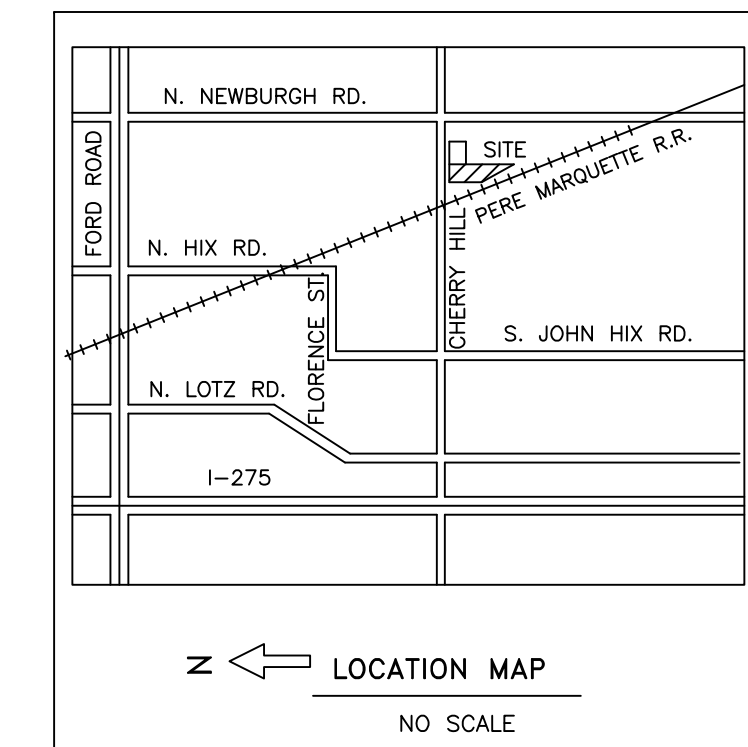
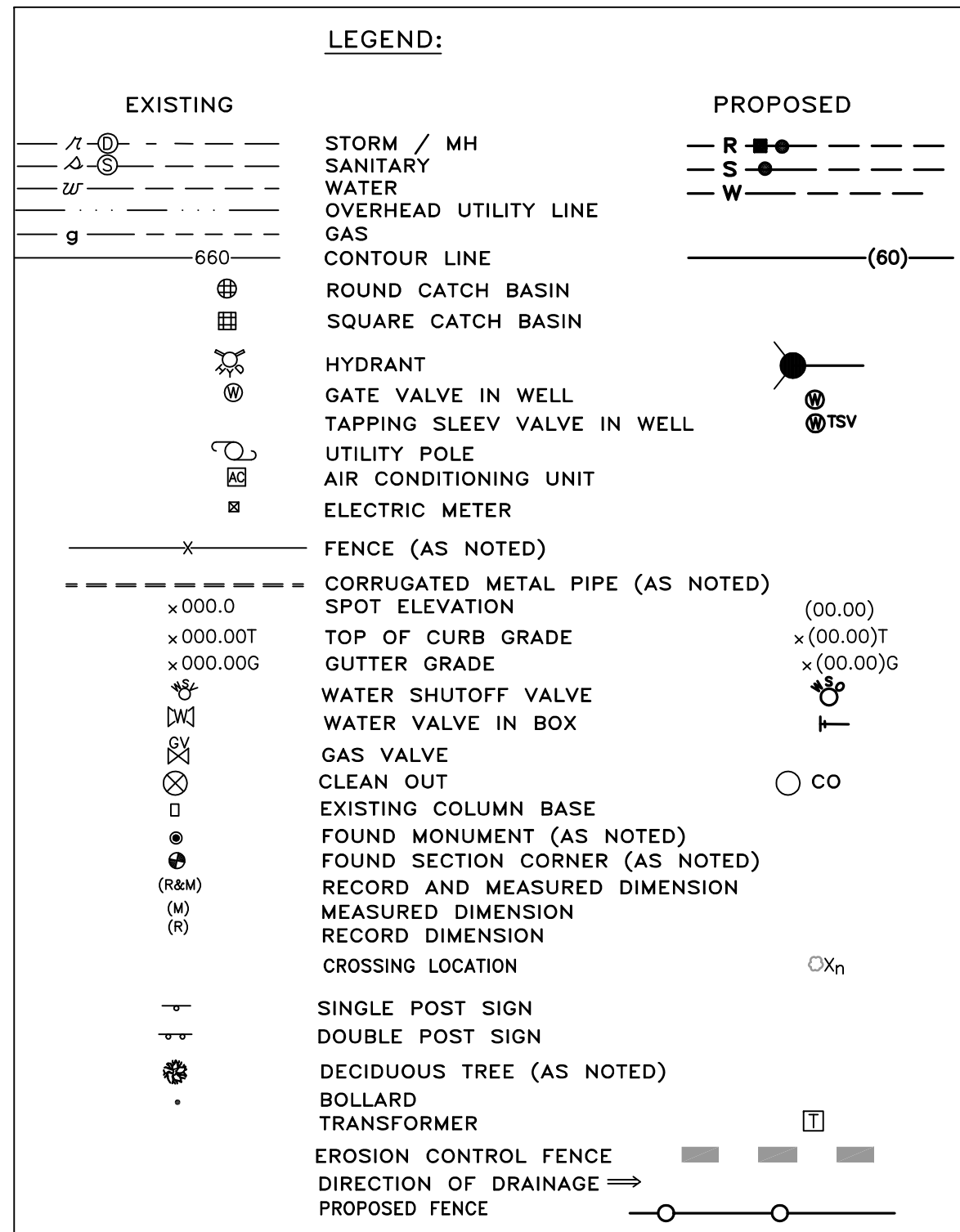


KINSHIP PROVISIONING AND CULTIVATION WESTLAND, WAYNE COUNTY, MICHIGAN



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



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

CIVIL PLANS INDEX:

SHEET #	DESCRIPTION
C-0	COVER SHEET
C-1	GRADING & EROSION CONTROL PLAN
C-2	LAYOUT PLAN
C-3	UTILITIES PLAN
C-4	RIGHT TURN DECELERATION LAN, DRIVE & CENTERLINE EXTENTION
C-5	DRAINAGE AREA MAP
C-6	STORM SEWER PROFILE
C-7	STORM SEWER PROFILE
C-8	WATER AND SANITARY SEWER PROFILES
C-9	NOTES AND DETAILS
C-10	STORM MAINTENANCE EXHIBITS
C-11	WATER AND SANITARY EASEMENTS
TS-1	TOPOGRAPHIC SURVEY

CITY OF WESTLAND SANITARY SEWER DETAILS SHEET 1 & 2
CITY OF WESTLAND STANDARD STORM SEWER DETAILS SHEET 1 & 2
CITY OF WESTLAND STANDARD WATERMAIN DETAILS SHEET 1 & 2

- WAYNE COUNTY DPS GENERAL NOTES:**
- All work within the Wayne County road right-of-way (ROW) and drain easement shall be in accordance with the current standards and general specifications, including soil erosion and sedimentation control of the Wayne County Department of Public Services, and MDOT 2012 specifications for construction.
 - These plans are not valid without attachment of the Wayne County permit specifications for construction within road right-of-way, parks, drain easement or sanitary sewer under jurisdiction of the Wayne County (07/01/93) revised 12/15/2004.
 - Contractor shall contact MISS DIG AT 811 to identify and flag the locations of all underground utilities at the proposed construction areas prior to start of construction, and shall be responsible for determining the exact locations and elevations of all underground utilities, and resolve any conflict between the proposed work and the existing underground or aboveground utilities.
 - Contractor shall maintain 18 minimum vertical clearance and 3 feet minimum horizontal clearance between the proposed and existing utilities. Any proposed utilities permitted to cross under the road for drain, must be placed a minimum of 7 feet below the lowest point of the road, or 6 feet below the drain bottom. Overhead wires/ cables must be installed 18 feet minimum above the road centerline. To relocate any utility within the road ROW, the contractor shall coordinate the relocation with the utility company and as directed by the Wayne County Engineer.
 - All survey monuments / corners and bench marks located within the construction area must be preserved in accordance with public act 74 as amended (including act 34, P.A 2000) and as per Wayne County permit rule 1.5. the permit holder and contractor shall coordinate the work with a professional surveyor licensed in the state of Michigan during construction activities for the purpose of witnessing, preserving or replacing survey monuments and monument boxes.
 - Exposure of any utilities under the pavement will not be permitted, unless approved by the Wayne County Engineer. Pavement removal and replacement shall be performed per applicable Wayne County Standard details and as directed by the Wayne County Engineer.
 - Contractor shall Restore all disturbed areas within the County road right-of-way with and drain easement with 3" topsoil, THM seed seed mix and mulch. Slopes steeper than 1 on 3 shall be restored by placing sod on 2" topsoil.
 - All Backfills under or within 3 feet of the proposed or existing pavement, curb or sidewalk shall conform to the Wayne County trench "B" backfill requirements. Trench "A" backfill may be used within the road R.O.W. areas under conditions other than those specified for trench "B".
 - Contractor is responsible for restoring or replacing all disturbed landscaped areas, sprinkler systems, fences, signs, mail boxes, etc. within the Wayne County road R.O.W and / or as directed by the County Engineer.
 - Contractor shall Maintain two-way traffic at all times. Otherwise, detouring traffic must be per approved plans. All signing and traffic control devices shall be in accordance with the latest edition of M.M.U.T.C.D.
 - Maintain a safe and adequate travel route for pedestrian at all times throughout the project duration.
 - Tunneling, Boring and Jacking operations shall be in accordance with the Wayne County specifications and details. Bore pits shall be placed at minimum 10 feet from the back of curb or edge of pavement.
 - Remove all abandoned conduits from the County roads ROW or as directed by Wayne County Engineer.
 - Contractor shall provide cold weather protection for all proposed concrete work (pavements, sidewalks, drive approaches, etc.) as directed by the Wayne County Engineer.
 - Overnight parking and storage of construction materials and equipments are not permitted within the Wayne County Roads right-of-way.
 - Contractor shall obtain soil erosion and sedimentation control permit from Wayne County DPS. Contact the Wayne County Soil Erosion Office At 734-326-5565, or the County having jurisdiction over the soil erosion permit.
 - Contractor shall notify the Wayne County Traffic Signal shop at 734-955-2161 at least 72 hours prior to start of work at or near any signalized intersections.
 - Contractor shall notify Wayne County 3 business days prior to start of construction. Contact Wayne County Permit Office at (734) 858-2761

SITE DATA:

CURRENT ZONNG: I-2 GENERAL INDUSTRIAL
SITE AREA (PARCEL 3): 217,529 S.F. (4.99 Ac.)

SETBACKS:

FRONT-	75 FT.
SIDES-	25 FT.
REAR-	25 FT.
MAX. BLDG. HT.:	35 FT.
BUILDING AREA: (PROVISION)	6,080 S.F.
BUILDING AREA: (CULTIVATION)	21,313 S.F.
LOT COVERAGE:	12.59%
PARKING REQUIRED (PROVISION):	6,080 / 100 GSF = 61 SPACES
PARKING PROVIDED:	61 SPACES (INC. ACC. SPACES)
PARKING REQUIRED (CULTIVATION):	21,313 SF. / 500 GSF=43 SPACES
PARKING PROVIDED:	43 SPACES (INC. ACC. SPACES)

PROVISION STORE HOURS OF OPERATION: 10:00 AM. - 8:00 PM.

OUTDOOR LIGHTING AND SECURITY CAMERAS PROVIDED AT BOTH FACILITIES

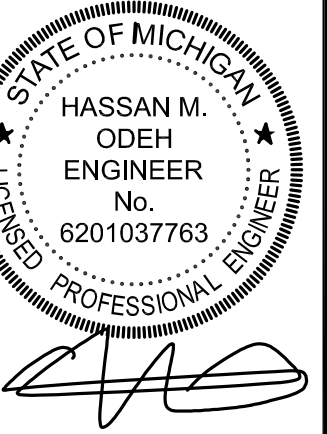
REQUIRED LANDSCAPING PARCEL 3 PER ORDINANCE



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

CAD NO. 2010CP01.DWG

This is an original design created by LANDMARK ENGINEERING CO. The concept, ideas, and specifications contained within these documents, also the original plans, and electronic files are the sole property of LANDMARK ENGINEERING CO. They have been created for the purpose of presentation and/or construction of this specific project. Any unauthorized use or reproduction of these documents by another person, firm or corporation without the expressed written consent of LANDMARK ENGINEERING CO. is prohibited.



8/16/2022	CONSTRUCTION PLANS
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-0

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.

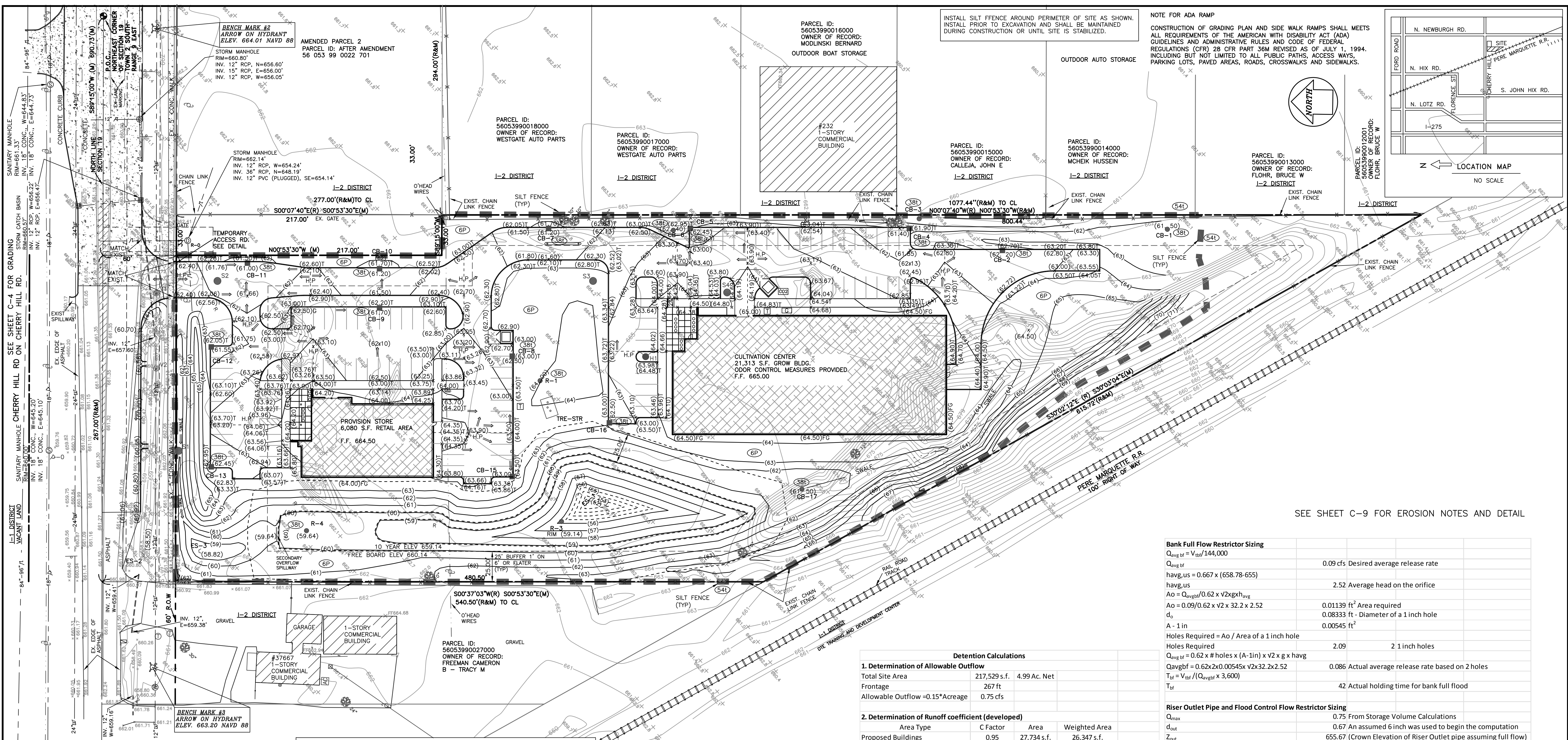
ARCHITECT:
GUIDO ARCHITECTS INC
23419 FORD ROAD
DEARBORN, MI 48128
Phone: 313-274-7800
FAX: 313-274-7808

LANDSCAPE ARCHITECT:
NAGY DEVLIN L.L.C
31736 WEST CHICAGO AVE.
LIVONIA, MI 48150
Phone: 734-634-9208

CIVIL ENGINEER
LANDMARK ENGINEERING CO.
9401 GENERAL DR. SUITE 101
PLYMOUTH, MI. 48170
Phone: 248-557-3000

PROPRIETOR
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
NOTE: ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY THE CITY OF WESTLAND AND WAYNE COUNTY



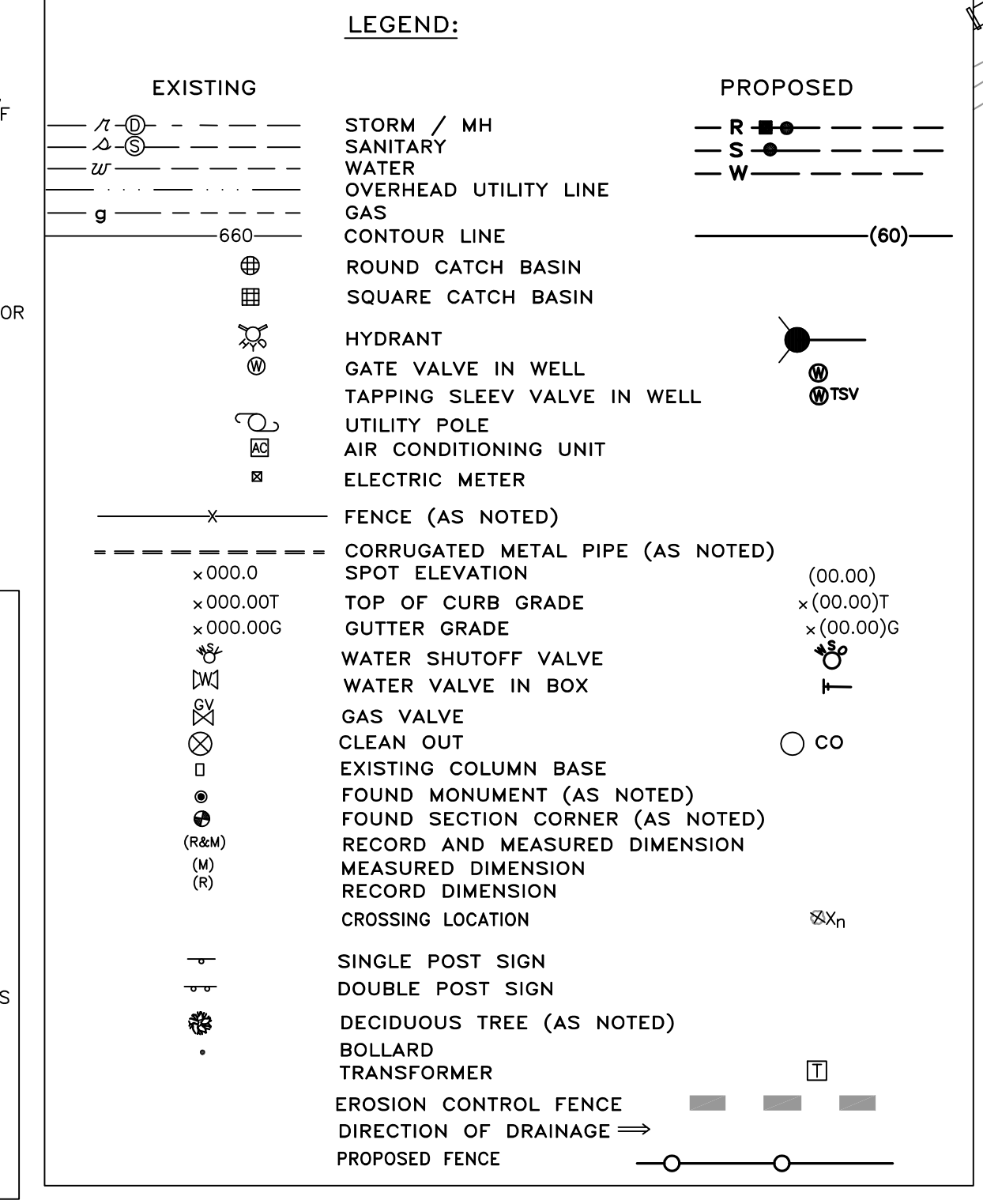
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Detention Pond Design

V ₁₀	16387 10-year flood
V _{10 adjusted}	16387 No adjustment due to mechanical treatment
V ₂	13132 Bank Full
V _{2 adjusted}	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_{bf} = 658 + (659 - 658) x (13132 - 7608) / (14719 - 7608)

Z_{bf} = 658.78

Z₁₀ = 659 + (660 - 659) x (16387 - 14719) / (27003 - 14719)

Z₁₀ = 659.14

Top of riser = 659.14

Z_{top} 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_{weighted} = Weighted Area = 110,123 / Area = 217,529 = 0.51

3. Computation of Required Storage Volume

a) Q₀ = allowable outflow / acreage x runoff coefficient

Q₀ = 0.75 cfs / 4.99 acres x 0.51

Q₀ = 0.29 cfs/acre imperviousness

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

T = -19.9 + √(4530/Q₀)

T = -19.9 + √(4530/0.29)

T = 105.08 minutes

c) Calculation of maximum volume of storage per acre imperviousness

V_s = ((9.108 x T) / (T + 19.9)) - 40Q₀T

V_s = 6,439 c.f./acre impervious

d) Total volume of storage required

V_t = V_s x area x runoff coefficient (developed)

V_t = 6439 x 4.99 x 0.51 = 16,387 c.f.

