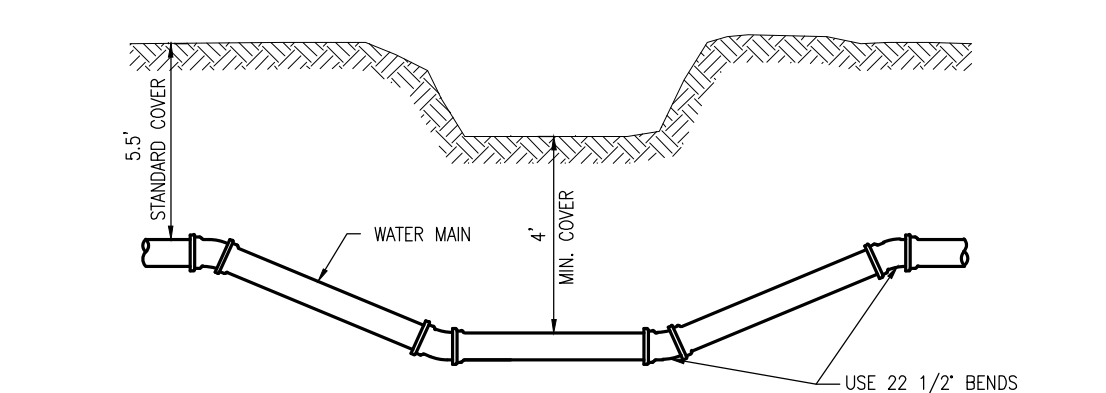
**FRAME SECTION**

**CAST IRON GATE WELL COVER  
E.J.L.W. 1040 TYPE "C" SOLID COVER**



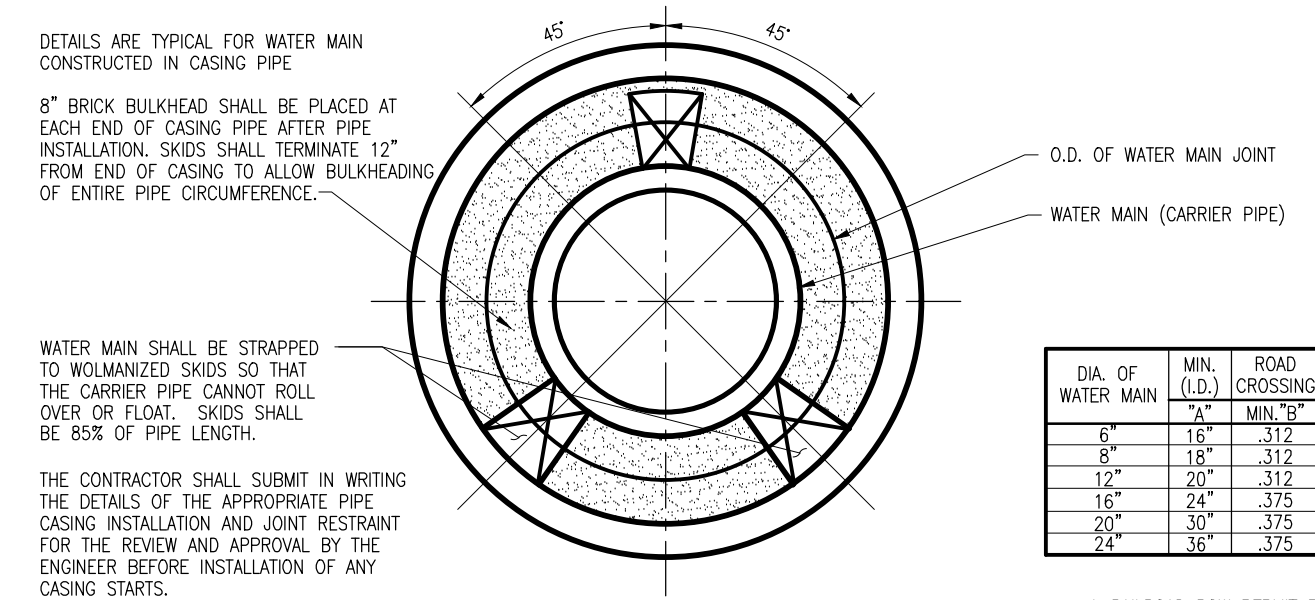
**SEWER OR CULVERT CROSSING**

NOTE:  
1. BENDS CAN BE ELIMINATED FOR MINOR VERTICAL DEFLECTIONS IN DUCTILE IRON PIPE (1 DEGREE OR LESS). IN THIS CASE, THE PIPE MAY BE DEFLECTED UP TO 4" PER JOINT.  
2. PLACE AND COMPACT GRANULAR MATERIAL CLASS II BETWEEN PIPES IN THE VICINITY OF THE CROSSING.  
3. PROVIDE JOINT RESTRAINT BY MEANS OF THRUST BLOCKS AND VERTICAL ANCHORAGES OR OTHER METHOD THAT IS APPROVED BY THE ENGINEER.

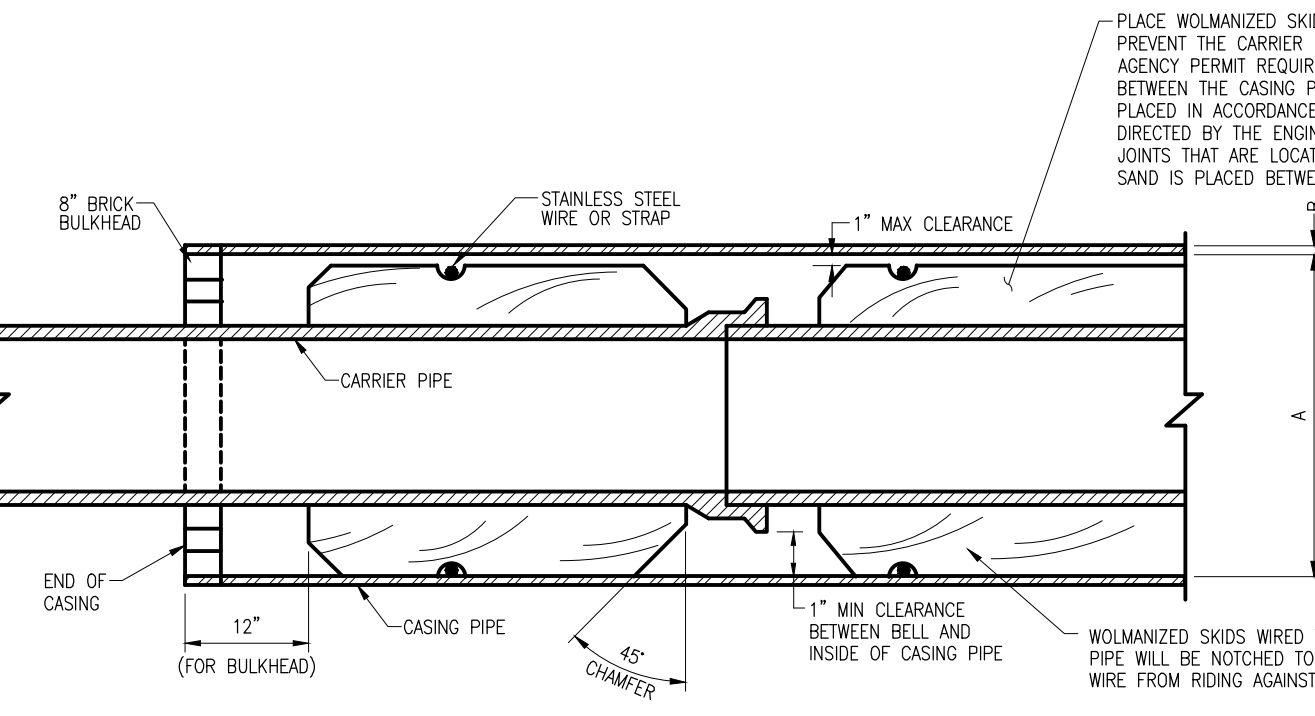


**DITCH OR STREAM CROSSING**

NOTE:  
1. BENDS CAN BE ELIMINATED FOR MINOR VERTICAL DEFLECTIONS IN DUCTILE IRON PIPE (1 DEGREE OR LESS). IN THIS CASE, THE PIPE MAY BE DEFLECTED UP TO 4" PER JOINT.  
2. PLACE AND COMPACT GRANULAR MATERIAL CLASS II BETWEEN PIPES IN THE VICINITY OF THE CROSSING.  
3. PROVIDE JOINT RESTRAINT BY MEANS OF THRUST BLOCKS AND VERTICAL ANCHORAGES OR OTHER METHOD THAT IS APPROVED BY THE ENGINEER.