V_t bf = 5,160 x 4.99 x 0.51 = 13,132 c.f.

Bank Full Flow Restrictor Sizing

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

Riser Outlet Pipe and Flood Control Flow Restrictor Sizing

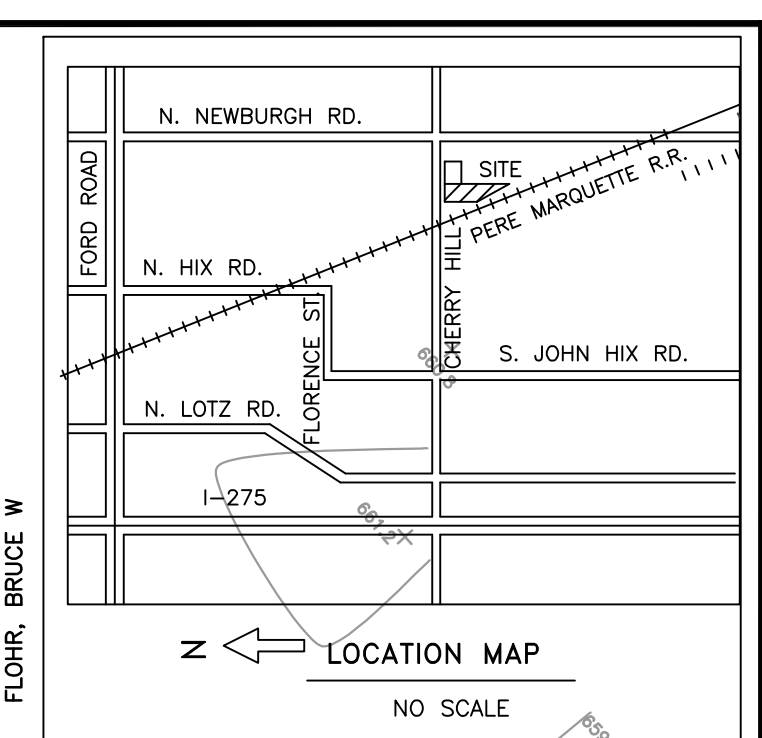
Q _{max}	0.75 From Storage Volume Calculations
d _{out}	0.67 An assumed 6 inch was used to begin the computation
Z _{out}	655.67 (Crown Elevation of Riser Outlet pipe assuming full flow)
h _{max} = (Z ₁₀ - Z _{out})	
A _{out} = Q _{max} / (0.62 x √(2gx)h _{max})	3.47
A _{out}	0.0809
d _{out,required}	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	
d _{out,pipe}	0.666666667 8 Diameter of Outlet Pipe
A _{out,pipe}	0.3491 Area of a 6 inch pipe
A _{out,restrictor}	0.3125 3.75 The diameter of the restrictor
A _{out,restrictor}	0.0767 Area of the restrictor
Q _{max} the maximum release through the end cap is computed	
Q _{max}	0.71 5% Within 3% of Q _{max}
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.



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 Civil Engineering - Land Surveying
 9401 General Dr., Suite 101
 Plymouth, Michigan 48170
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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

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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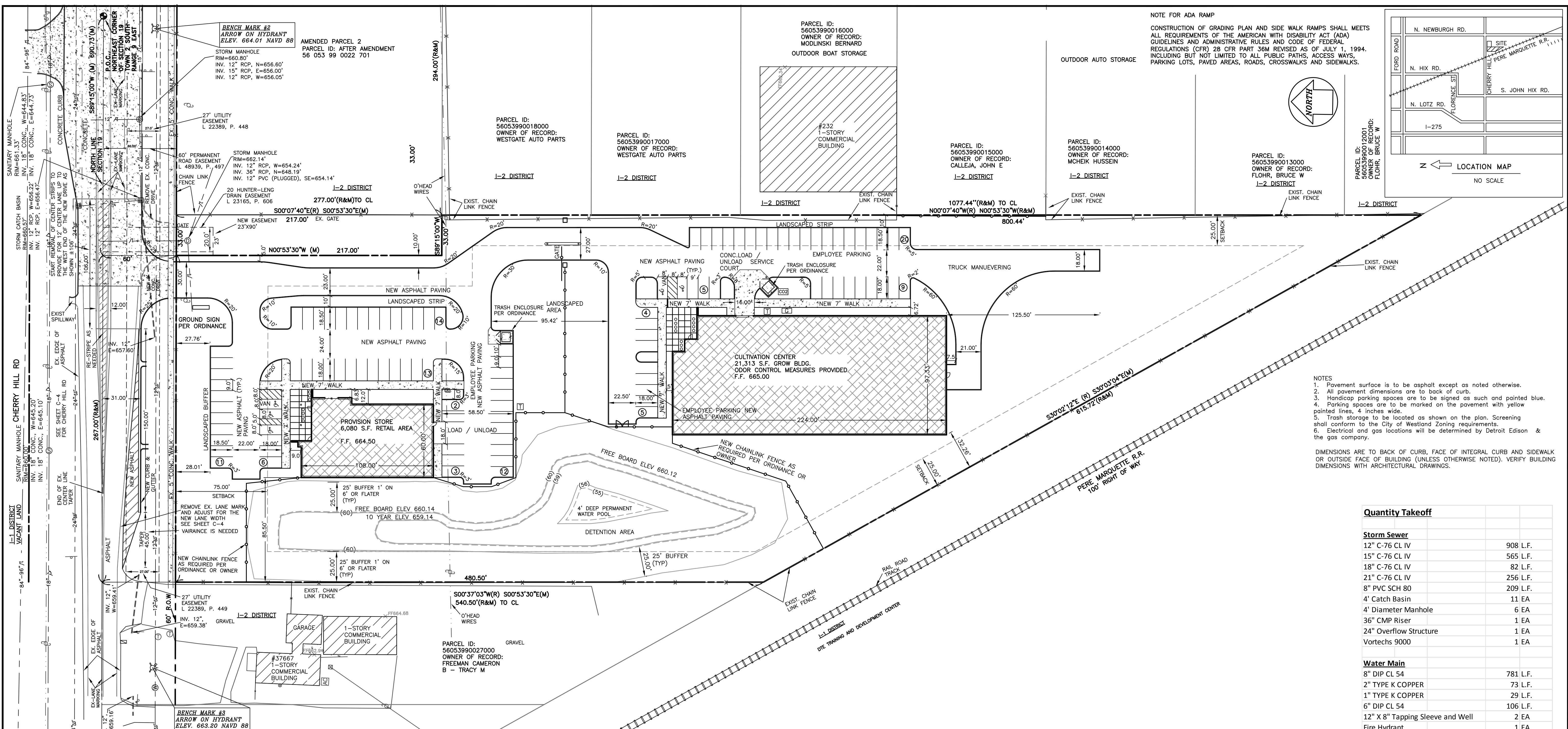


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DR. BY:	H.M.O
CH. BY:	H.M.O
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SHEET NO.	C-1

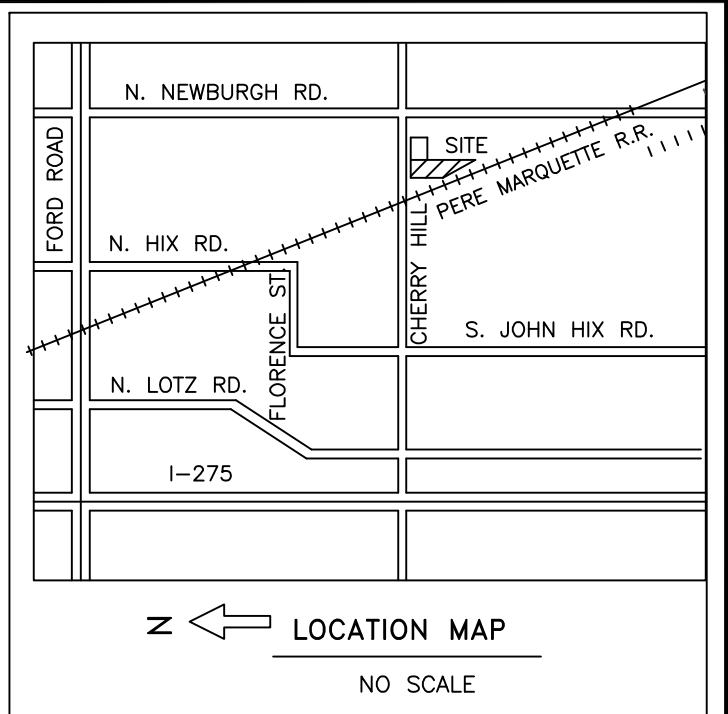
PROPERTY OWNER: WESTLAND PRINCIPLES, LLC
 ATTN: CURT MOLINO
 26621 EAST RIVER ROAD
 GROSSE ILE, MI 48138
 Phone: 313-218-4069
 EMAIL: curt.molino@yahoo.com

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

Item	Quantity	Unit
Storm Sewer		
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
Water Main		
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
Sanitary Sewer		
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
Paving		
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.
Erosion Control		
Silt Fence	2085	L.F.
Inlet Filters	22	EA
Temporary Mud Mat	1	EA

LEGEND:

EXISTING	PROPOSED
STORM / MH	STORM / MH
SANITARY	SANITARY
WATER	WATER
OVERHEAD UTILITY LINE	OVERHEAD UTILITY LINE
GAS	GAS
CONTOUR LINE	CONTOUR LINE
ROUND CATCH BASIN	ROUND CATCH BASIN
SQUARE CATCH BASIN	SQUARE CATCH BASIN
HYDRANT	HYDRANT
GATE VALVE IN WELL	GATE VALVE IN WELL
TAPPING SLEEVE VALVE IN WELL	TAPPING SLEEVE VALVE IN WELL
UTILITY POLE	UTILITY POLE
AIR CONDITIONING UNIT	AIR CONDITIONING UNIT
ELECTRIC METER	ELECTRIC METER
FENCE (AS NOTED)	FENCE (AS NOTED)
CORRUGATED METAL PIPE (AS NOTED)	CORRUGATED METAL PIPE (AS NOTED)
SPOT ELEVATION	SPOT ELEVATION
TOP OF CURB GRADE	TOP OF CURB GRADE
GUTTER GRADE	GUTTER GRADE
WATER SHUTOFF VALVE	WATER SHUTOFF VALVE
WATER VALVE IN BOX	WATER VALVE IN BOX
GAS VALVE	GAS VALVE
CLEAN OUT	CLEAN OUT
EXISTING COLUMN BASE	EXISTING COLUMN BASE
FOUND MONUMENT (AS NOTED)	FOUND MONUMENT (AS NOTED)
FOUND SECTION CORNER (AS NOTED)	FOUND SECTION CORNER (AS NOTED)
RECORD AND MEASURED DIMENSION	RECORD AND MEASURED DIMENSION
MEASURED DIMENSION	MEASURED DIMENSION
RECORD DIMENSION	RECORD DIMENSION
CROSSING LOCATION	CROSSING LOCATION
SINGLE POST SIGN	SINGLE POST SIGN
DOUBLE POST SIGN	DOUBLE POST SIGN
DECIDUOUS TREE (AS NOTED)	DECIDUOUS TREE (AS NOTED)
BOLLARD	BOLLARD
TRANSFORMER	TRANSFORMER
EROSION CONTROL FENCE	EROSION CONTROL FENCE
DIRECTION OF DRAINAGE	DIRECTION OF DRAINAGE
PROPOSED FENCE	PROPOSED FENCE

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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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LANDMARK ENGINEERING CO.
Civil Engineering - Land Surveying
9401 General Dr., Suite 101
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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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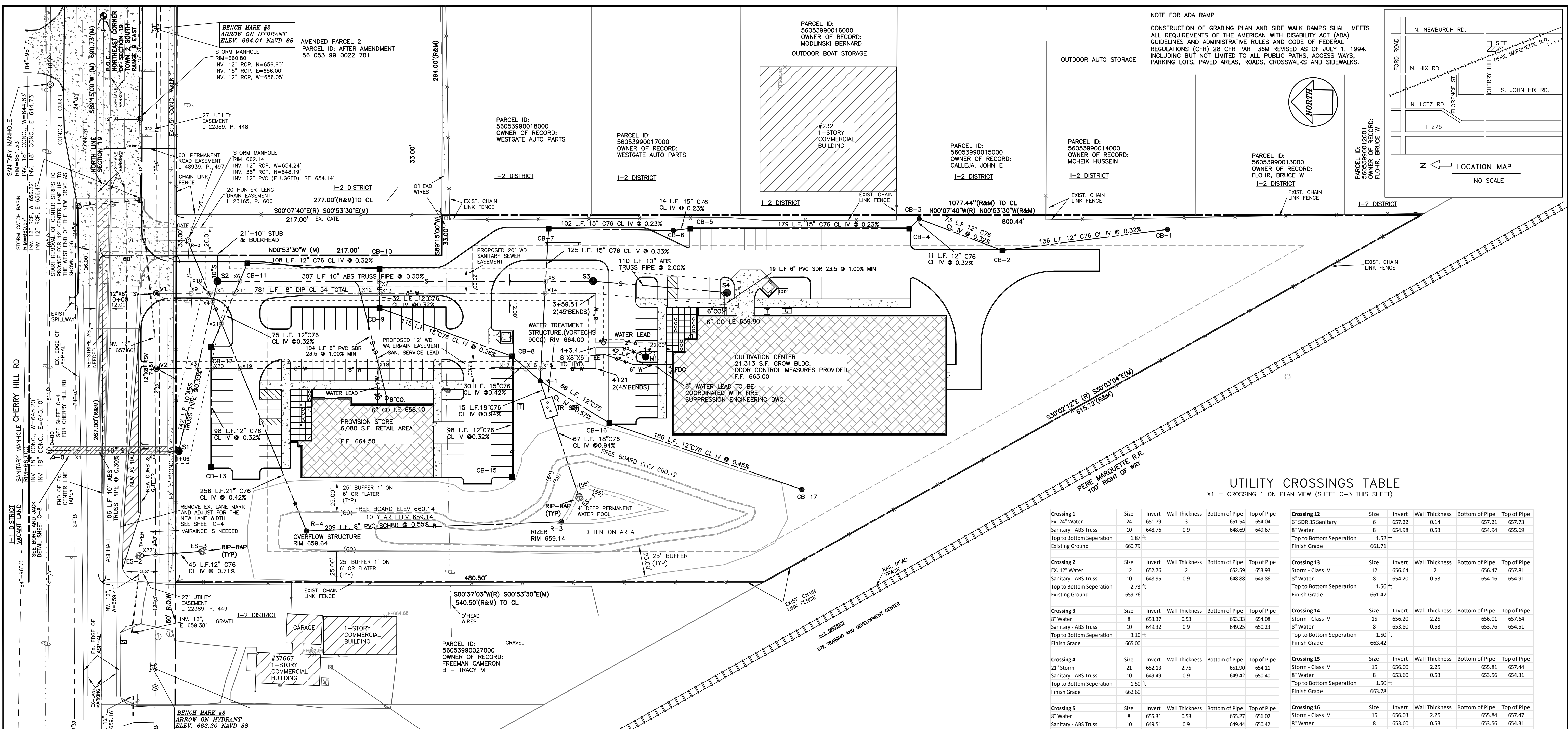
STATE OF MICHIGAN
HASSAN M. ODEH
No. 6201037763
REGISTERED PROFESSIONAL ENGINEER

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

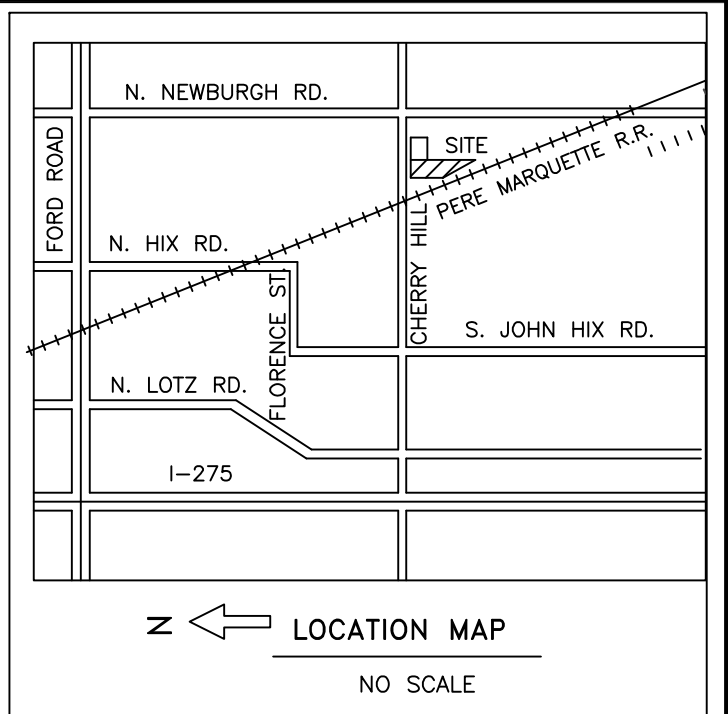
REVISIONS
DATE: 3/1/2021
DR. BY: H.M.O
CH. BY: H.M.O

JOB NO. 1210
SHEET NO. C-2

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.

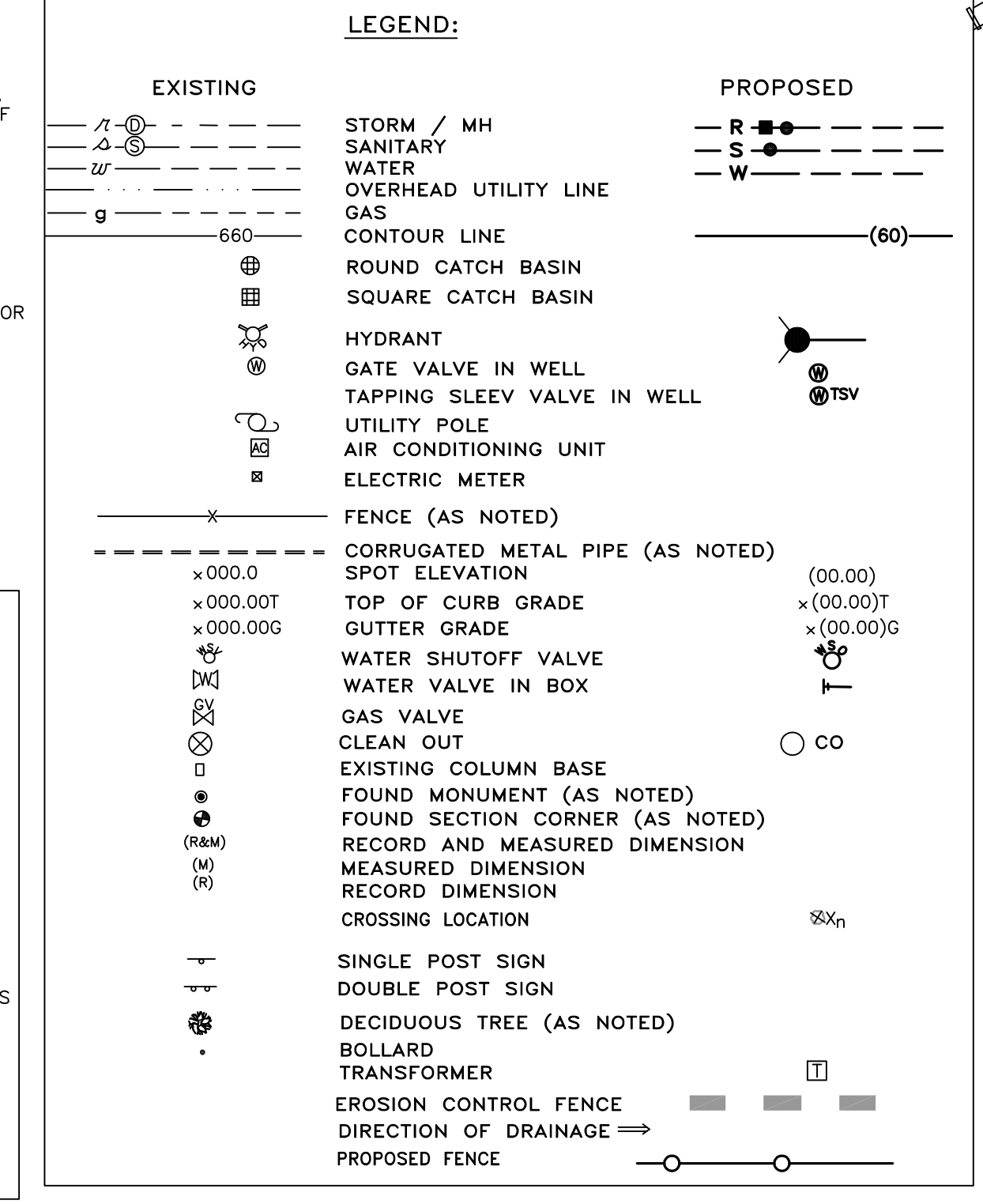


NOTE FOR ADA RAMP
 CONSTRUCTION OF GRADING PLAN AND SIDE WALK RAMP SHALL MEETS ALL REQUIREMENTS OF THE AMERICAN WITH DISABILITY ACT (ADA) GUIDELINES AND ADMINISTRATIVE RULES AND CODE OF FEDERAL REGULATIONS (CFR) 28 CFR PART 36M REVISED AS OF JULY 1, 1994, INCLUDING BUT NOT LIMITED TO ALL PUBLIC PATHS,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



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.

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SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST
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 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

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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

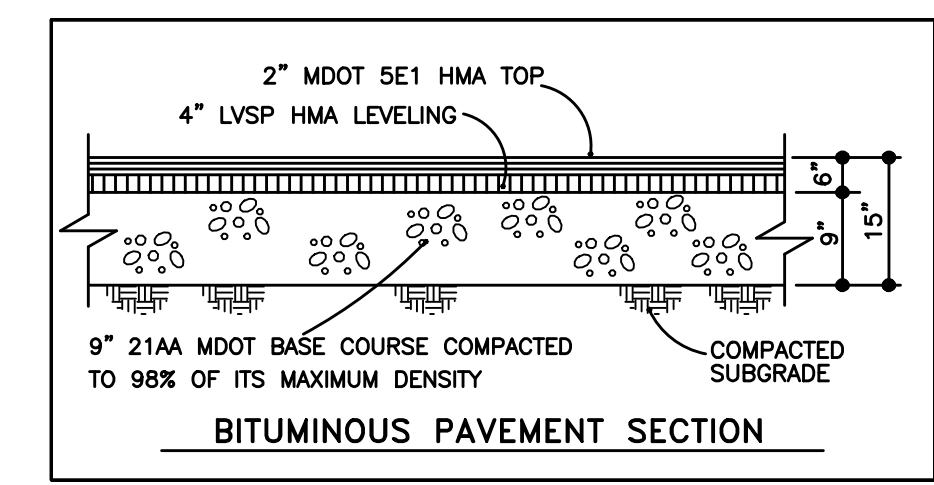
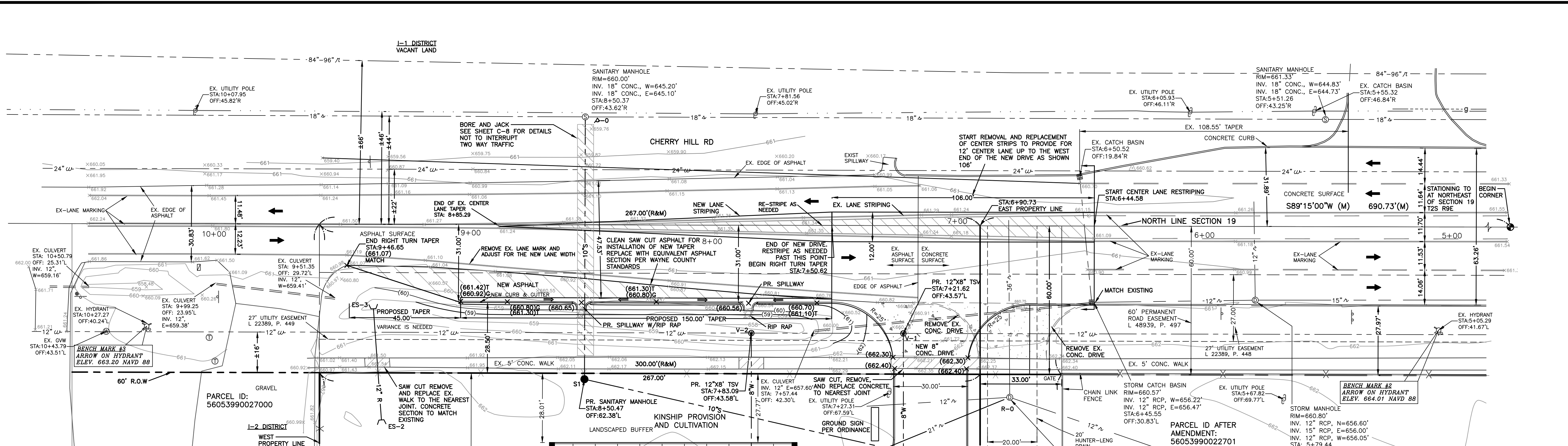
DATE: 3/1/2021
 DR. BY: H.M.O
 CH. BY: H.M.O

PROPERTY OWNER:
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 ATTN: CURT MOLINO
 26621 EAST RIVER ROAD
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 EMAIL: curt.molino@yahoo.com

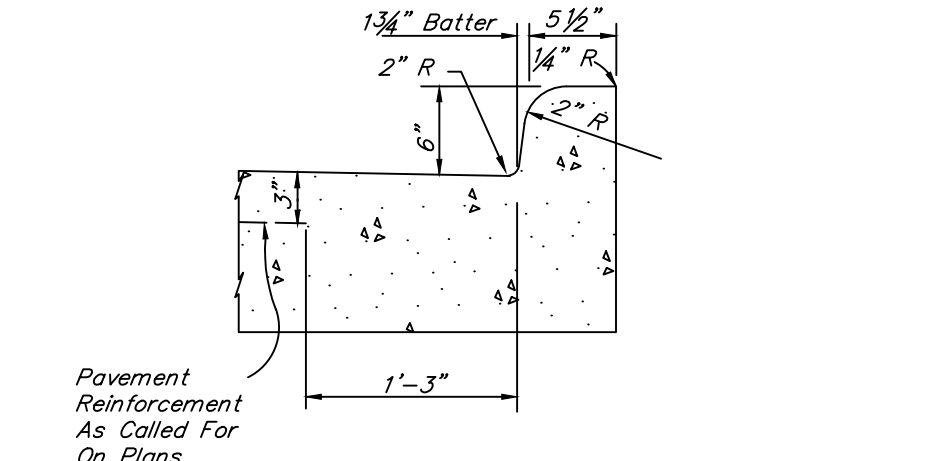
WAYNE COUNTY DPS PLAN REVIEW R 21-149

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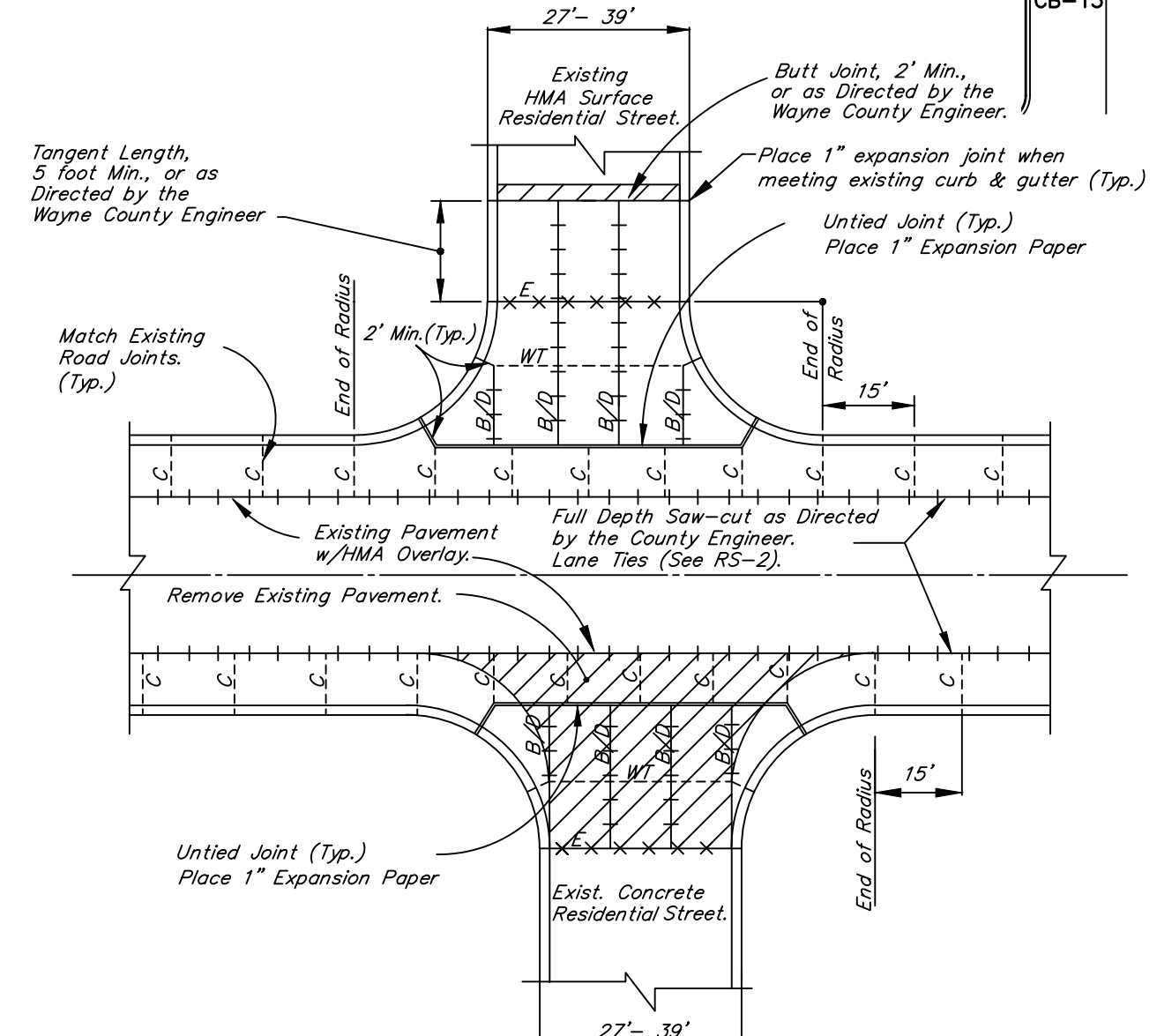
JOB NO. 1210
 SHEET NO. C-3



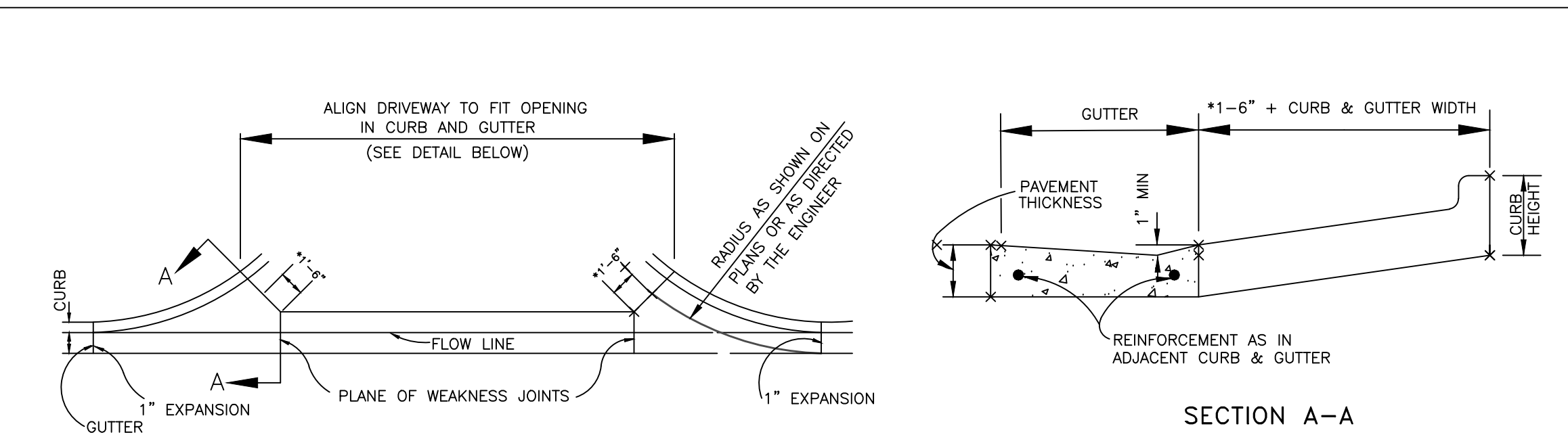
NOTE:
 1. ASPHALT WIDENING WITHIN THE RIGHT OF WAY SECTION
 2. WE HAVE NOT REVIEWED THIS PROJECT FOR SOIL CONTENT WE SUGGEST THE CLIENT CONTACT A SOIL ENGINEER WITH REGARD TO SOIL CONDITIONS AND MODIFY PAVEMENT SECTION AS REQUIRED.



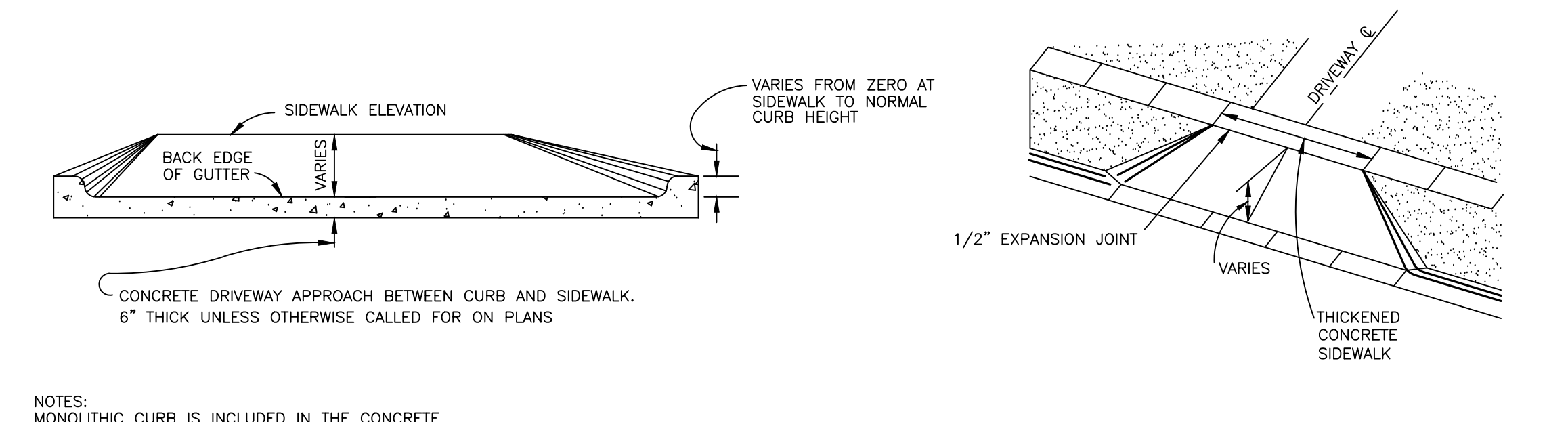
STRAIGHT CURB AND GUTTER TYPE 3 WAYNE COUNTY PERMIT STANDARDS (RS-3, SHEET 1)
 N.T.S.