**PIPE BARREL SUPPORT FOR WATER MAIN  
CONSTRUCTED IN CASING PIPE**



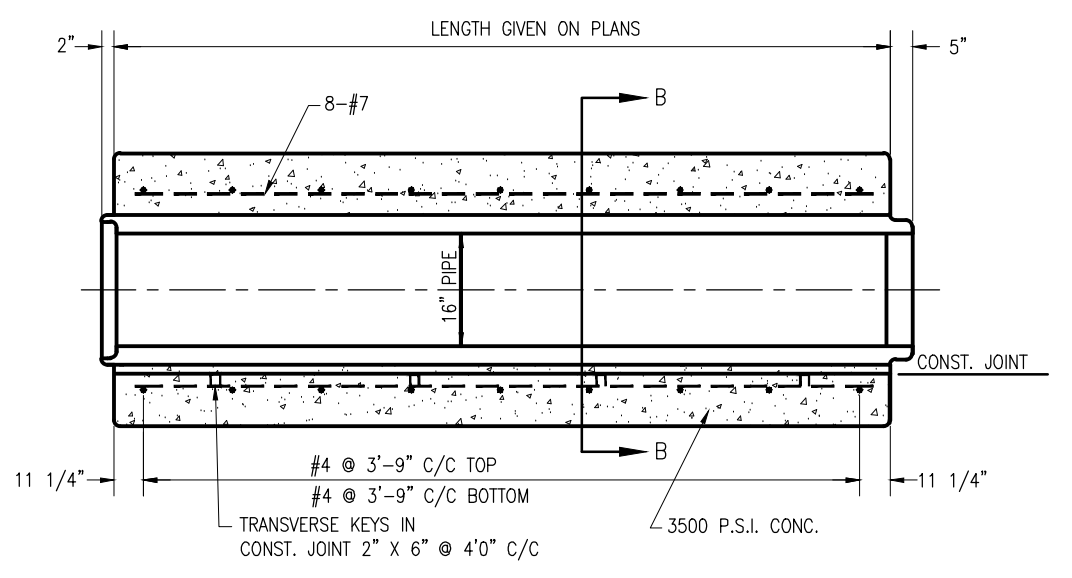
**STANDARD CASING SECTION**

DIA. OF WATER MAIN (I.D.)	MIN. ROAD CROSSING	RAILROAD CROSSING	A=INSIDE DIAMETER B=WALL THICKNESS
6"	15'	312'	312'
8"	15'	312'	312'
12"	20'	312'	438'
16"	24'	375'	500'
20"	30'	375'	500'
24"	36'	375'	500'

\* RAILROAD ROW PERMIT REQUIREMENTS MAY CALL FOR A THICKER WALL SECTION.

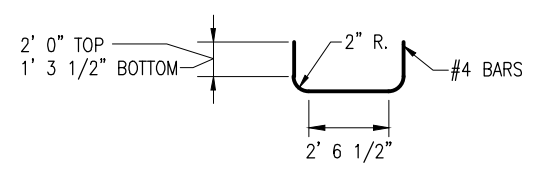
CASING SHALL BE SPIRAL WELDED STEEL PIPE A.S.T.M. A-252, GR. 2.

PLACE WOLMANIZED SKID ALONG THE TOP OF THE CARRIER PIPE IN ORDER TO PREVENT THE CARRIER PIPE FROM ROLLING OVER OR FLOATING IF THE CONTROLLING AGENCY PERMIT REQUIREMENTS INDICATE THAT SAND OR GROUT MUST BE PLACED BETWEEN THE CASING PIPE AND CARRIER PIPE. THEN THE SAND OR GROUT SHALL BE PLACED IN ACCORDANCE WITH THE PERMIT SPECIFICATIONS. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, RESTRAINED JOINTS SHALL BE REQUIRED FOR WATER MAIN JOINTS THAT ARE LOCATED INSIDE THE CASING PIPE IN THE EVENT THAT NO GROUT OR SAND IS PLACED BETWEEN THE CASING PIPE AND CARRIER PIPE.

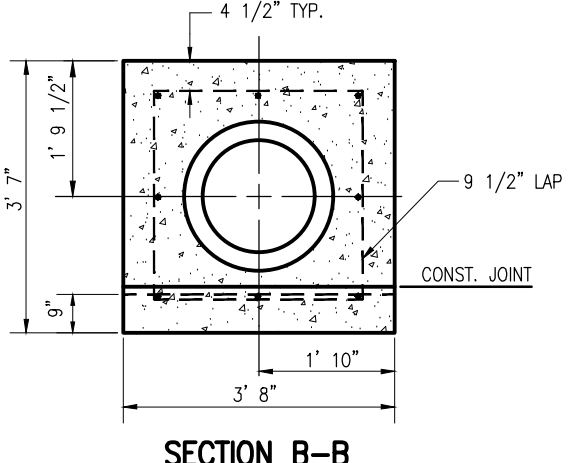


**PROFILE**

LENGTH OF TOP BARS = 7' 1 1/2"  
LENGTH OF BOT. BARS = 5' 8 1/2"