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)

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

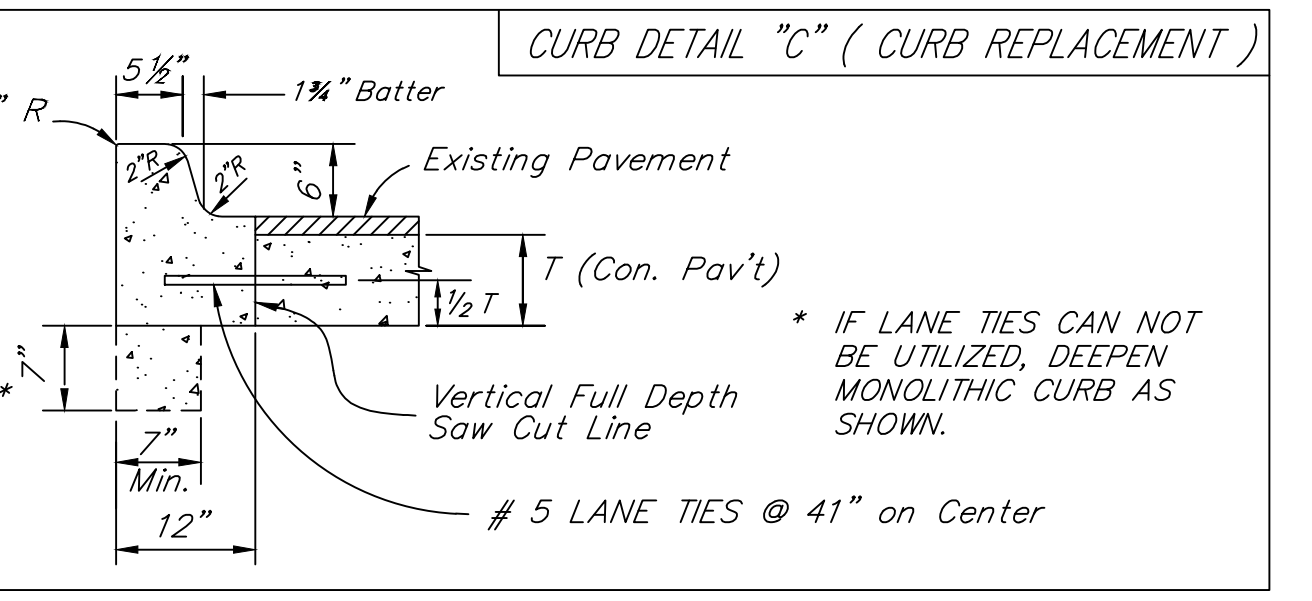
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH WAYNE COUNTY SPECIFICATIONS WHICH ARE DEFINED AS THE CURRENT MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AS MODIFIED BY WAYNE COUNTY SPECIAL PROVISIONS.
- PAVING STANDARD PLAN DETAILS MAY BE SHOWN WITH 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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CURB DETAIL "C" (CURB REPLACEMENT) WAYNE COUNTY PERMIT STANDARDS (D-07, SHEET 1)
 N.T.S.

- NOTES:
- WORK THIS SHEET WITH THE GENERAL NOTES ON RS-1
 - WAYNE COUNTY REVISION DATE: 8/01/2007
 - SEE ORIGINAL DETAIL SHEET D-07 IN WAYNE COUNTY PERMIT STANDARDS

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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

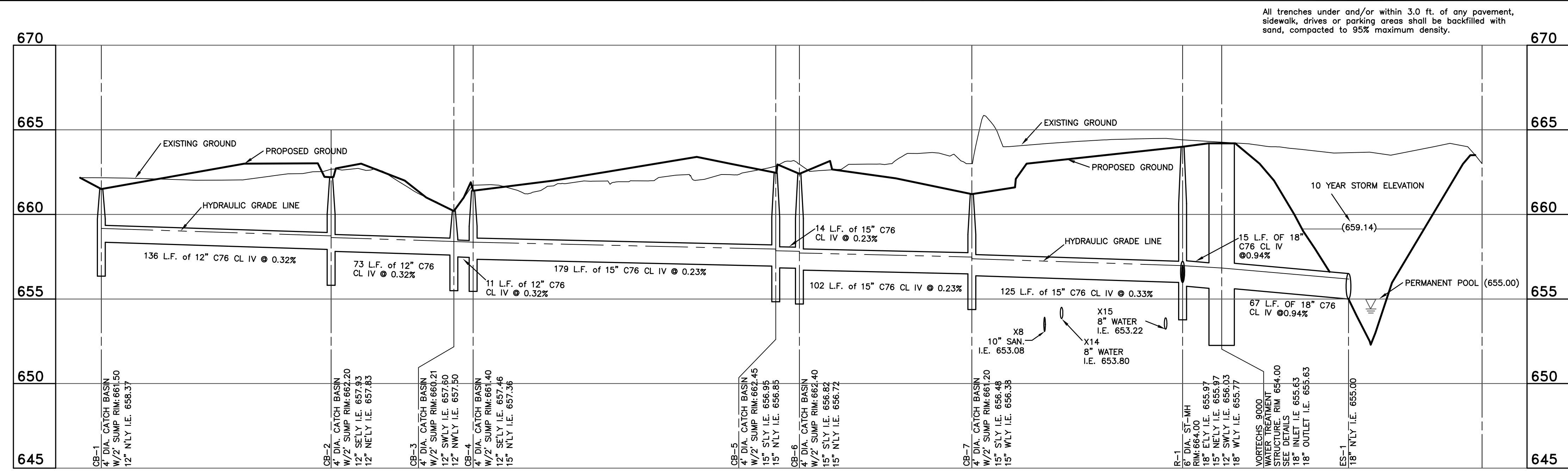
CAD NO. 1210DecelLane.dwg

DATE: 8-16-2022
 CONSTRUCTION PLANS

DR. BY: OHO
 CH. BY: HMO

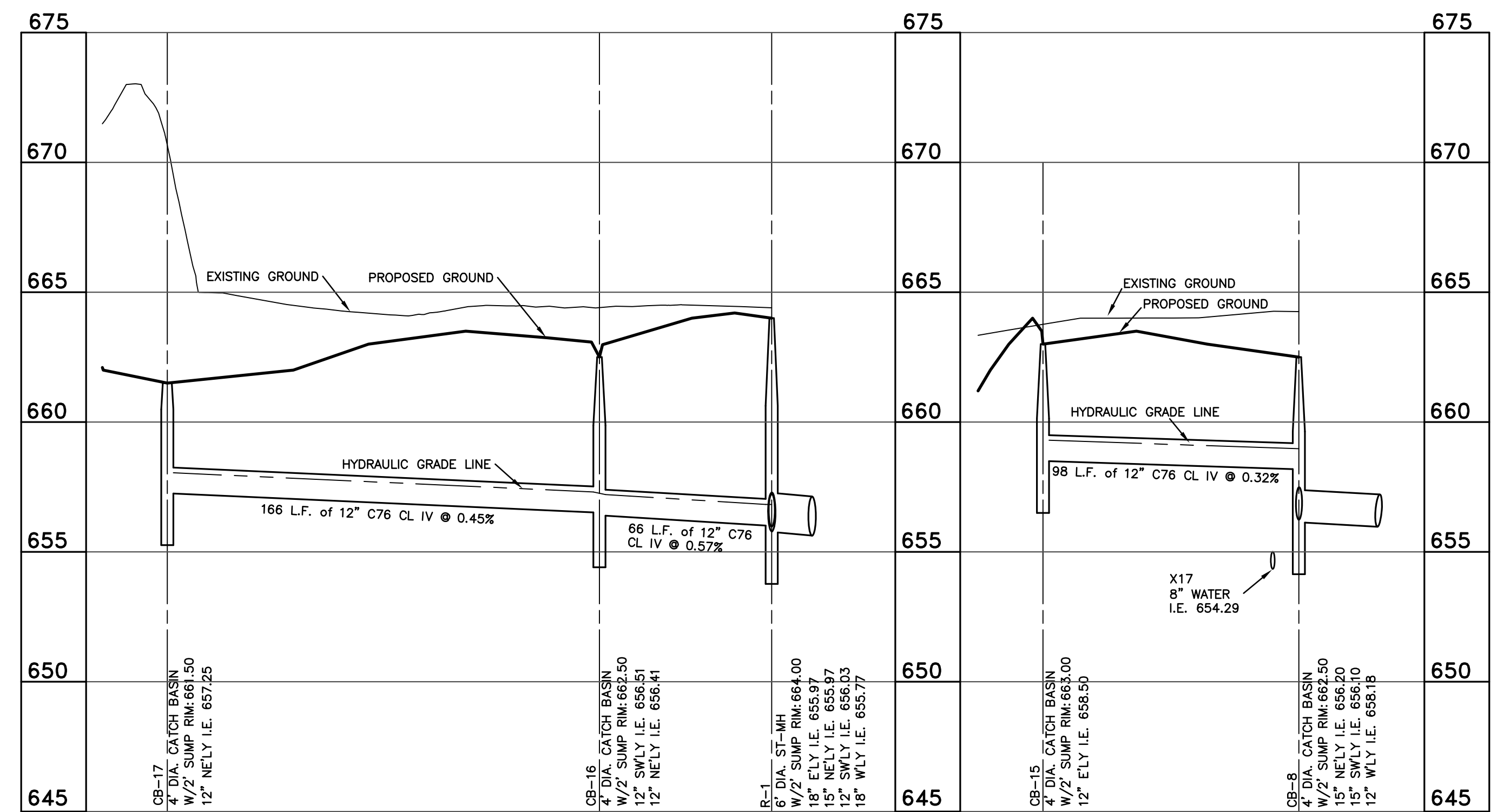
BOOK NO.
 JOB NO. 1210

FILE NO. C-4



*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.
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WAYNE COUNTY, MICHIGAN
SCALE 1 INCH = 40 FEET

CLIENT: WESTLAND PRINCIPLES, LLC
STORM PROFILES
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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

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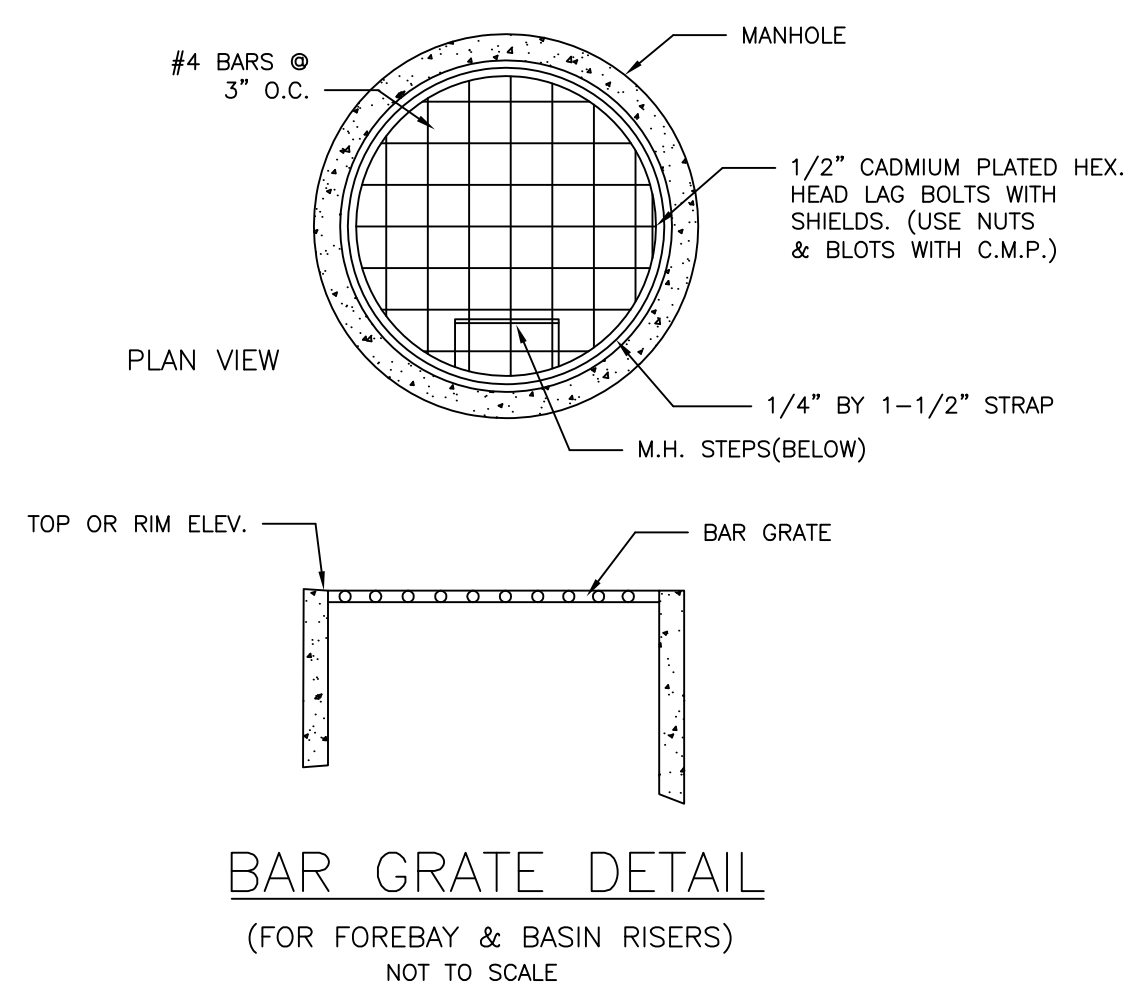
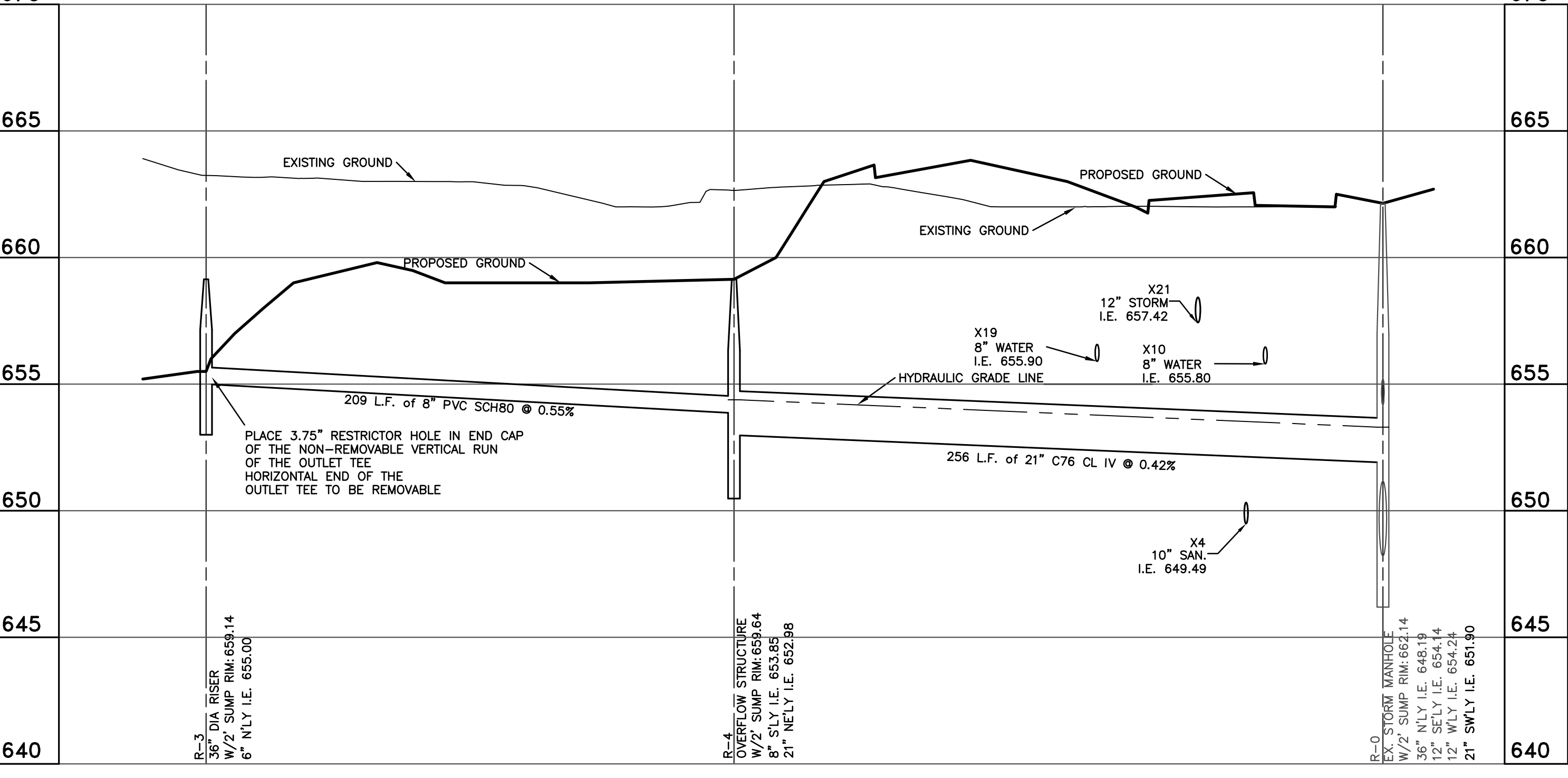
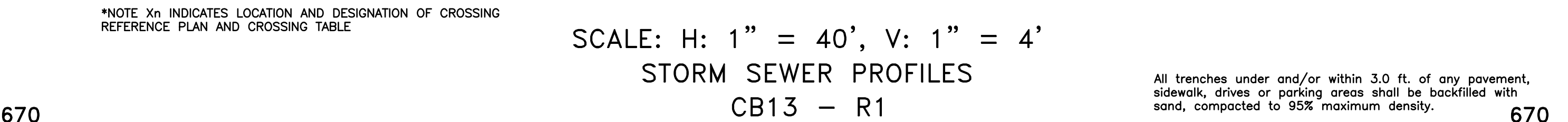
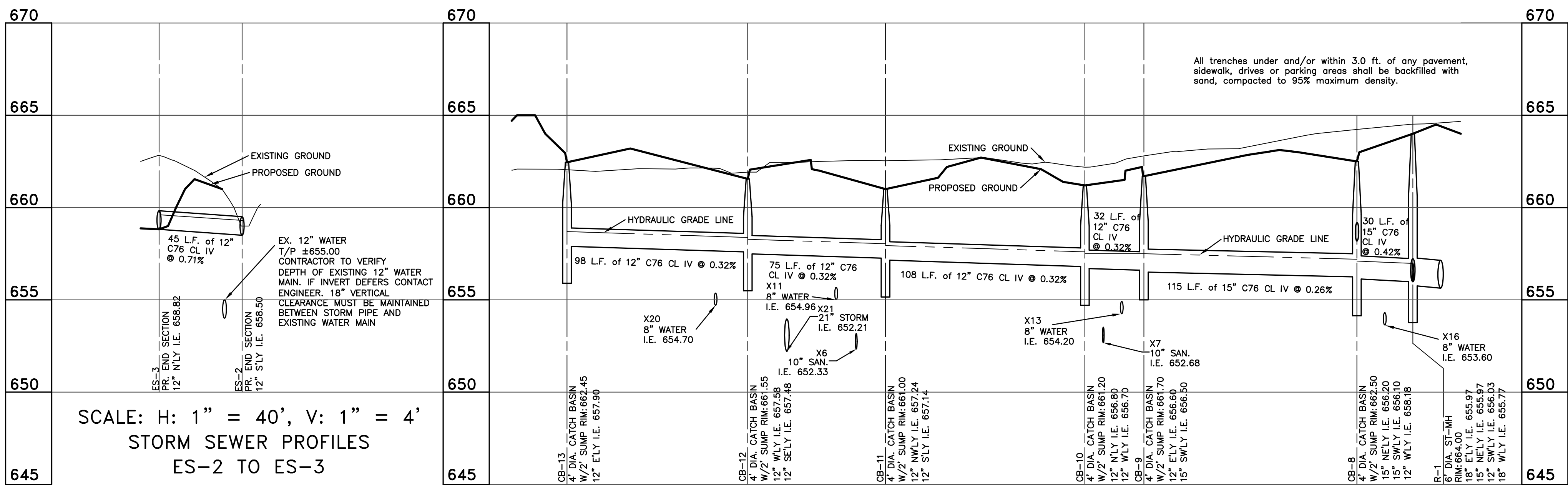
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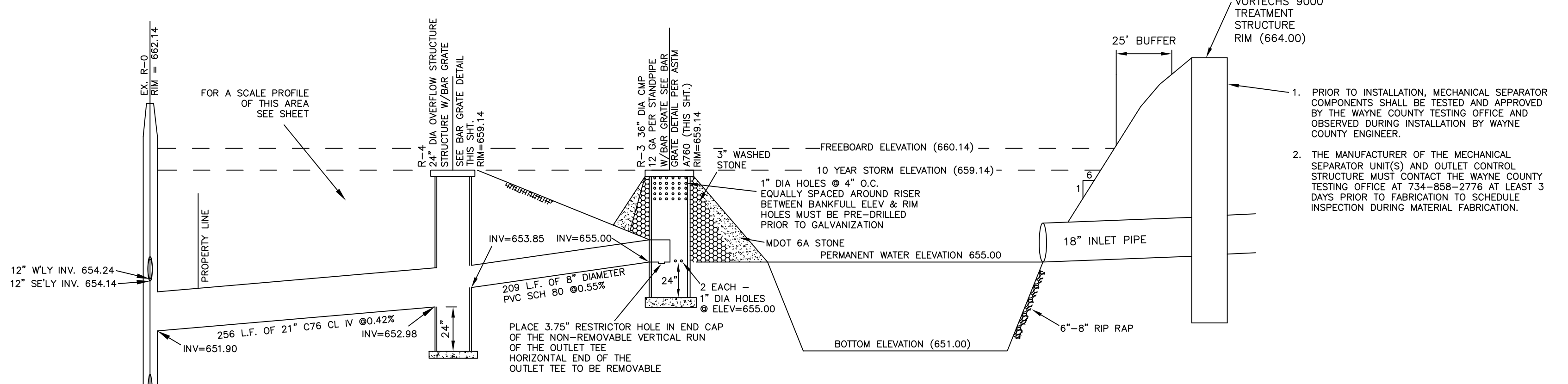
NOTE:
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PROPERTY OWNER:
WESTLAND PRINCIPLES, LLC
ATTN: CURT MOLINO
26621 EAST RIVER ROAD
GROSSE ILE, MI 48138
Phone: 313-218-4069
EMAIL: curt.molino@yahoo.com