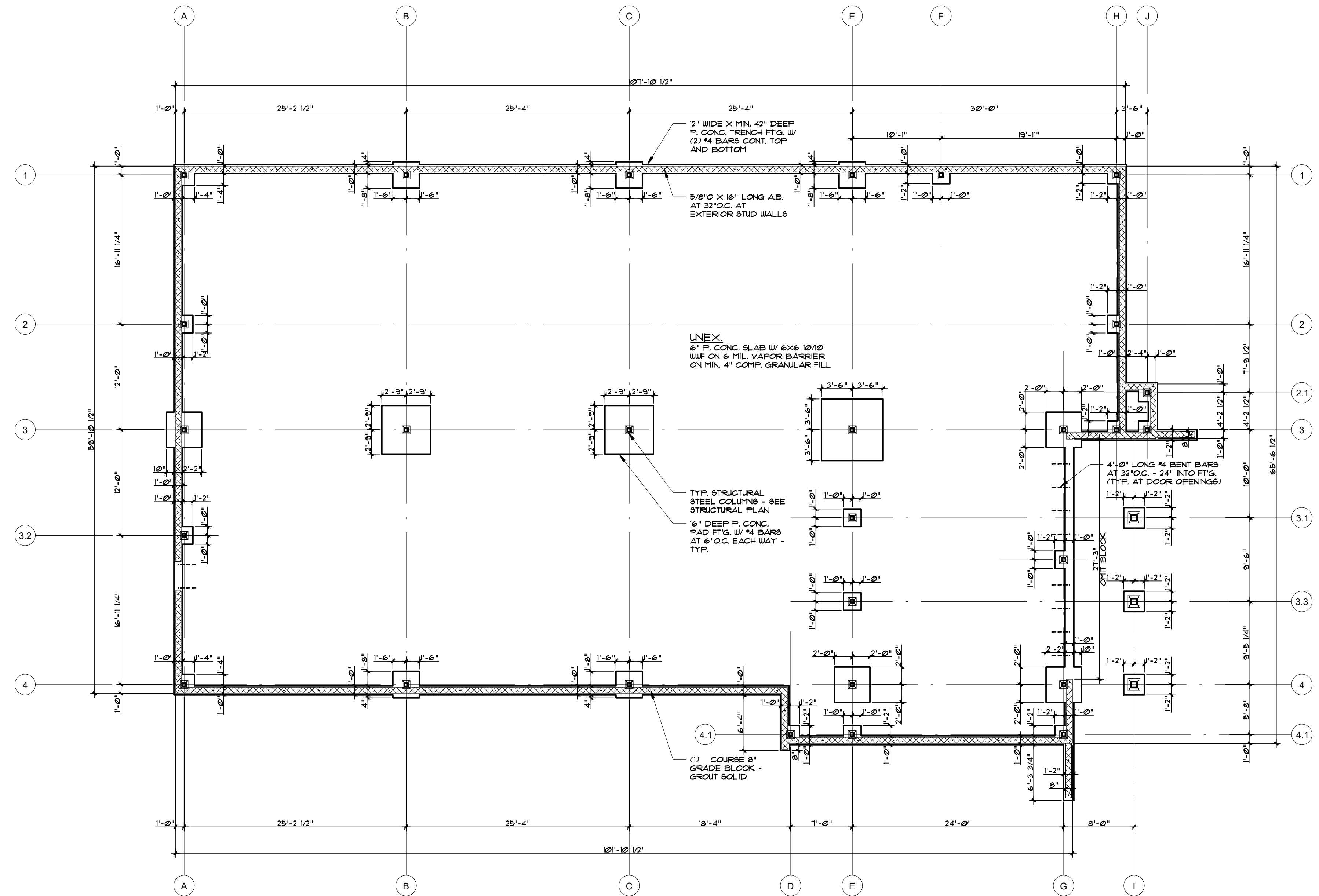


**BAR BENDS**



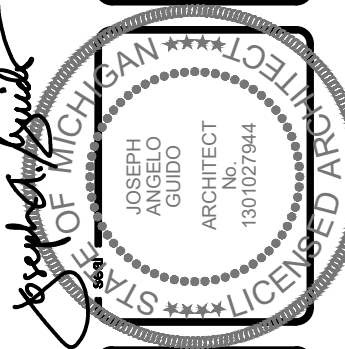
**SECTION B-B**

**16" WATER MAIN ENCASEMENT  
UNDER DRAINS & DITCHES**

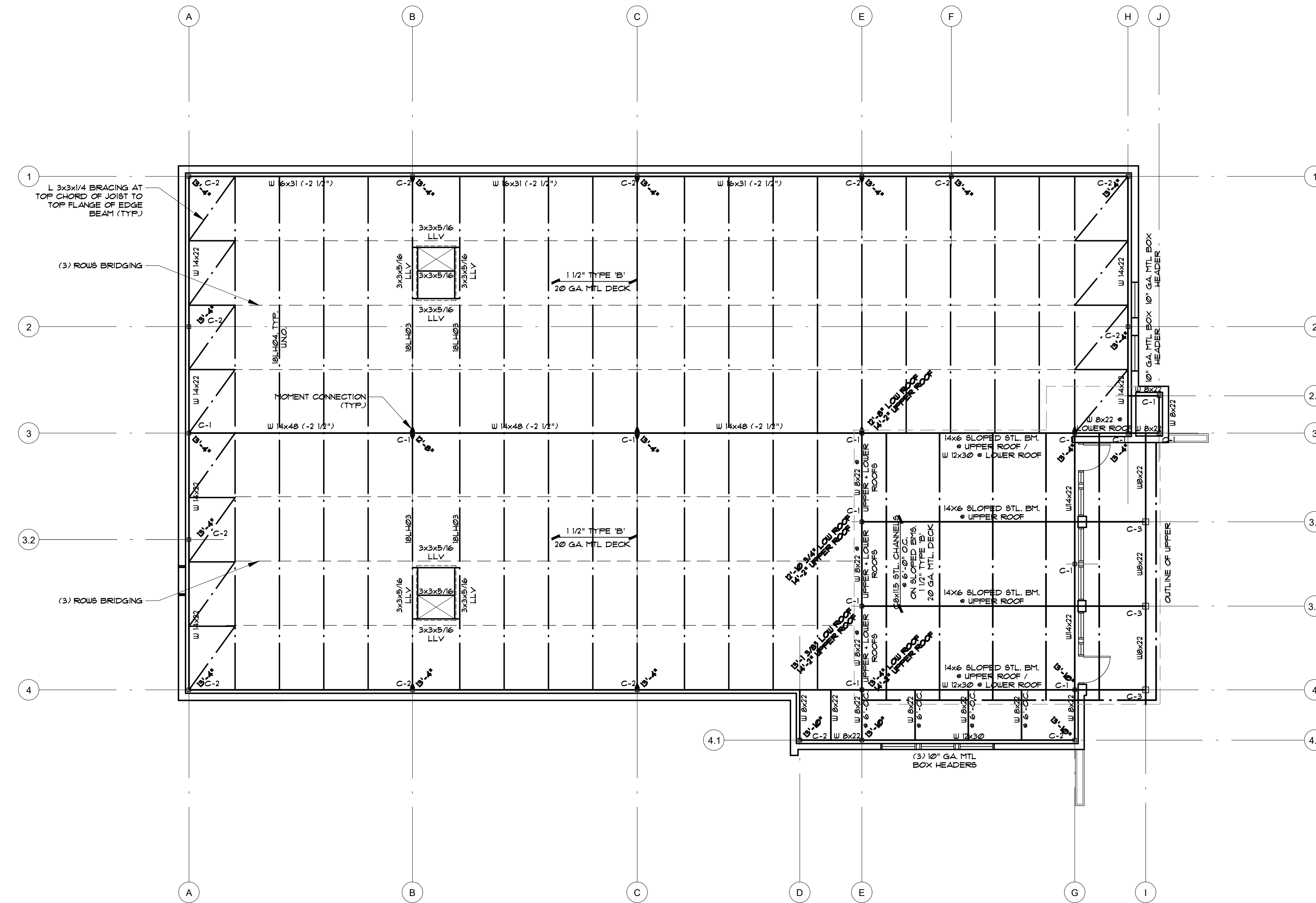


**FOUNDATION PLAN PROVISION STORE**

SCALE: 1/8" = 1'-0"







**FRAMING PLAN PROVISION STORE**  
SCALE: 1/8" = 1'-0"

**COLUMN SCHEDULE**

C-1	H55 6x6x1/2	12x12x3/4 BASE PL.	(4) 3/4" ø A.B.
C-2	H55 5x5x3/8	12x12x3/4 BASE PL.	(4) 3/4" ø A.B.
C-3	H55 8x8x3/8	14x14x3/4 BASE PL.	(4) 3/4" ø A.B.

**GENERAL NOTE:**

**LOADS:**  
ROOF LIVE LOAD - 30 P.S.F. GROUND SNOW REDUCED IN ACCORDANCE WITH M. B. CODE.

**STRUCTURAL STEEL:**  
STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36 EXCEPT COLS. 4 TUBE SECTIONS SHALL BE COLD-FORMED ASTM A-500 GR. B. ALL STEEL MEMBERS SHALL BE FABRICATED AND ERRECTED IN ACCORDANCE WITH THE A.I.S.C. SPECS. AND CODE OF STD. PRACTICE, LATEST EDITION. JOISTS AND JOISTS GIRDERS SHALL BE DESIGNED, FABRICATED, AND ERRECTED IN ACCORDANCE WITH THE S.J.I. SPECS, LATEST EDITION. SHOP CONNECTIONS SHALL BE WELDED IN ACCORDANCE WITH THE AWS SPECS. FOR E70XX ELECTRODES. FIELD CONNECTIONS SHALL BE BOLTED WITH ASTM A-325 BOLTS UNLESS SHOWN OR NOTED, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE 1976 AISC SPECS. FOR STRUCTURAL JOINTS. OMIT PAINT ON TOP FLANGES OF COMPOSITE BEAMS AND GIRDERS.

**DECKING:**  
ROOF DECK SHALL BE 15 IN. 20 GAUGE, TYPE 'B', STEEL ROOF DECK WITH SPANS CONTINUOUS OVER A MINIMUM OF 3 JOIST OR BEAM SPACES. ATTACHMENTS SHALL PROVIDE DIAPHRAM ACTION AT INTERIOR AND AT MARGINAL MEMBERS.

**STRUCTURAL NOTES:**

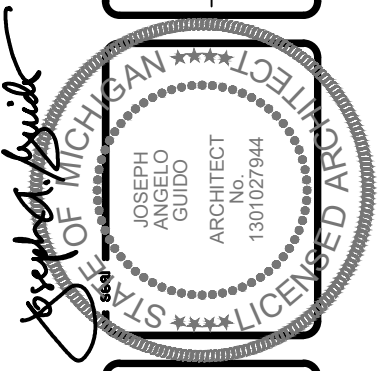
1. STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. A36.
2. STEEL MEMBERS SHALL BE FABRICATED AND ERRECTED IN ACCORDANCE WITH THE A.I.S.C. SPECIFICATIONS AND CODE OF STANDARD PRACTICE.
3. JOISTS SHALL BE PROVIDED AND ERRECTED IN ACCORDANCE WITH THE S.J.I. SPECIFICATIONS, LATEST EDITION.
4. SHOP CONNECTIONS SHALL BE WELDED ACCORDING TO THE AWS, SPECIFICATIONS FOR E70XX ELECTRODES. FIELD CONNECTIONS SHALL BE BOLTED WITH A.S.T.M. A-325 BOLTS UNLESS SHOWN OR APPROVED.
5. OMIT PAINT ON CONTACT SURFACES OF END-PLATE CONNECTIONS.
6. METAL ROOF DECK SHALL BE 1 1/2", 20 GAUGE, INTERMEDIATE OR WIDE RIB, WITH SAFE CAPACITIES TO SUPPORT THE TOTAL LOAD. DECK SHALL SPAN A MINIMUM OF THREE JOISTS SPACES.

Dimensions are to rough framing unless noted otherwise.  
DO NOT SCALE DRAWING. Use figure dimensions only.  
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revision

head only rework (R2022)

DK



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**KINSHIP PROVISIONING AND CULTIVATION**  
3761 CHERRY HILL, WESTLAND, MICHIGAN  
**PROVISION STORE FRAMING PLAN**

1821

S-1

**COLUMN SCHEDULE**

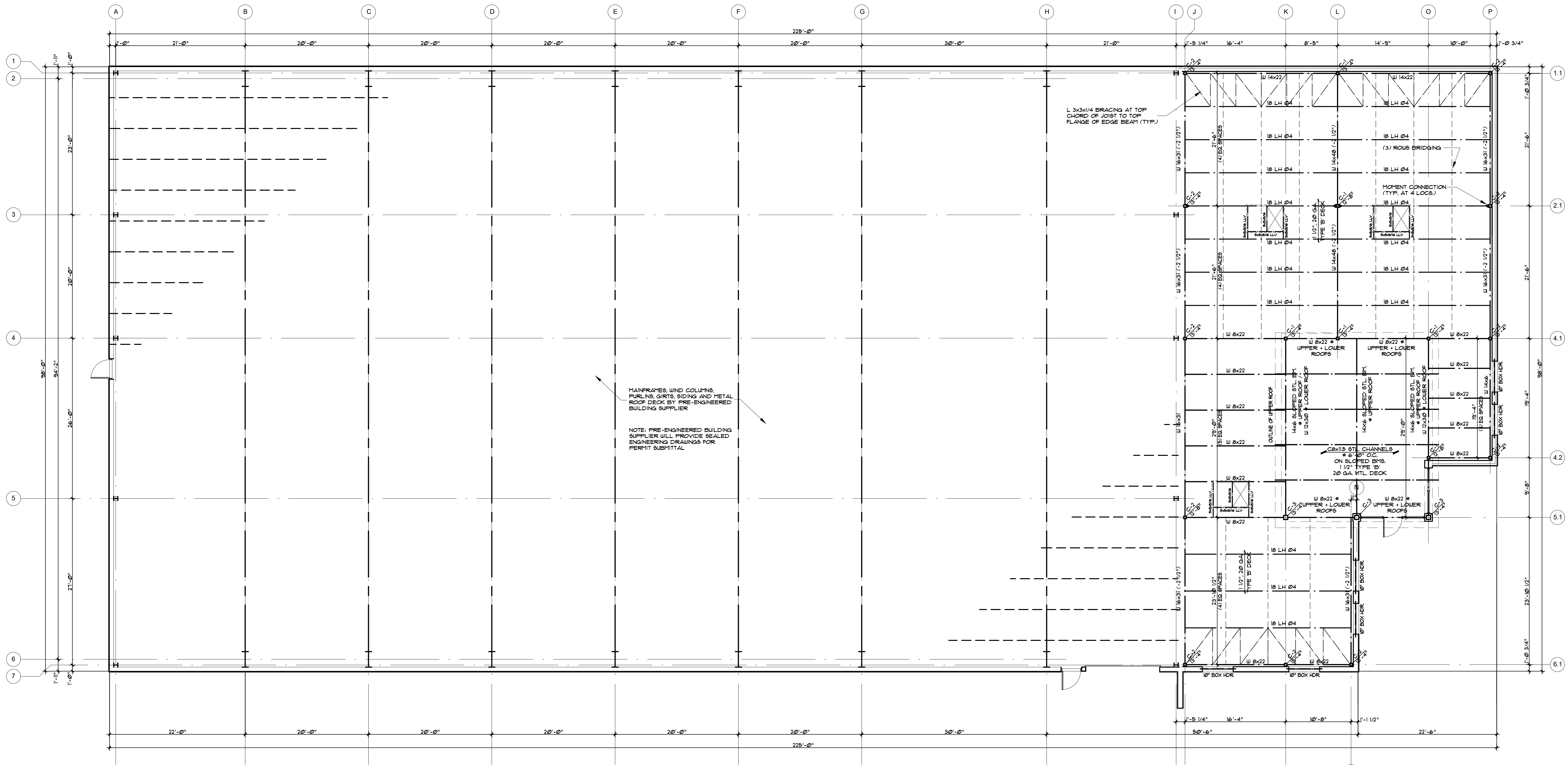
- C-1 H86 6x6x1/2 12x12x3/4 BASE PL. w/ (4) 3/4" A.B.
- C-2 H86 5x5x3/8 12x12x3/4 BASE PL. w/ (4) 3/4" A.B.
- C-3 H86 8x8x3/8 14x14x3/4 BASE PL. w/ (4) 3/4" A.B.

**STRUCTURAL NOTES:**

1. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
2. STEEL MEMBERS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE.
3. JOISTS SHALL BE PROVIDED AND ERECTED IN ACCORDANCE WITH THE SJI SPECIFICATIONS, LATEST EDITION.
4. SHOP CONNECTIONS SHALL BE WELDED ACCORDING TO THE AISC SPECIFICATIONS FOR ETOXX ELECTRODES. FIELD CONNECTIONS SHALL BE BOLTED WITH ASTM A-325 BOLTS UNLESS SHOWN OR APPROVED.
5. OMIT PAINT ON CONTACT SURFACES OF END-PLATE CONNECTIONS.
6. METAL ROOF DECK SHALL BE 1 1/2" 20 GAUGE, INTERMEDIATE OR WIDE RIB, WITH SAFE CAPACITIES TO SUPPORT THE TOTAL LOAD. DECK SHALL SPAN A MINIMUM OF THREE JOIST SPACES.

**GENERAL NOTES:**

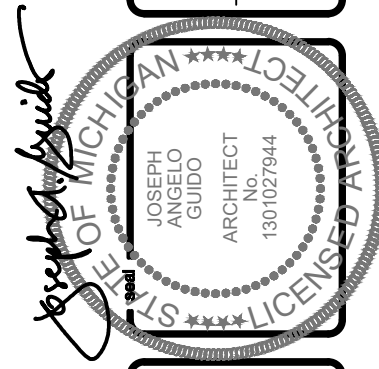
- LOADS:**  
ROOF LIVE LOAD = 30 P.S.F. GROUND SNOW REDUCED IN ACCORDANCE WITH 2015 IBC.
- STRUCTURAL STEEL:**  
STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36 EXCEPT COL. 4 TUBE SECTIONS SHALL BE COLD-FORMED ASTM A-500 GR. B. ALL STEEL MEMBERS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECS. AND CODE OF STD. PRACTICE, LATEST EDITION. JOISTS AND JOIST GIRDERS SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE SJI SPECS, LATEST EDITION. SHOP CONNECTIONS SHALL BE WELDED IN ACCORDANCE WITH THE AISC SPECS FOR ETOXX ELECTRODES. FIELD CONNECTIONS SHALL BE BOLTED WITH ASTM A-325 BOLTS UNLESS SHOWN OR NOTED, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE 1916 AISC SPECS FOR STRUCTURAL JOINTS. OMIT PAINT ON TOP FLANGES OF COMPOSITE BEAMS AND GIRDERS.
- DECKING:**  
ROOF DECK SHALL BE 1 1/2" 20 GAUGE, TYPE 'B' STEEL ROOF DECK WITH SPANS CONTINUOUS OVER A MINIMUM OF 3 JOIST OR BEAM SPACES. ATTACHMENTS SHALL PROVIDE DIAPHRAGM ACTION AT INTERIOR AND AT MARGINAL MEMBERS. PROVIDE 3/4" x 5/8" WELD + (2) SIDE LAP SCREWS.