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.



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.



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

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

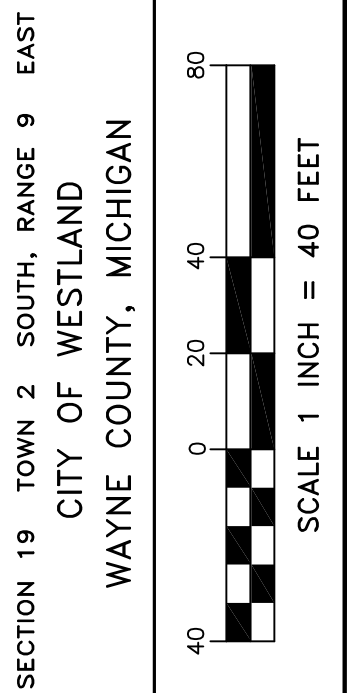
NOTICE:
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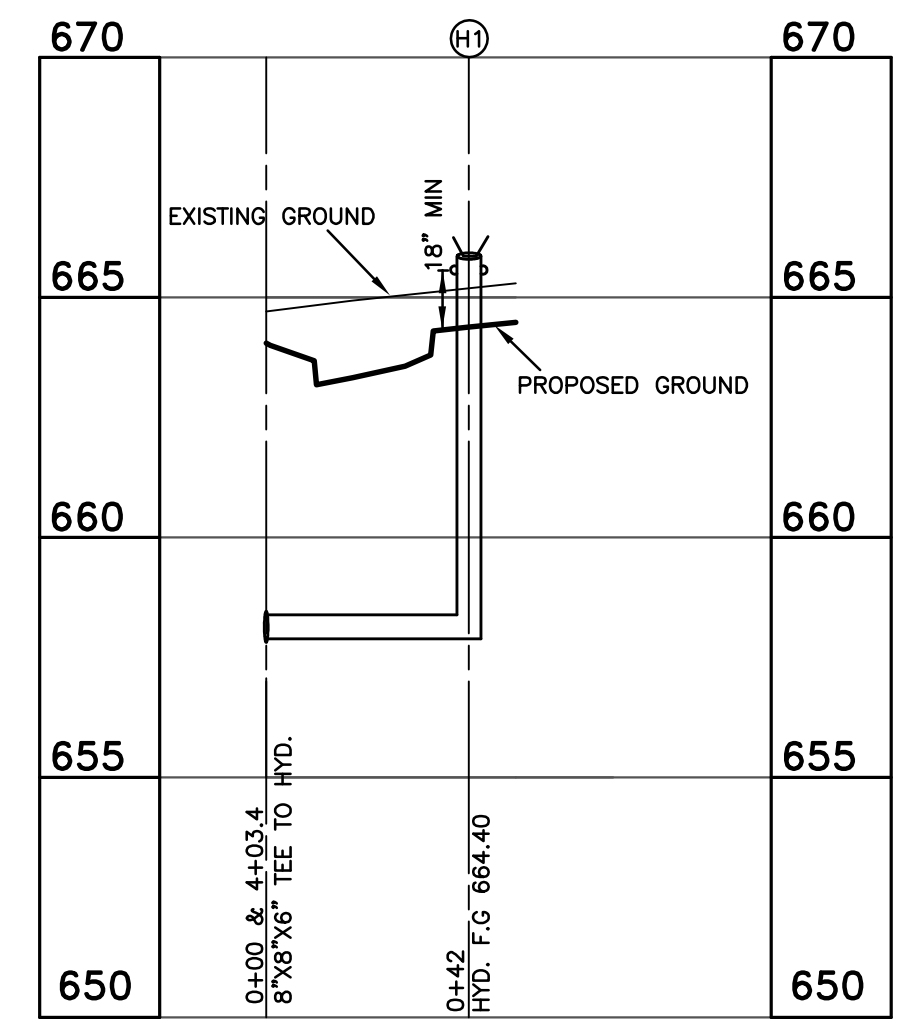
CLIENT: WESTLAND PRINCIPLES, LLC
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KINSHIP PROVISIONING AND CULTIVATION
PART OF THE EAST 1/2 OF

CAD NO. 2010CP01.DWG

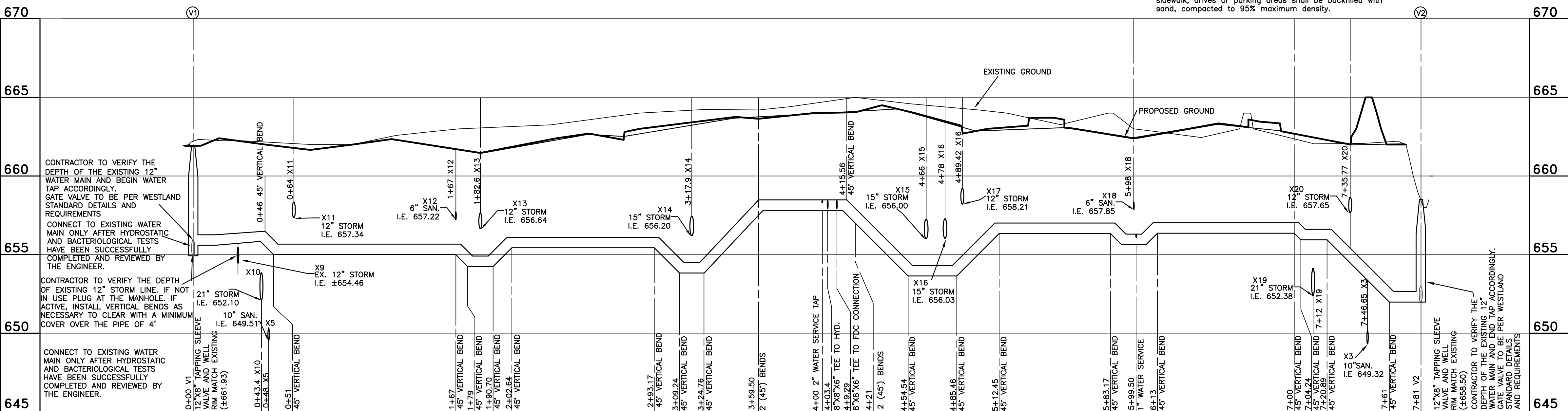
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REVISIONS	
DATE:	8/16/2022
DR. BY:	H.M.O
CH. BY:	H.M.O
JOB NO.	1210
SHEET NO.	C-7



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.

CASING DETAILS

- 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 MDO 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.

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 utilities.
- 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 preaming 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)

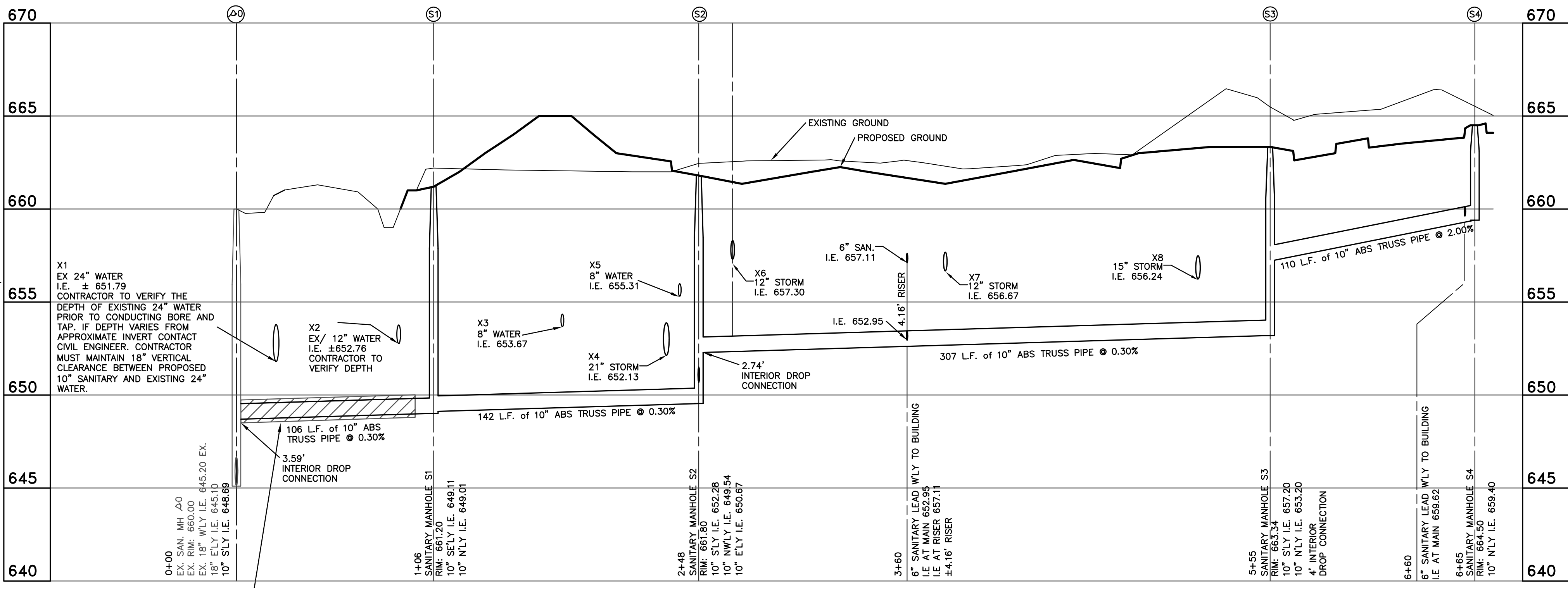
PROPOSED 2 BUILDINGS
PROVISION STORE-6,080 S.F. RETAIL AREA WITH 12 EMPLOYEES PER SHIFT

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



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

ALL NEW SANITARY LEADS CONNECTION TO THE MAIN SHALL BE WYE CONNECTION.

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.
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- 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 utilities.
- 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.
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- 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 preaming 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.

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.

d) 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.

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

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WAYNE COUNTY DPS PLAN REVIEW R 21-149
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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
PREVENTATIVE MAINTENANCE						
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
REMEDIAL ACTIONS						
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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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.

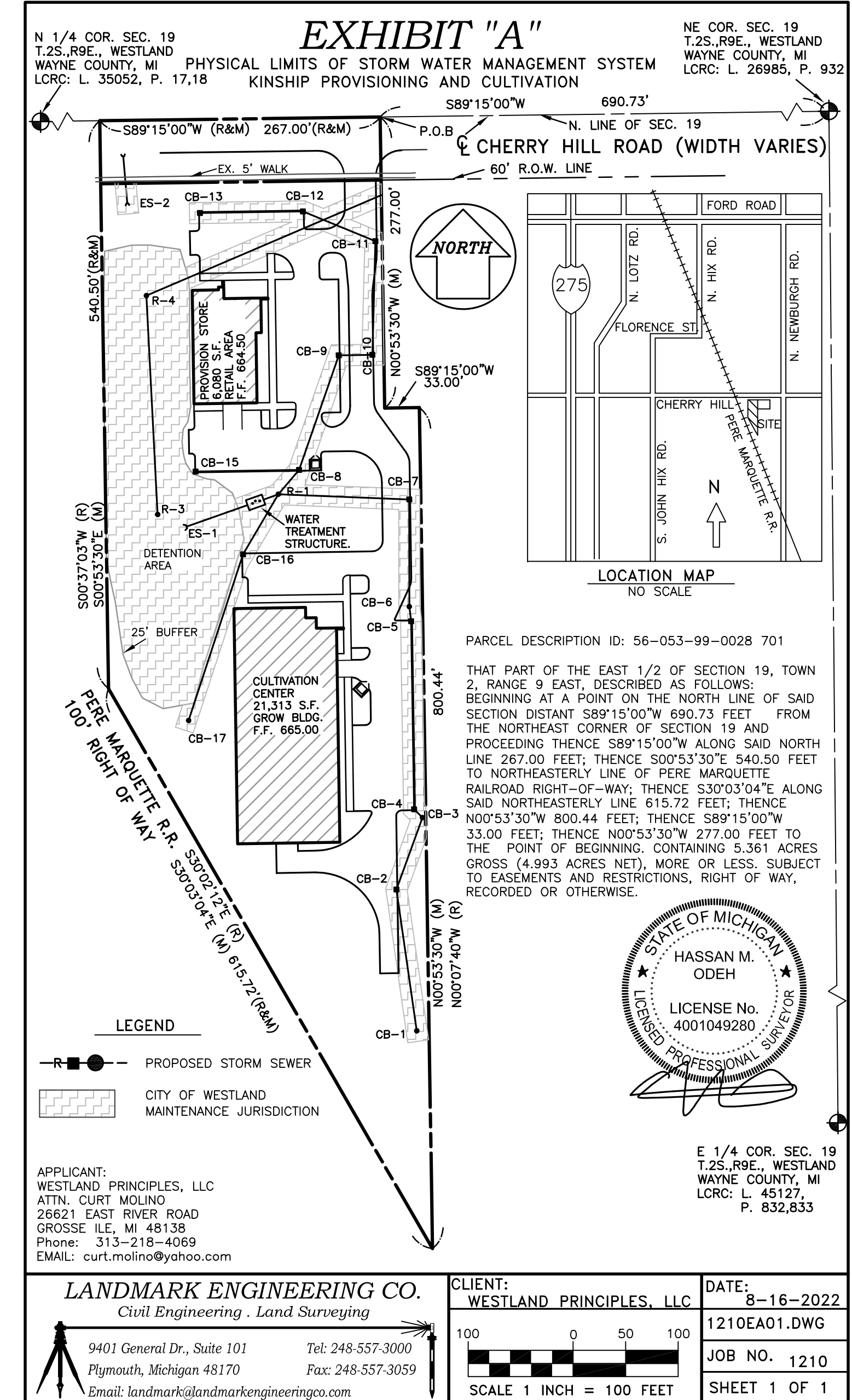
D. LONG TERM MAINTENANCE PLAN AND SCHEDULE

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

CLIENT: WESTLAND PRINCIPLES, LLC
STORM MAINTENANCE EXHIBITS
KINSHIP PROVISIONING AND CULTIVATION
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CAD NO. 1210EA01.DWG

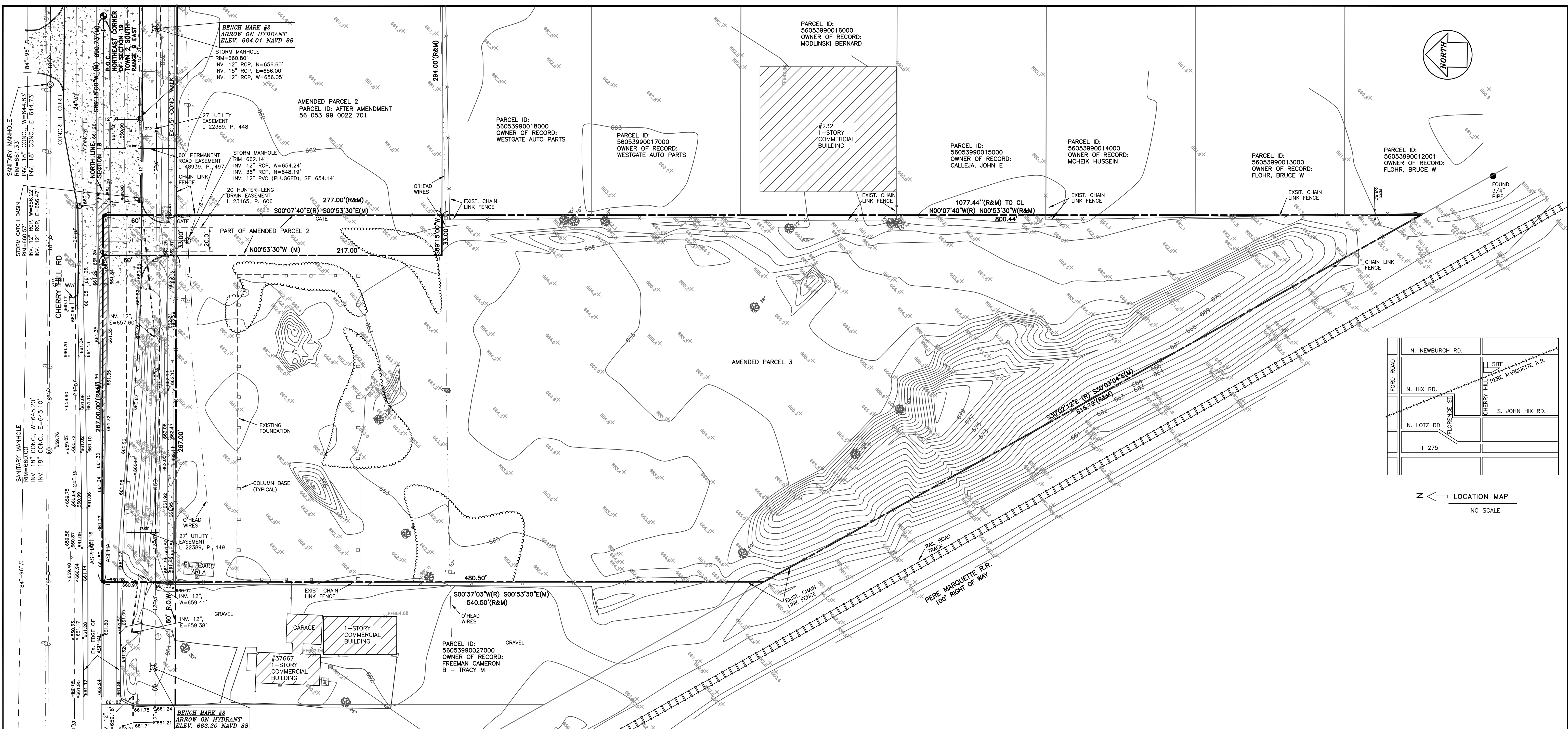
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SCALE 1 INCH = 100 FEET

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



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 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.

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

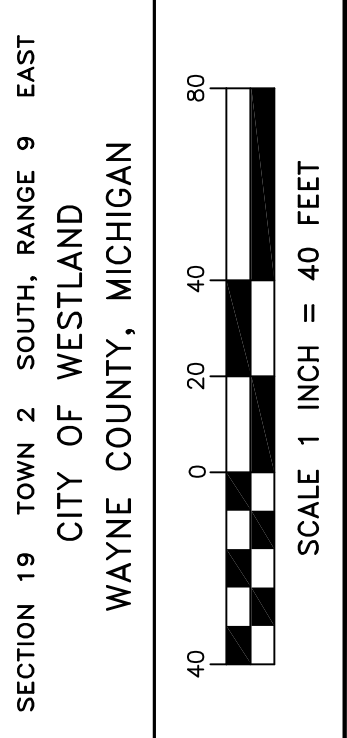
NOTICE:
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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

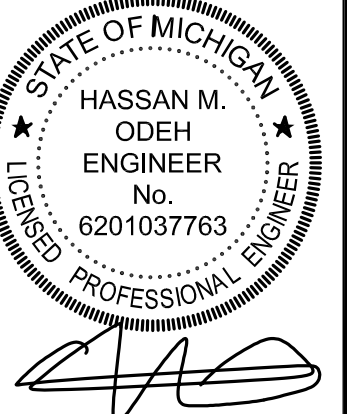


SECTION 19 TOWN 2 SOUTH, RANGE 9 EAST
 CITY OF WESTLAND
 WAYNE COUNTY, MICHIGAN

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

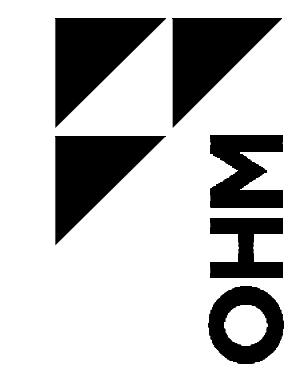
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11/12/2021
 ADD LANE MARKING
 REVISIONS

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



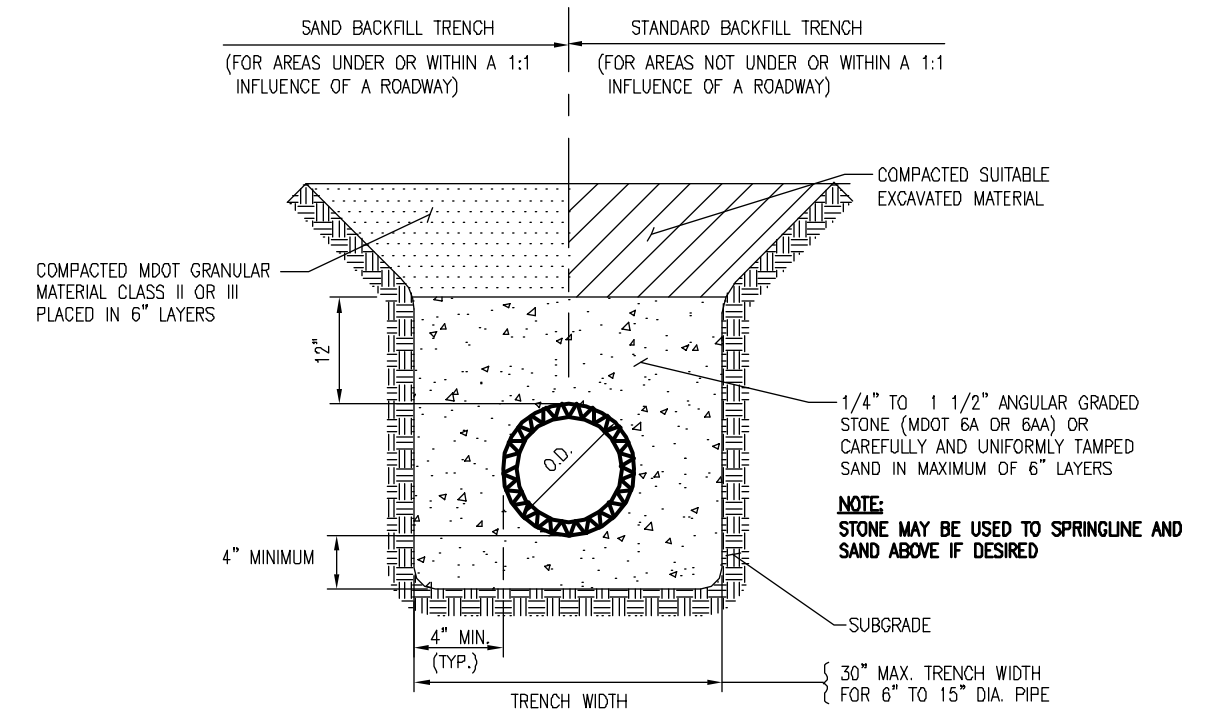
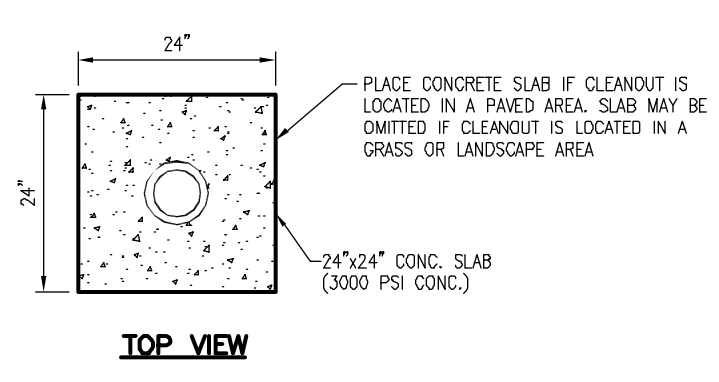
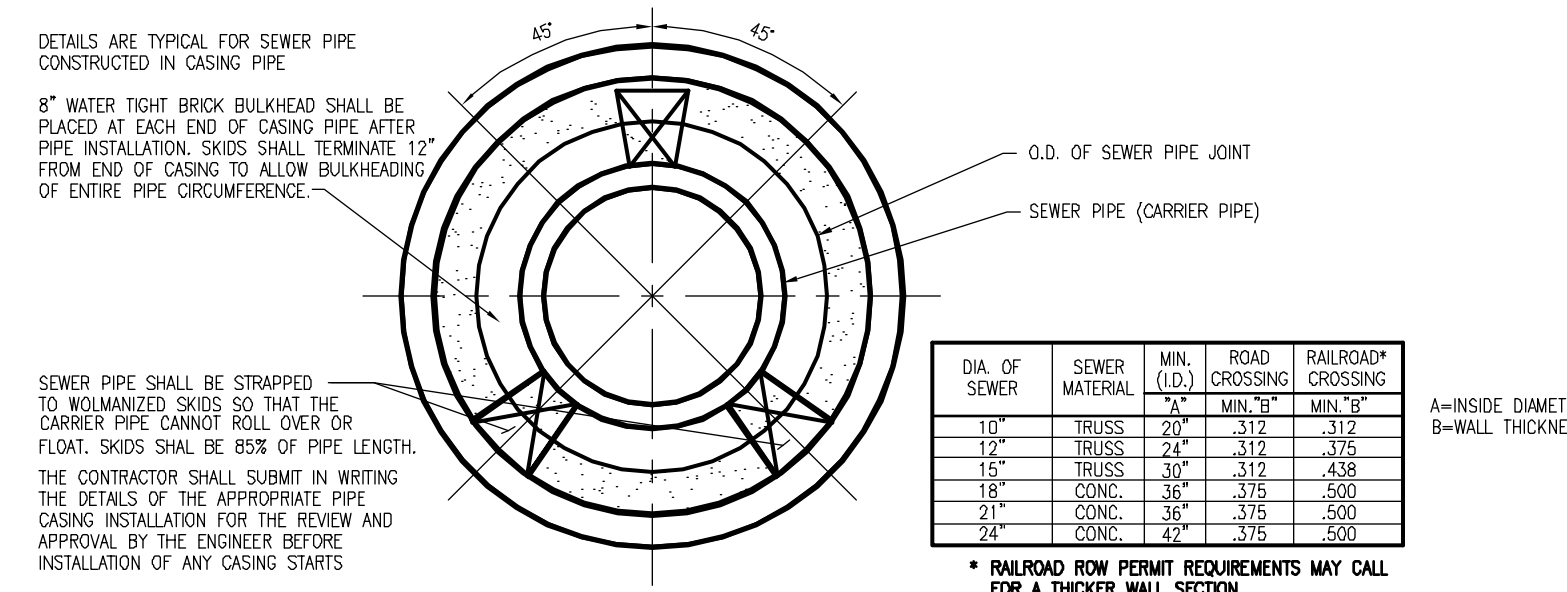
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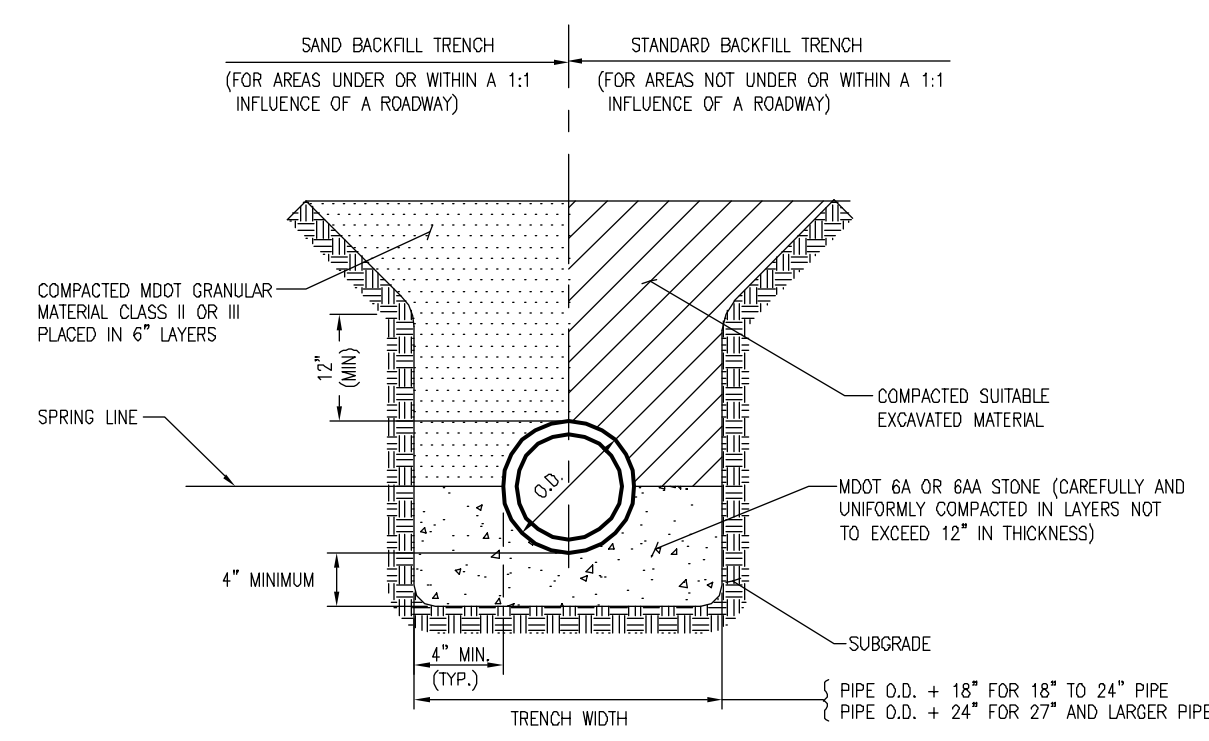
34000 Plymouth Road | Livonia, MI 48150 | P. (734) 522-6711 | F. (734) 522-6427