**FRAMING PLAN - CULTIVATION BLDG.**

SCALE: 1/8" = 1'-0"

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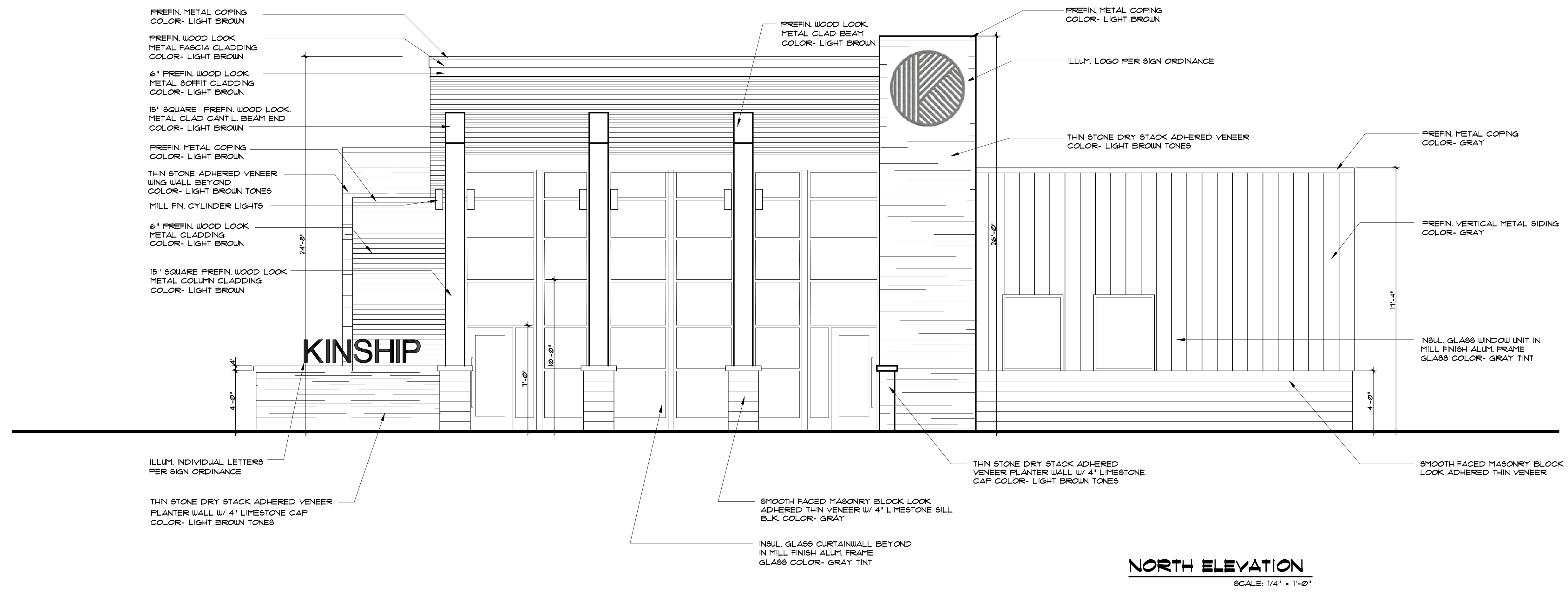
**KINSHIP PROVISIONING AND CULTIVATION**  
WESTLAND, MICHIGAN  
**CULTIVATION BUILDING FRAMING PLAN**

PROJECT NO. **1821**  
SHEET NO. **S-2**

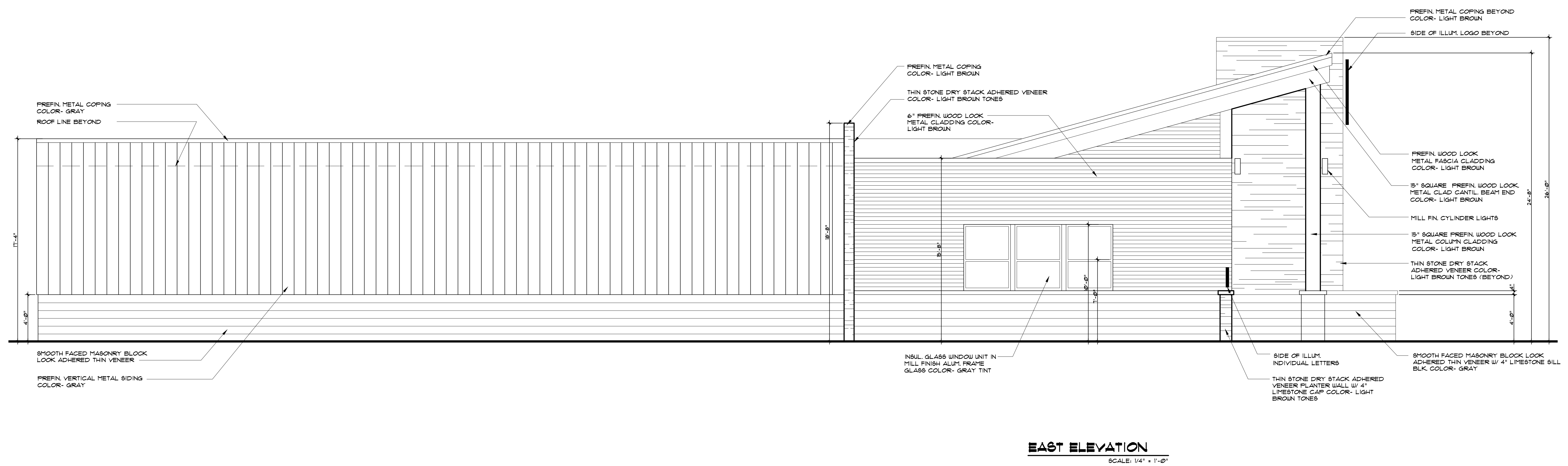








**NORTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**EAST ELEVATION**  
SCALE: 1/4" = 1'-0"

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DATE: 08/22/22  
REVISION: 01/11/23

DATE: 08/22/22  
REVISION: 01/11/23

DATE: 08/22/22  
REVISION: 01/11/23

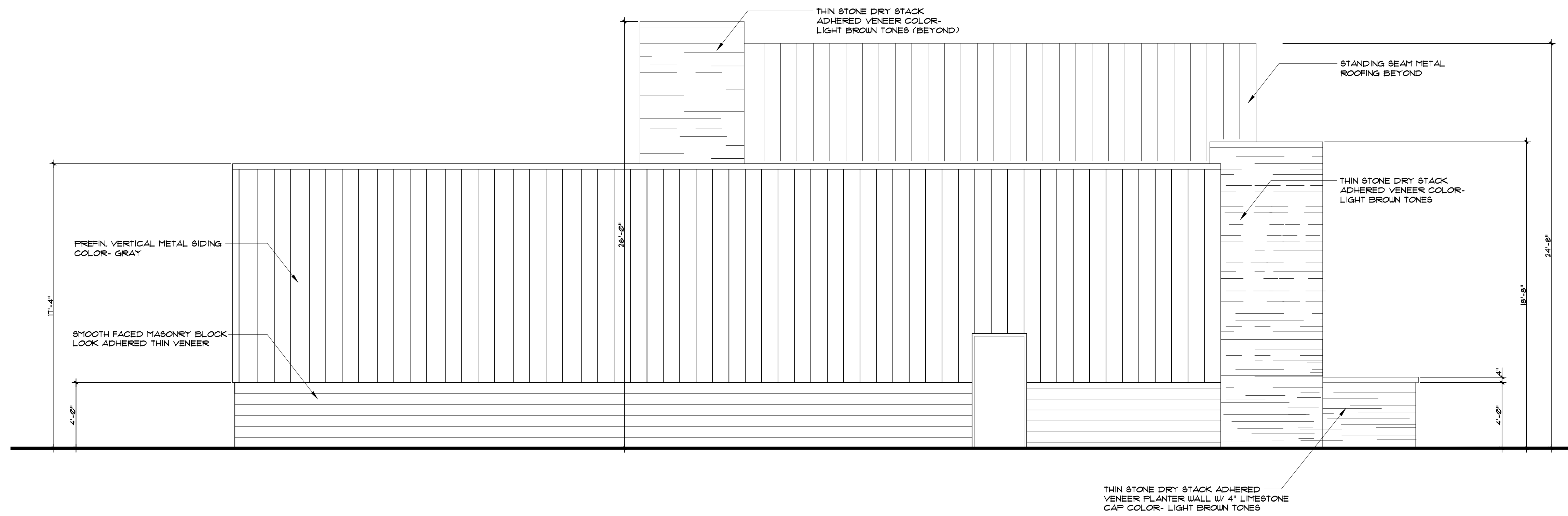


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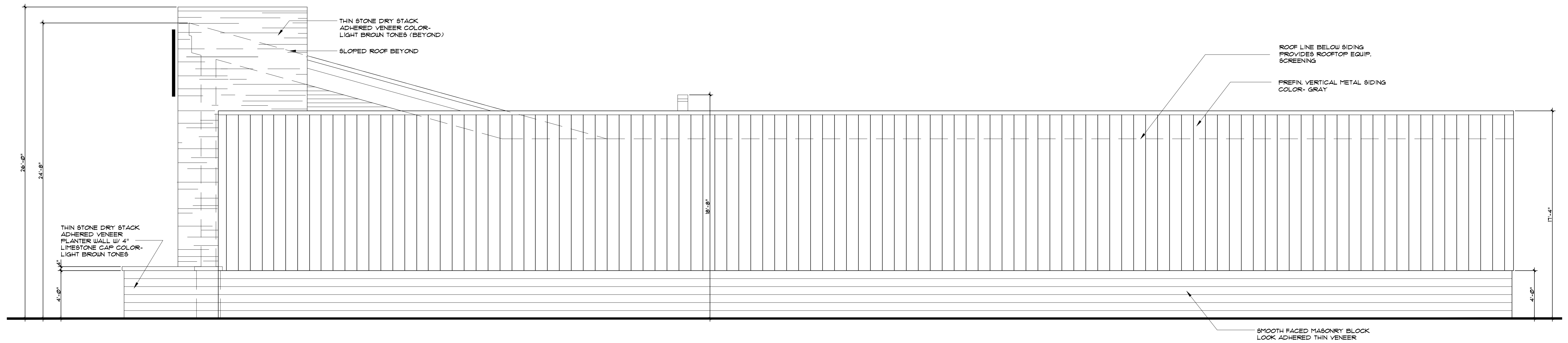
**KINSHIP PROVISIONING AND CULTIVATION**  
WESTLAND, MICHIGAN  
37811 CHERRY HILL  
PROVISIONING STORE ELEVATIONS

PROJECT NO. 1821

SHEET NO. A-3



**SOUTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**WEST ELEVATION**  
SCALE: 1/4" = 1'-0"

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revision

ISSUED BY: SKILL ONLY PERMIT 8/26/22

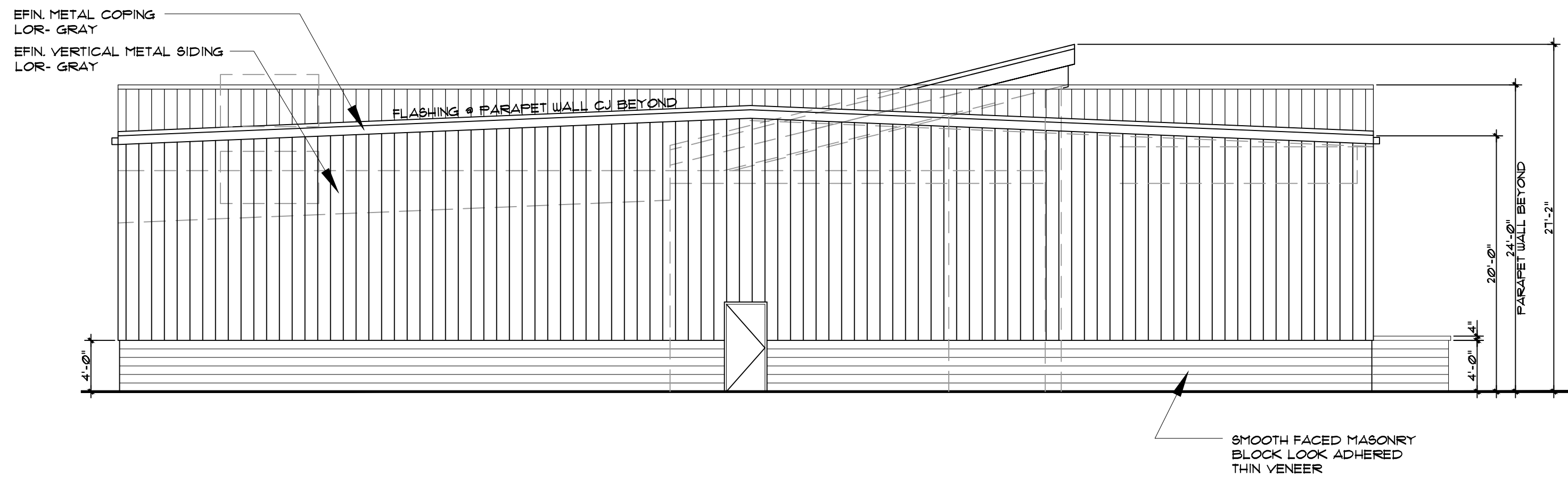
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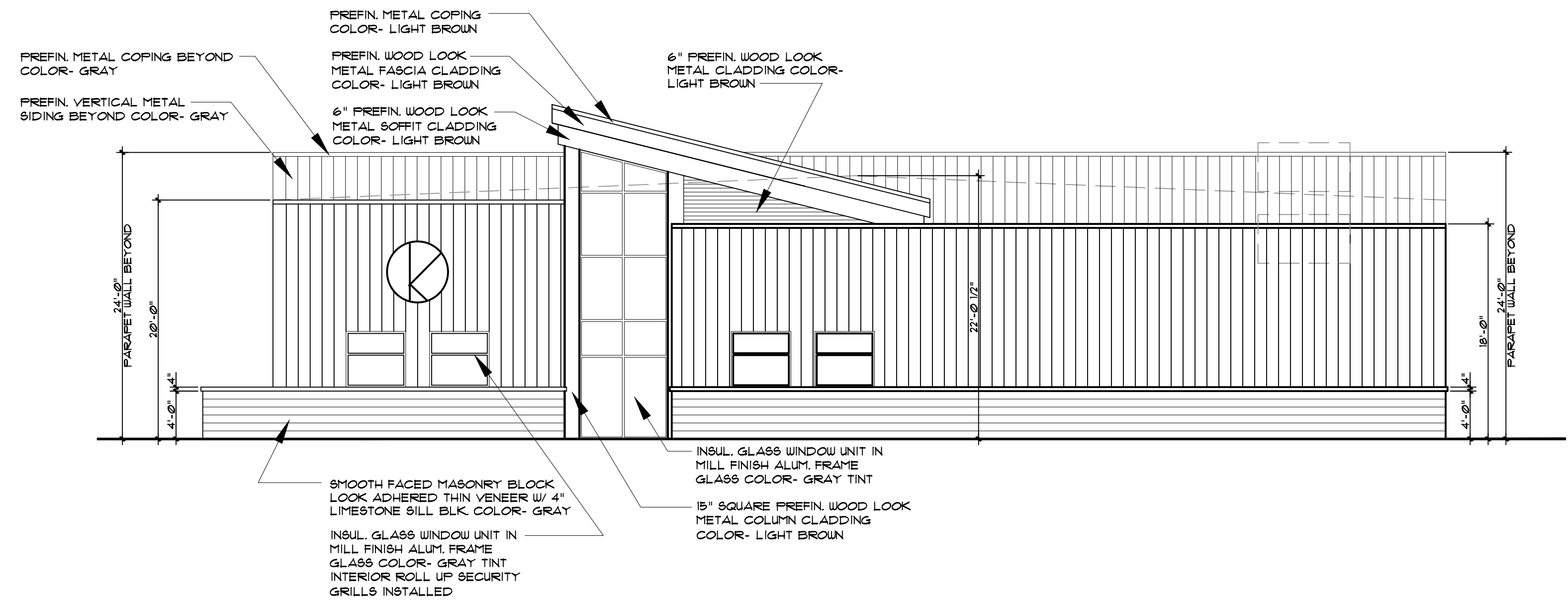
**KINSHIP PROVISIONING AND CULTIVATION**  
WESTLAND, MICHIGAN  
PROVISIONING STORE ELEVATIONS

JOB NO. 1821  
SHEET NO. A-4



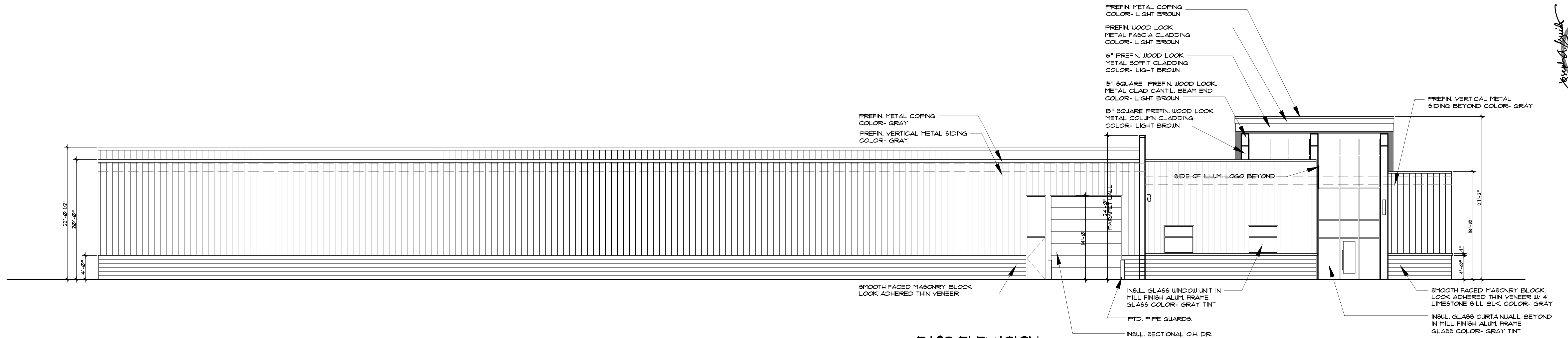
**SOUTH ELEVATION**

SCALE: 1/8" = 1'-0"