CITY OF WESTLAND
STANDARD SANITARY SEWER DETAILS

SHEET 2 OF 2

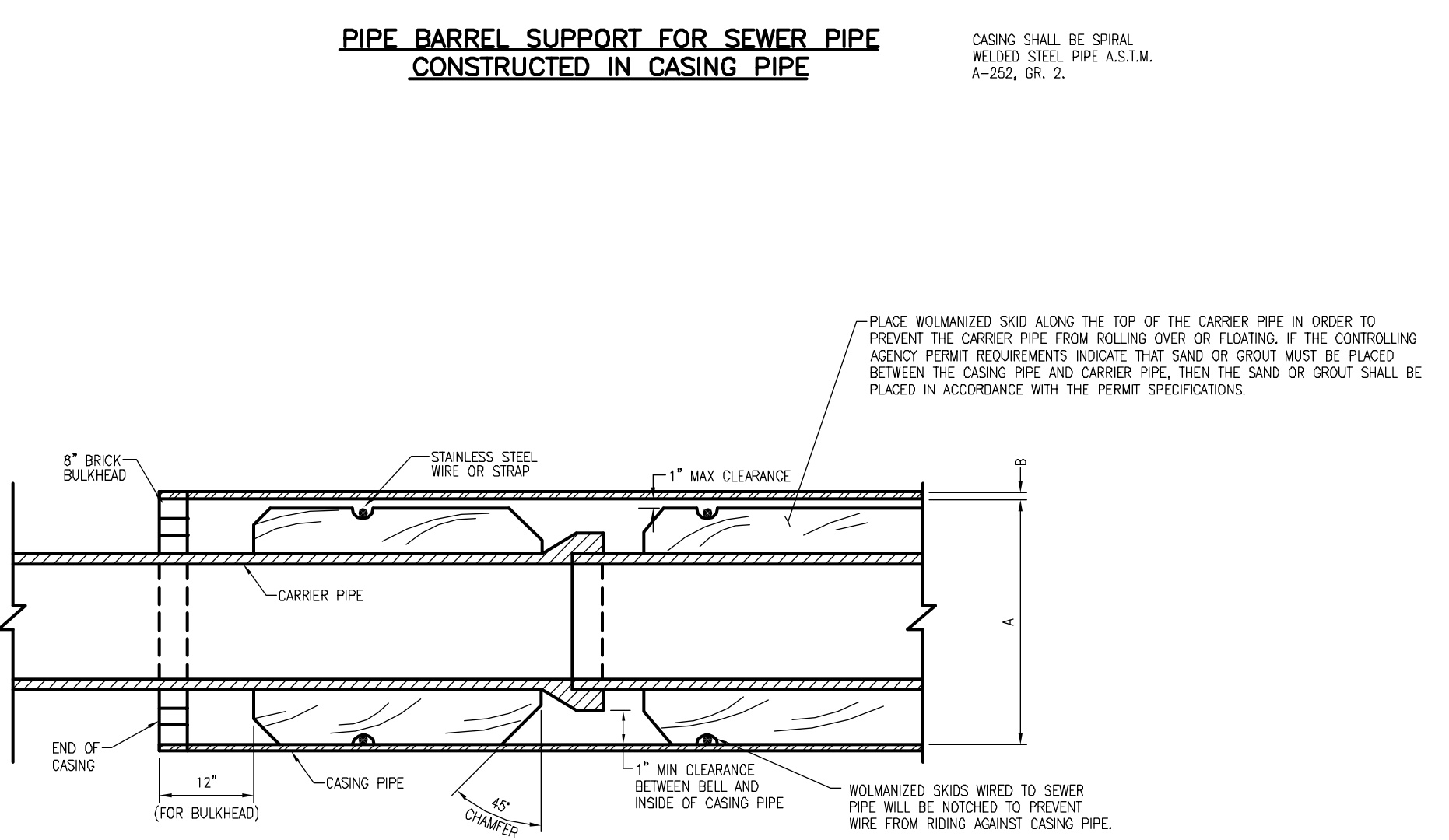


FLEXIBLE PIPE (10" OR 15" DIA ABS TRUSS OR PVC TRUSS) STANDARD BEDDING AND TRENCH BACKFILL DETAIL

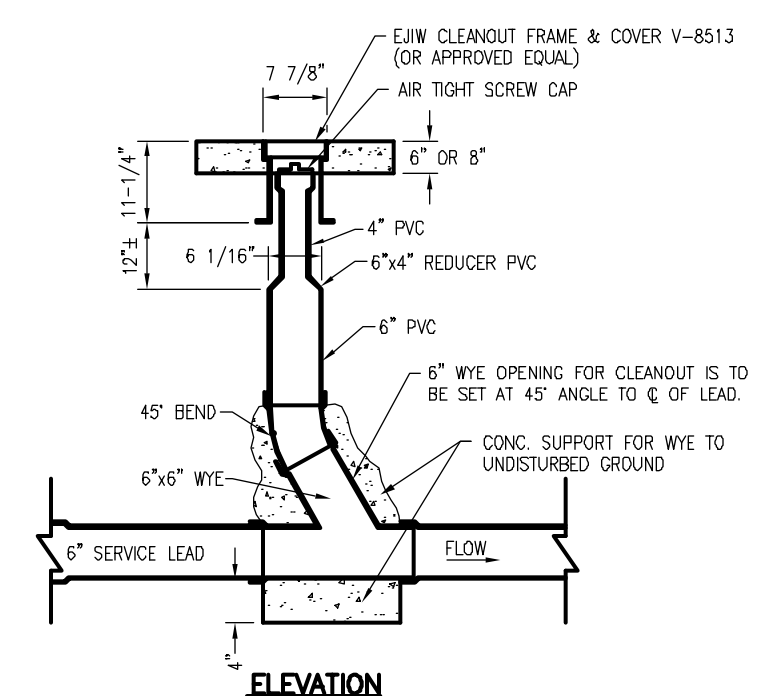


RIGID PIPE (18" DIAMETER AND LARGER CONCRETE) STANDARD BEDDING AND TRENCH BACKFILL DETAIL

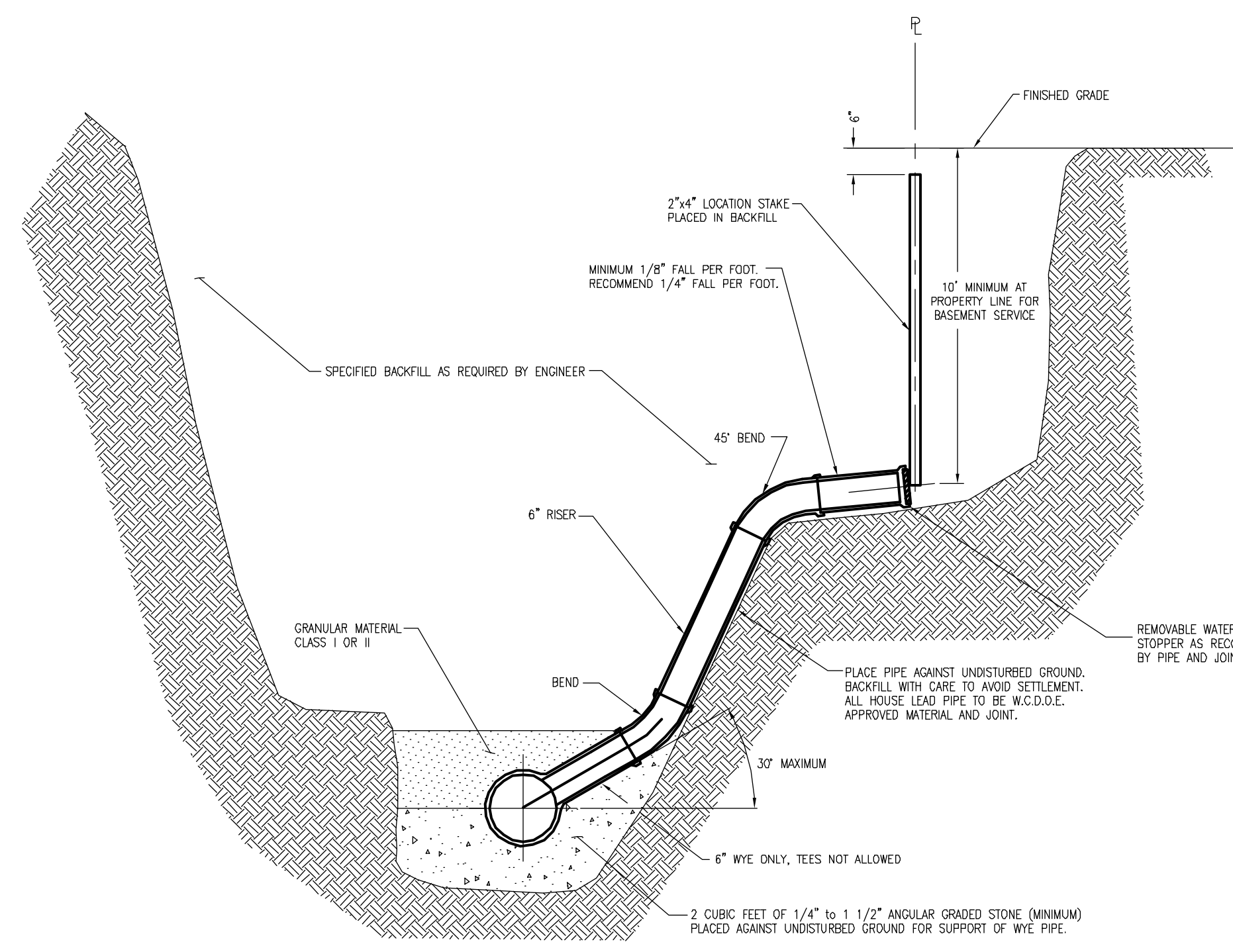
- MATERIALS AND CERTIFICATIONS**
TRUSS PIPE AND FITTINGS SHALL BE AS DESCRIBED UNDER THE CURRENT ASTM DESIGNATION D2680, STANDARD SPECIFICATION FOR ACRYLONITRILE-BUTADIENE-STYRENE (ABS) AND POLY(VINYL CHLORIDE) (PVC) COMPOSITE SEWER PIPING. APPENDIX XI OF SAID SPECIFICATION SHALL BE AS MODIFIED BY THE BEDDING REQUIREMENTS OUTLINED BELOW.
SOLID WALL ABS PIPE FOR 6" HOUSE CONNECTION SEWERS SHALL BE SDR 23.5 CONFORMING TO THE CURRENT ASTM DESIGNATION D2751 STANDARD SPECIFICATION FOR ACRYLONITRILE-BUTADIENE-STYRENE (ABS) SEWER PIPE AND FITTINGS, OR PVC SCHEDULE 40 CONFORMING TO THE CURRENT ASTM DESIGNATION D1785 STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PLASTIC PIPE SCHEDULES 40, 80 AND 120. SOLID WALL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH BEDDING REQUIREMENTS OUTLINED BELOW.
ALL PIPE SHALL BE CERTIFIED BY THE MANUFACTURER TO MEET THE APPLICABLE ASTM SPECIFICATION REQUIREMENTS. CERTIFICATION FORMS, TOGETHER WITH A REPORT OF THE TEST RESULTS, SHALL BE PROVIDED TO THE INSPECTOR WITH PIPE DELIVERIES AND COPIES SHALL BE FORWARDED TO THE ENGINEER OR THE OWNER. CERTIFICATION FORMS SHALL INCLUDE PROJECT NAME, LOCATION, CONTRACTOR, AND TEST LOT NUMBER. LOT TESTS SHALL BE ACCEPTABLE TO THE ENGINEER.
ALL PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO PROVIDE MANUFACTURER'S NAME, EXTRUSION CODE (INCLUDING DATE AND LOCATION OF MANUFACTURE), ASTM DESIGNATION, TYPE OF PLASTIC, NOMINAL DIAMETER, AND SDR NUMBER, WHERE APPLICABLE. FITTINGS HOWEVER, NEED NOT CONTAIN THE EXTRUSION CODE. PIPE SHALL HAVE A "HOME" MARK. TRUSS PIPE WITH AN ABSENCE OF FILLER MATERIAL AT THE ENDS GREATER THAN 1/4" DEEP SHALL BE SUBJECT TO REJECTION OR ACCEPTABLE REPAIR.
- BEDDING**
BEDDING FOR TRUSS PIPE AND ABS SOLID WALL PIPE SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION D2321 AND AS SHOWN IN THE STANDARD BEDDING DETAILS EXCEPT THAT FLOODING OR PUDDLING SHALL NOT BE USED. THE USE OF FLEXIBLE AND SEMI-FLEXIBLE PIPE REQUIRES THAT THE BEDDING PROVIDE UNYIELDING SIDE SUPPORT AND COMPLETE CONTACT UNDER PIPE HAUNCHES. BEDDING MATERIAL MUST BE PROPERLY PLACED AND COMPACTED TO PROVIDE LATERAL RESTRAINT AGAINST DEFLECTION IN THE PIPE DIAMETER. PIPE MUST BE BEDDED TO THE TRUE LINE AND GRADE THROUGHOUT ITS LENGTH. BELL HOLES SHALL BE PROVIDED WHERE REQUIRED. BEDDING FOR RIGID PIPE SHALL BE IN ACCORDANCE WITH ASTM DESIGNATION C12.
WHERE UNSTABLE BOTTOMS ARE ENCOUNTERED, THE CONTRACTOR SHALL PROVIDE A FOUNDATION CONSISTING OF AN APPROVED GRADED AND PROCESSED ANGULAR STONE OR GRAVEL TO ACT AS AN IMPERVIOUS MAT TO PREVENT MIGRATION OR VERTICAL MOVEMENT OF UNSTABLE SOILS OR BEDDING MATERIALS. WHERE TRENCH SHEETING, PLATES, OR A TRENCH BOX ARE USED DUE TO SEVERE GROUND CONDITIONS, ALL VOIDS TO THE SIDE AND BELOW THE TOP OF THE PIPE CAUSED BY THE SHEETING, PLATES, OR BOX WITHDRAWAL SHALL BE COMPLETELY FILLED OR THE SUPPORTS LEFT IN PLACE BELOW THE TOP OF THE PIPE.
CONCRETE CRADLE BEDDING SHALL NOT BE USED WHERE ALLOWABLE TRENCH WIDTHS ARE EXCEEDED. IN LIEU OF CONCRETE CRADLE BEDDING, STANDARD PIPE BEDDING SHOWN SHALL BE PROVIDED TO THE FULL WIDTH BETWEEN UNDISTURBED TRENCH WALLS OR AT LEAST 2.5 PIPE DIAMETERS ON BOTH SIDES OF THE PIPE.
DUE TO POTENTIAL DAMAGE TO EXTERIOR WALLS OF TRUSS PIPE IF ROCKS, FROZEN MATERIALS, OR LARGE OBJECTS STRIKE THE PIPE, THE CONTRACTOR SHALL CAREFULLY AVOID DUMPING ANY MATERIALS OTHER THAN APPROVED BEDDING SAND OR STONE ON THE PIPE UNTIL 24" COVER IS PLACED ON IT, PARTICULARLY UNDER COLD WEATHER CONDITIONS. PIPE WALLS AND ENDS SHALL ALSO BE PROTECTED FROM ABRASION AND DAMAGE DURING HANDLING, AND SHALL BE FULLY INSPECTED JUST PRIOR TO PLACING IN THE TRENCH.
CARE SHALL BE TAKEN DURING BEDDING COMPACTION TO AVOID DISTORTING THE SHAPE OF THE PIPE OR DAMAGING ITS EXTERIOR WALL. MOBILE EQUIPMENT SHALL NOT BE USED OVER THE PIPE TRENCH UNTIL 48" OF COVER HAS BEEN PLACED.
FIELD TAPS OF EXISTING SANITARY SEWERS SHALL BE MADE BY INSTALLING A WYE FITTING FOR A HOUSE LEAD CONNECTION. FERNCO FITTINGS WITH STAINLESS STEEL BANDS SHALL BE USED TO SECURE THE WYE FITTING TO THE SANITARY SEWER PIPE. BEDDING FOR HOUSE CONNECTION SEWERS SHALL BE EQUAL TO THAT OF THE MAIN SEWER BEDDING. RISERS IN DEEP AND UNSTABLE TRENCHES SHOULD BE BEDDED IN 6A OR 6AA ANGULAR STONE TO AVOID SETTLEMENT. CONCRETE SHALL NOT BE USED FOR BEDDING. END CAPS OR PLUGS SHALL BE BRACED OR ANCHORED TO WITHSTAND AIR TEST PRESSURES. CAPS OR PLUGS SHALL NOT BE CHEMICALLY WELDED IN PLACE.