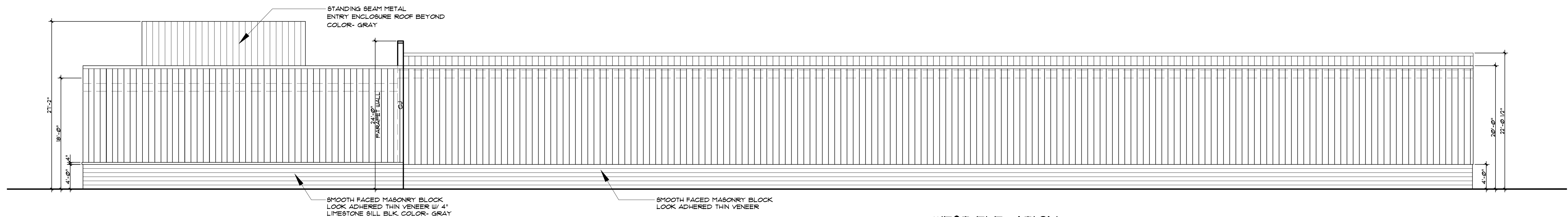
**NORTH ELEVATION**

SCALE: 1/8" = 1'-0"



**EAST ELEVATION**

SCALE: 1/8" = 1'-0"



**WEST ELEVATION**

SCALE: 1/8" = 1'-0"

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DATE: 08/22/24  
SCALE: 1/8" = 1'-0"  
SHEET ONLY PERMIT (B)2024

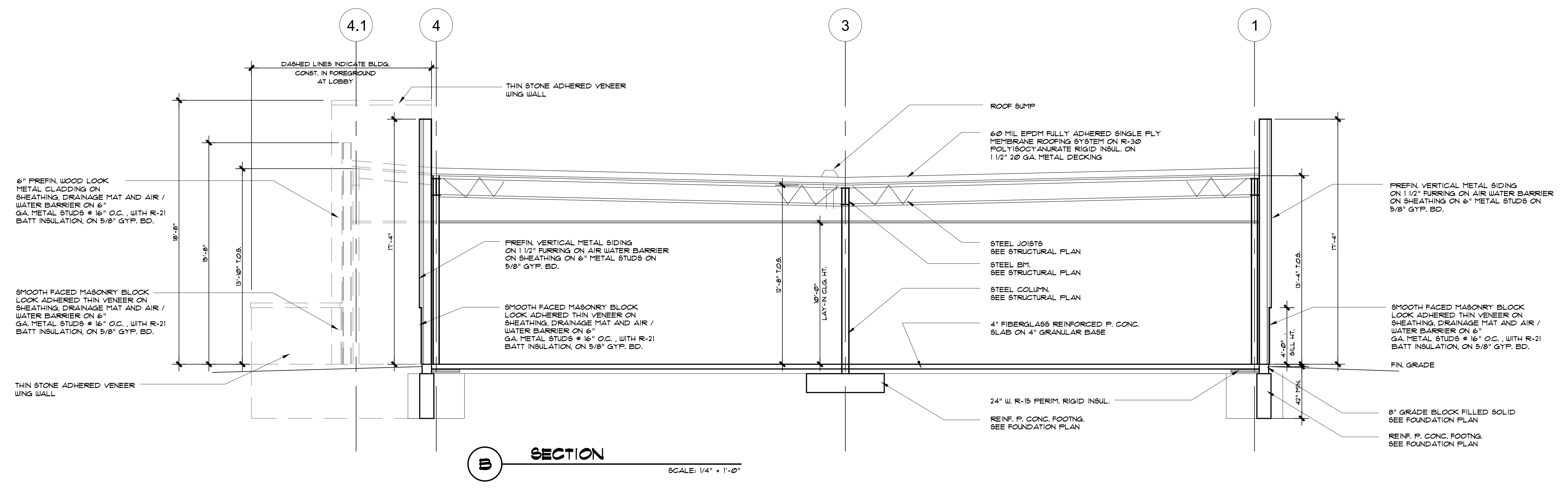
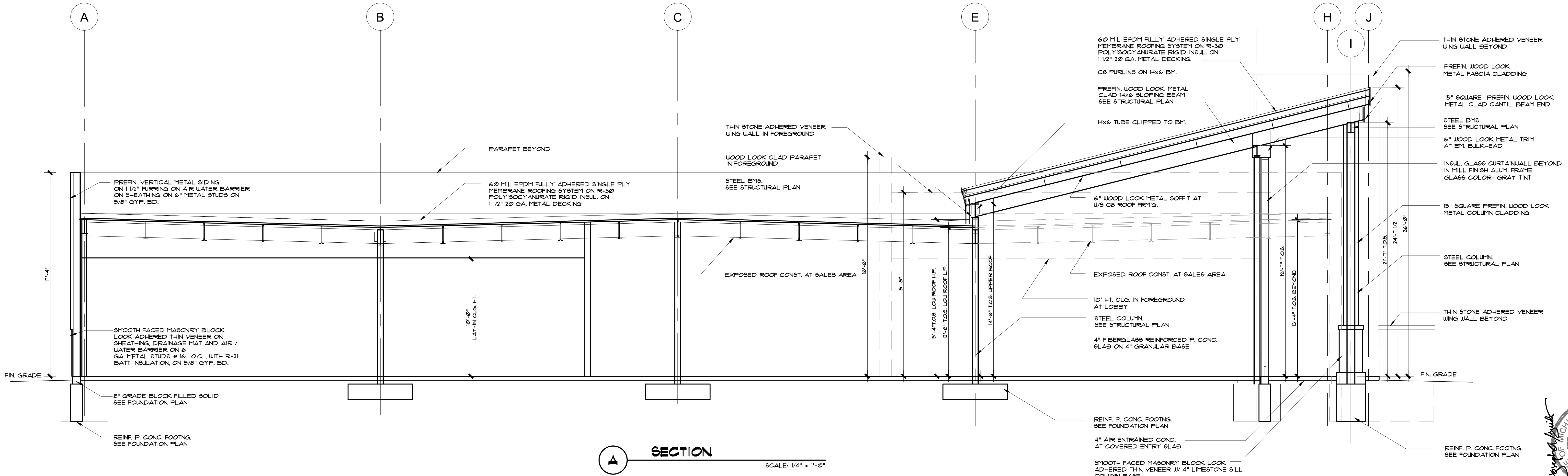
DK



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**KINSHIP PROVISIONING AND CULTIVATION**  
WESTLAND, MICHIGAN  
3701 CHERRY HILL  
**CULTIVATION FACILITY ELEVATIONS**

PROJECT NO. 1821  
SHEET NO. A-5



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PROJECT NO. 1821

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**KINSHIP PROVISIONING AND CULTIVATION**  
 WESTLAND, MICHIGAN  
 37611 CHERRY HILL  
 PROVISION STORE SECTIONS

DATE: 08/2022

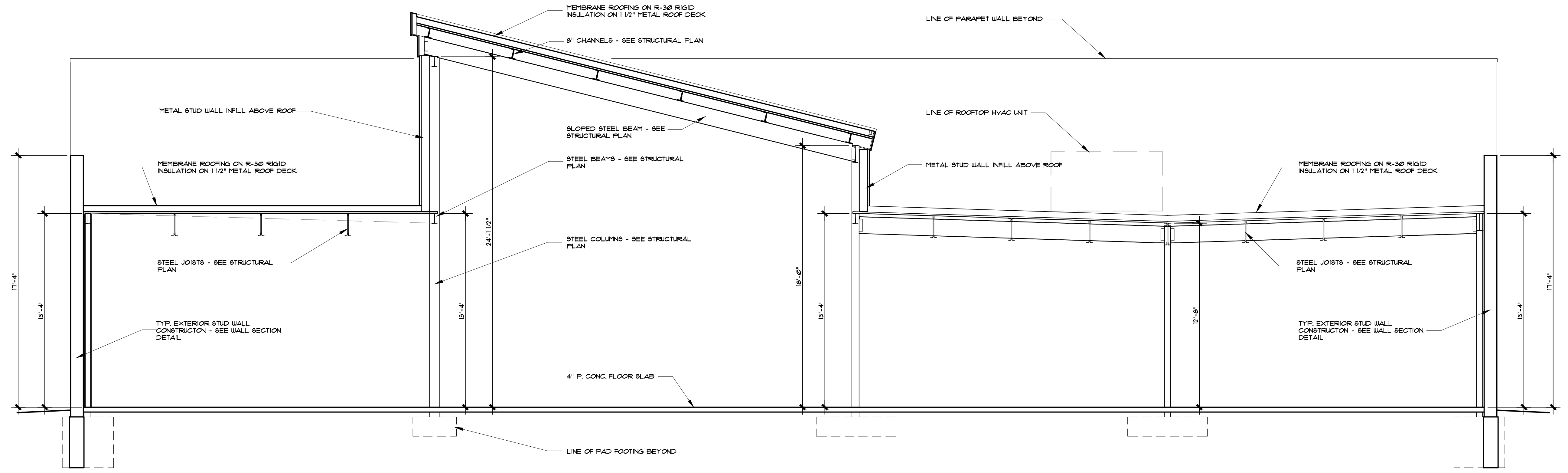
DESIGNED BY: DK

CHECKED BY: [Signature]

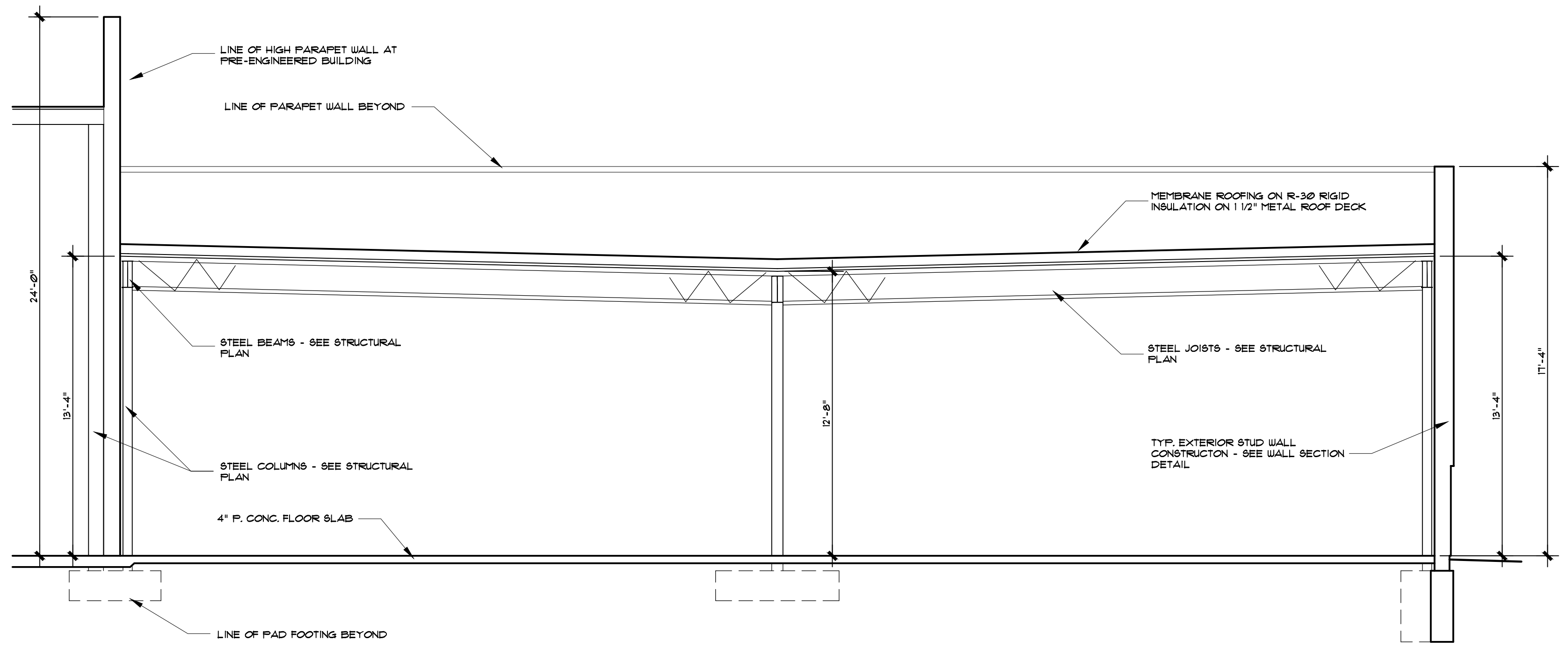
PROJECT NO. 1821

DATE: 08/2022

SCALE: 1/4" = 1'-0"



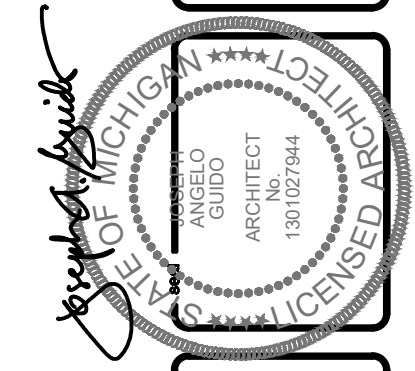
102 SECTION SCALE: 1/4" = 1'-0"



101 SECTION SCALE: 1/4" = 1'-0"

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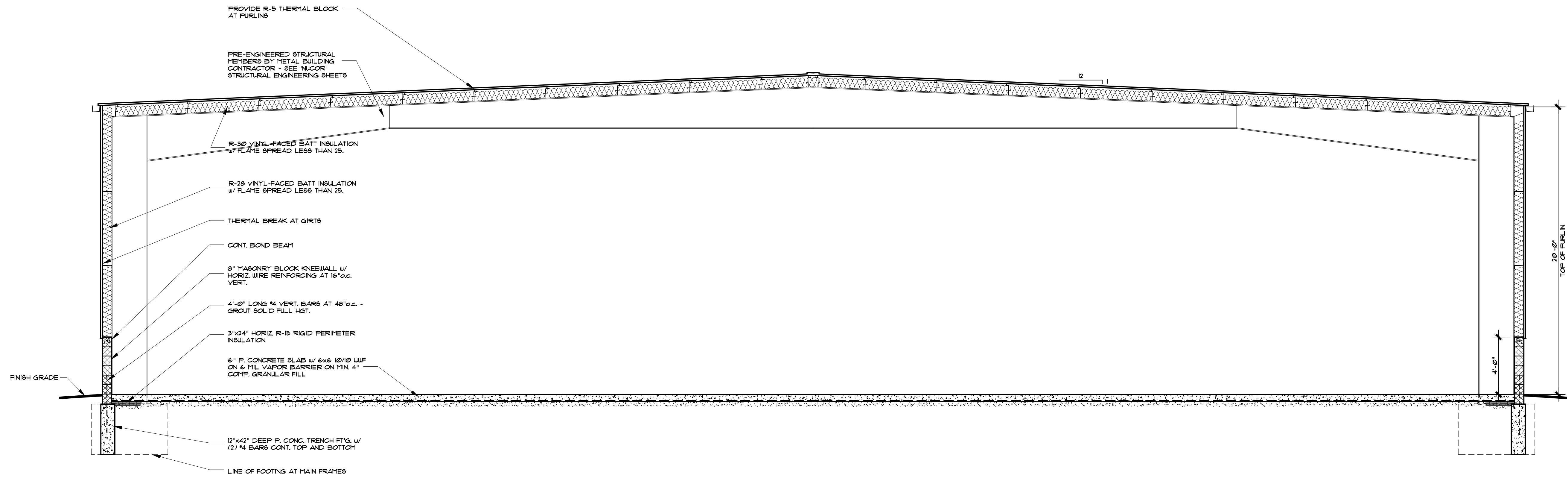
DATE	REVISION
06/2022	
ISSUED	REVIEW
JAG	



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project name  
**KINSHIP PROVISIONING AND CULTIVATION**  
WESTLAND, MICHIGAN  
page name  
**CULTIVATION BUILDING SECTIONS**

sheet no.  
**A-7**  
job no.  
**1821**



201 CROSS SECTION

SCALE: 1/4" = 1'-0"

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DATE: 10/22/24  
DRAWN BY: JAG  
CHECKED BY: JAG

DATE: 10/22/24  
DRAWN BY: JAG  
CHECKED BY: JAG

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**CULTIVATION BUILDING CROSS SECTION**

1821

A-8