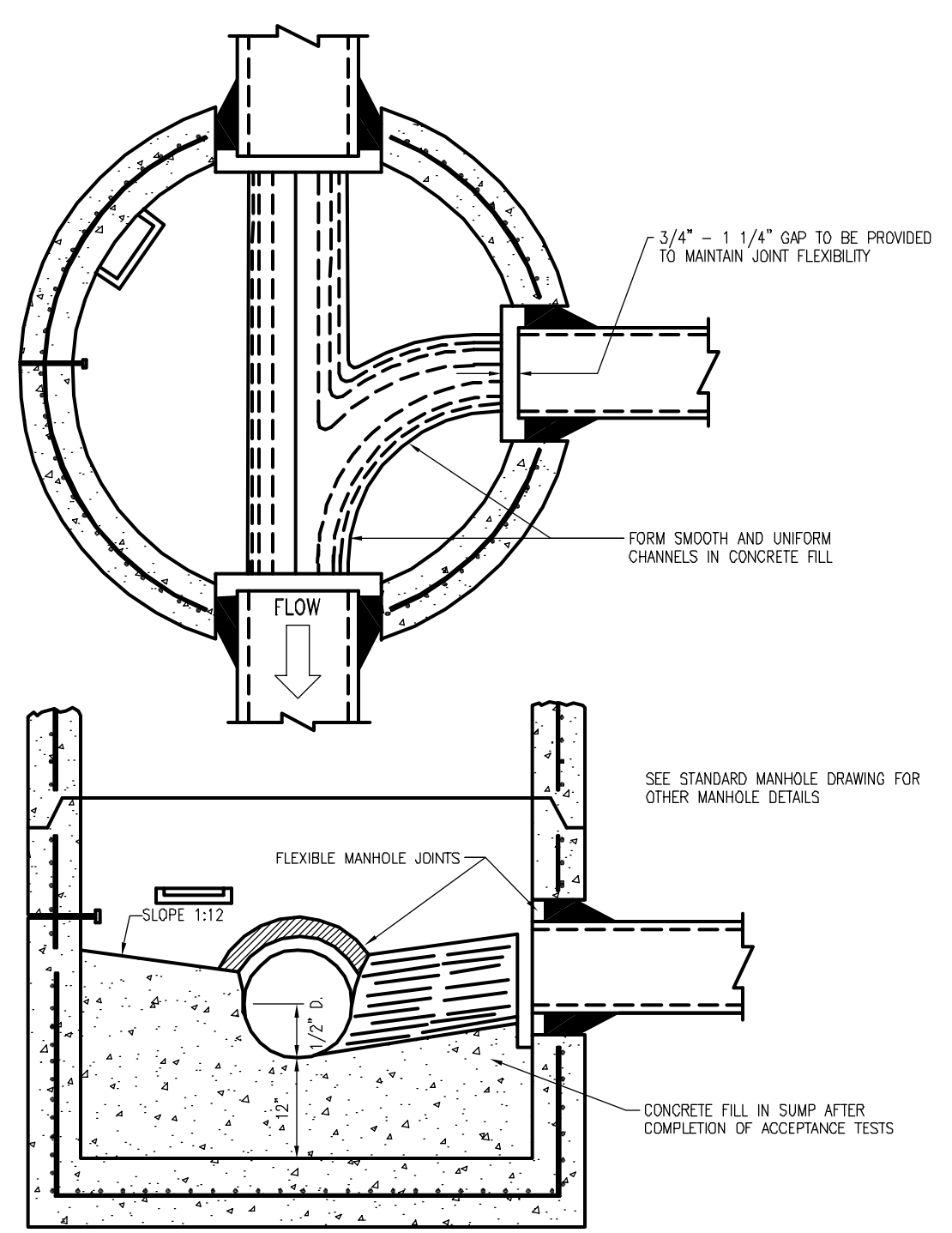
STANDARD CASING SECTION



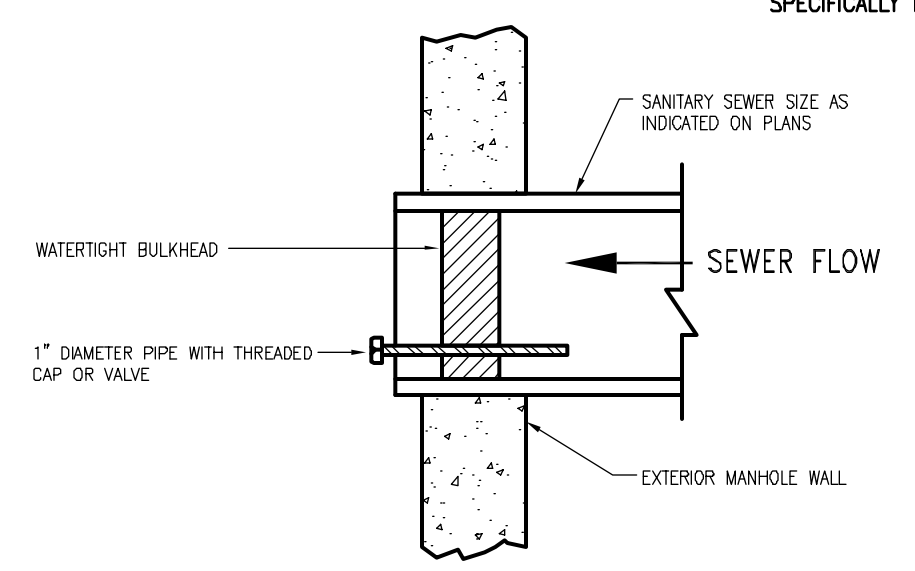
DETAIL OF SANITARY SEWER CLEANOUT



HOUSE LEAD DETAIL



SUMP MANHOLE FOR TESTING, CLEANING & DEWATERING



BULKHEAD WITH PIPE TAP FOR TESTING

- BACKFILL**
BACKFILL SHALL BE COMPACTED ABOVE PIPE OR AS INDICATED ON CONSTRUCTION DRAWINGS. TRENCH BACKFILL SHALL BE A SUITABLE MATERIAL AND SHALL BE FREE OF ANY ORGANIC MATERIALS AND LARGE ROCKS. UNDER ROAD SURFACES, PAVEMENT, SIDEWALKS, CURBS, DRIVEWAYS AND AREAS WHERE TRENCH IS WITHIN A 1:1 INFLUENCE OF THE PAVEMENT, SAND BACKFILL SHALL BE USED WHICH SHALL CONSIST OF MDOT GRANULAR MATERIAL CLASS II OR III COMPACTED IN LAYERS NOT TO EXCEED 12" IN THICKNESS TO A DENSITY OF 95% AS DETERMINED BY ASHTO T99. ALL BACKFILL PLACED WITHIN 3' OF STRUCTURES SHALL BE APPROVED SAND, PLACED IN 1' LAYERS AND COMPACTED. TRENCHES WHICH ARE TO BE LEFT OPEN OVERNIGHT SHALL BE ENCLOSED WITH SUITABLE FENCING AND LIGHTED BARRICADES, UNLESS OTHERWISE APPROVED BY THE CITY.
- CHEMICALLY WELDED JOINTS**
JOINTS FOR ABS TRUSS PIPE SHALL BE CHEMICALLY WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION AND THE CURRENT ASTM DESIGNATIONS D2680 AND D2325. ADDITIONALLY, ALL EXPOSED ENDS OF TRUSS PIPE SHALL BE FULLY AND THOROUGHLY COATED WITH PLASTIC JOINTING CEMENT PRIOR TO MAKING JOINTS SO AS TO SEAL ENDS AND ELIMINATE THE POSSIBILITY OF FALSE LOW PRESSURE AIR TESTS. CARE SHALL BE TAKEN TO INSURE ALL JOINTS ARE PUSHED TO THE FULL "HOME" POSITION AND HELD TIGHTLY IN THE "HOME" POSITION DURING ANY GRADE OR LINE ADJUSTMENTS. PIPE SHALL BE ROTATED DURING JOINT INSERTION TO INSURE A COMPLETE SPREAD OF JOINTING CEMENT. ABS PLASTIC CEMENT PRIMER AND ABS PLASTIC PIPE CEMENT SHALL ARRIVE AT THE JOB SITE IN SEALED AND LABELED CONTAINERS. "JOHNNY MOPS" OR SIMILAR SWAB TYPE APPLICATORS SHALL BE USED TO APPLY PRIMER AND CEMENT. OPENED CONTAINERS IN THE TRENCH SHALL BE PROTECTED FROM DIRT, WATER, AND OTHER CONTAMINANTS.
- ELASTOMERIC GASKET JOINTS**
JOINTS FOR PVC TRUSS PIPE AND FITTINGS SHALL BE OF THE ELASTOMERIC GASKET PUSH-ON TYPE. SUCH JOINTS SHALL CONFORM TO THE CURRENT ASTM DESIGNATION D3212 AND THE PIPE MANUFACTURER SHALL FILE WITH THE CITY OF WESTLAND A COPY OF CERTIFIED TEST RESULTS OF ITS JOINTING SYSTEM PRIOR TO USE. GASKET JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH PROCEDURES SPECIFIED BY THE PIPE MANUFACTURER, SUCH THAT THE GASKET WILL BE COMPRESSED (NOT DISPLACED) IN THE JOINT TO FORM A POSITIVE SEAL. CARE SHALL BE TAKEN TO INSURE ALL JOINTS ARE PUSHED TO THE FULL "HOME" POSITION AND HELD TOGETHER IN THE "HOME" POSITION DURING ANY GRADE OR LINE ADJUSTMENTS.
- CUTTING AND HANDLING**
CUTTING OF PIPE LENGTHS, WHERE REQUIRED, SHALL BE PERFORMED WITH TOOLS OR EQUIPMENT THAT WILL PROVIDE A NEAT, PERPENDICULAR CUT WITHOUT DAMAGE TO THE PLASTIC OR THE FILLER MATERIAL. BOWING OR WARPING OF TRUSS PIPE CAN OCCUR WITH TEMPERATURE FLUCTUATIONS. THE CONTRACTOR SHALL STORE AND PROTECT THE PIPE TO MINIMIZE BOWING. NOMINAL 12' OR LONGER PIPE LENGTHS HAVING DEVIATIONS FROM STRAIGHT GREATER THAN 1", AS MEASURED ALONG A STRAIGHT LINE, SHALL NOT BE USED.
- SPECIAL CONDITIONS**
TO MAINTAIN THE FLEXIBILITY OF THE PIPE MATERIALS, CONCRETE ENCASEMENT OF DROP CONNECTIONS SHALL NOT BE USED. DROP CONNECTIONS SHALL BE ENCASED IN ANGULAR GRADED STONE (MDOT 21A, 21AA, OR 22A). WHERE ADAPTORS TO OTHER MATERIALS ARE REQUIRED, ONLY APPROVED ADAPTORS AND JOINTS MAY BE USED. WHERE THE CONNECTIONS ARE MADE TO EXISTING MANHOLES, A RUBBER WATERSTOP SHALL BE USED AROUND THE PIPE.
"AS-BUILT" PLANS SHALL BE PROVIDED TO THE CITY OF WESTLAND BY THE ENGINEER AND "AS-BUILT" PLANS SHALL SPECIFICALLY DESIGNATE WHERE ABS TRUSS OR PVC TRUSS SEWER PIPE WAS INSTALLED.

AT ALL CONNECTIONS TO AN EXISTING SEWER OR EXTENSIONS THEREOF A WATERSTOP BULKHEAD WITH A CAPPED 1 INCH DIAMETER PIPE TO PERMIT MEASURING INFILTRATION SHALL BE PROVIDED. A TEMPORARY 12 INCH DEEP SUMP SHALL ALSO BE PROVIDED IN THE FIRST MANHOLE UPSTREAM FROM THE CONNECTION WHICH WILL BE FILLED AFTER SUCCESSFUL COMPLETION OF ANY INFILTRATION TEST UP TO THE STANDARD FILLET PROVIDED FOR THE FLOW CHANNEL.



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CITY OF WESTLAND
STANDARD STORM SEWER DETAILS

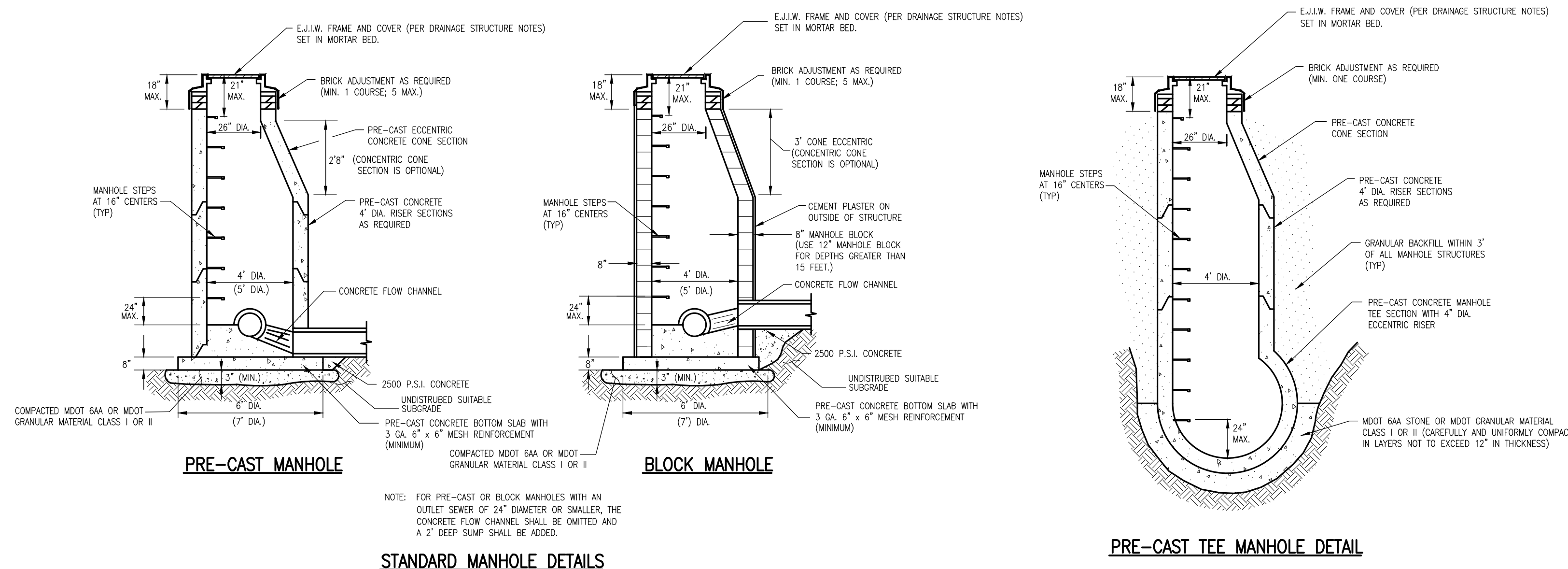
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1
OF 2

GENERAL NOTES FOR STORM SEWER CONSTRUCTION

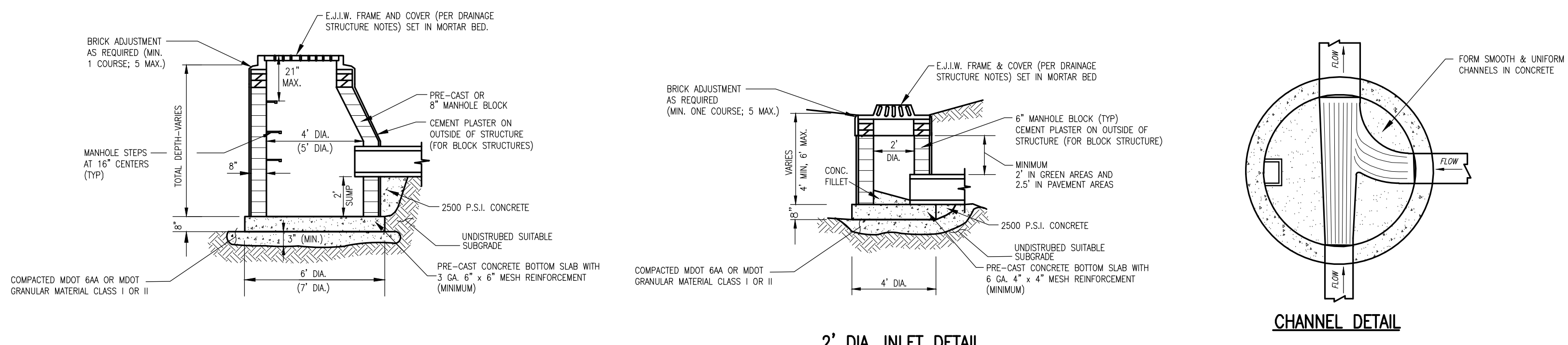
- All materials and workmanship shall be in accordance with the standards and specifications of the City of Westland.
 - Type and class of pipe shall be as specified on plans.
 - Bedding shall be used as called for on the details.
 - All end sections 18" and larger shall be provided with a galvanized 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:

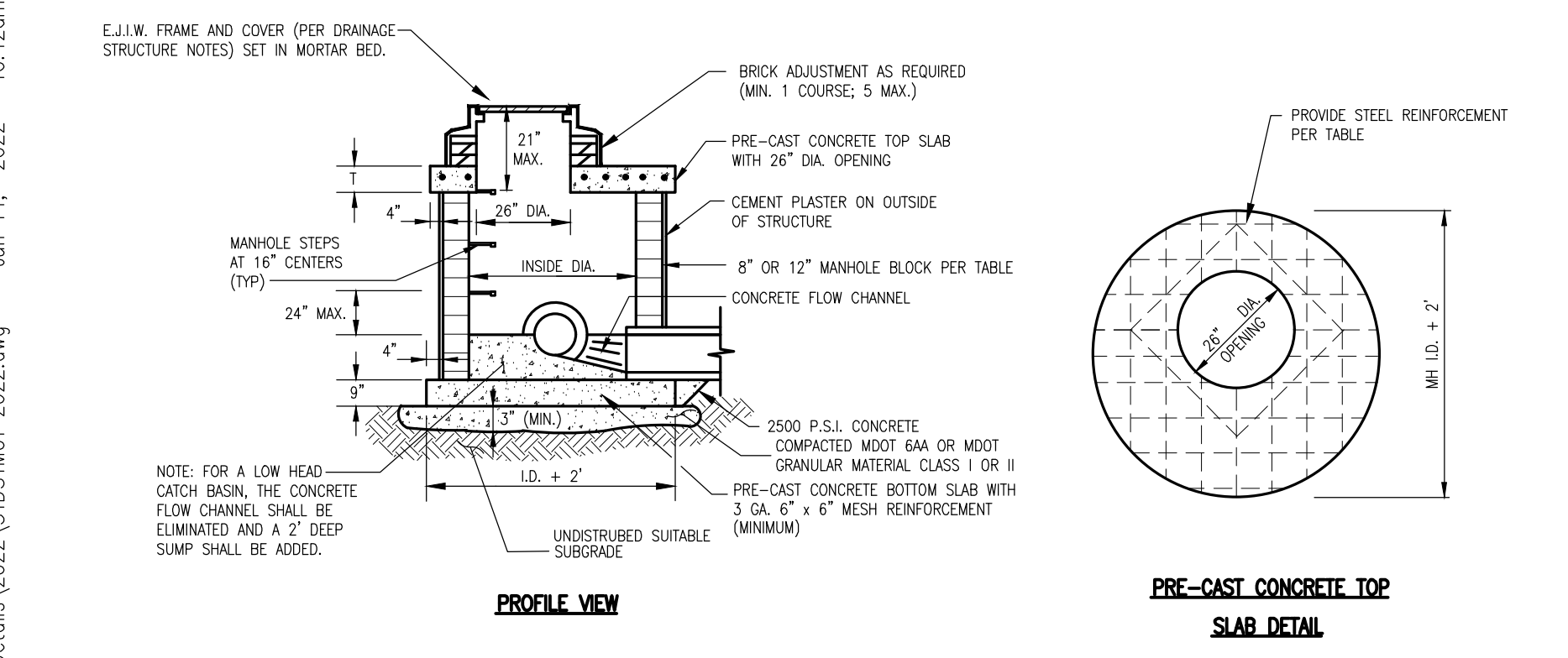
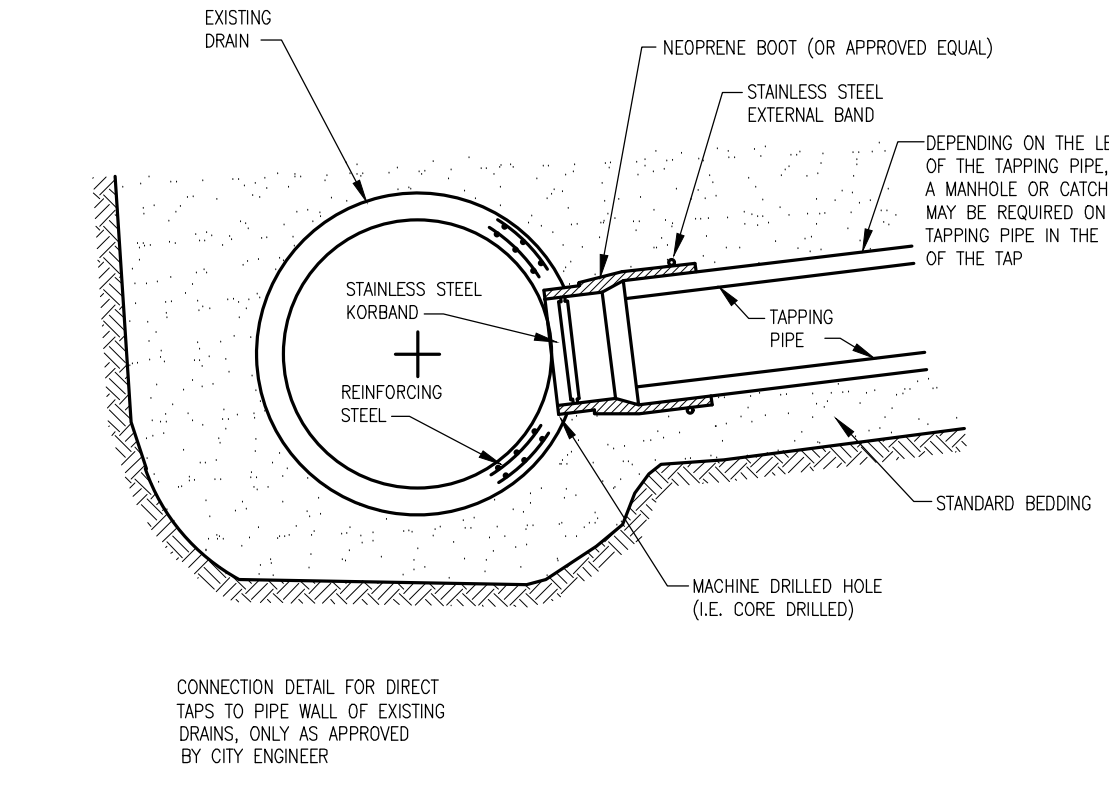
- All manholes and catch basins shall be 4' or 5' in diameter unless otherwise indicated on construction drawings. Larger diameter drainage structures (6", 7", 8", 10", 12" diameter) may be needed for large storm sewer pipe or for situations where the angles between entering pipes require a larger diameter 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 topping 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 tamped, 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



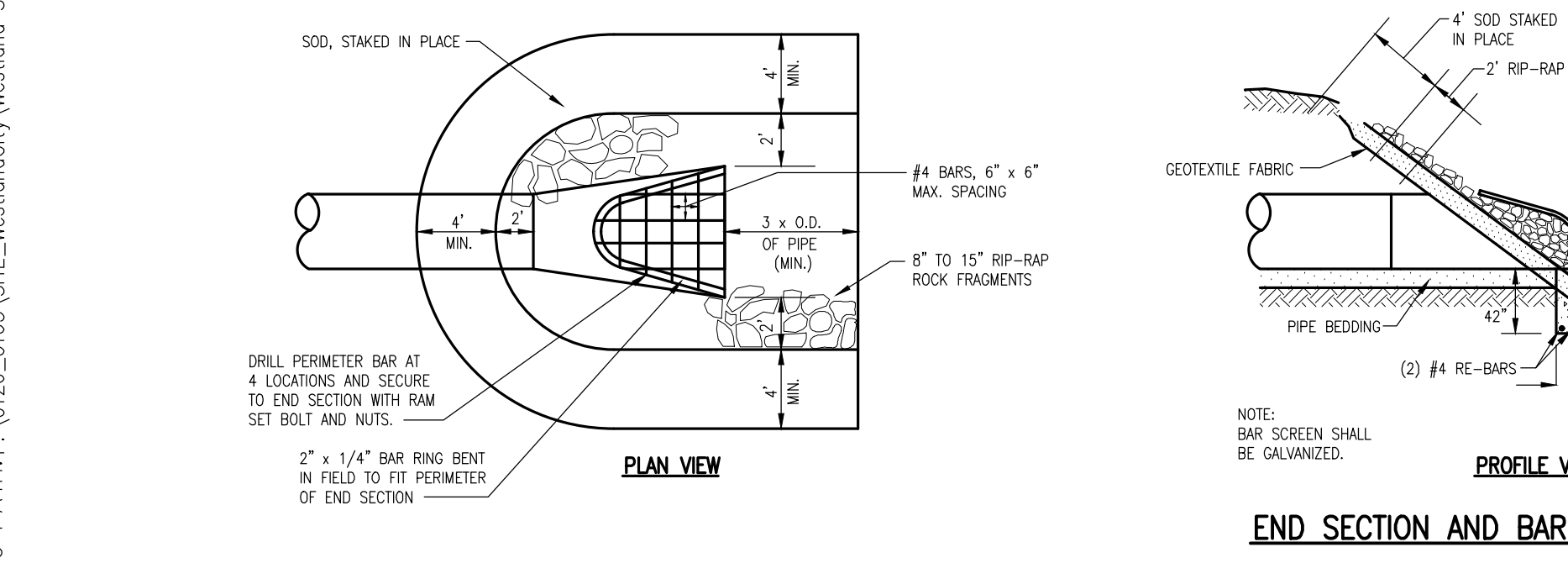
KOR-N-TEE TAP FOR CONCRETE PIPE



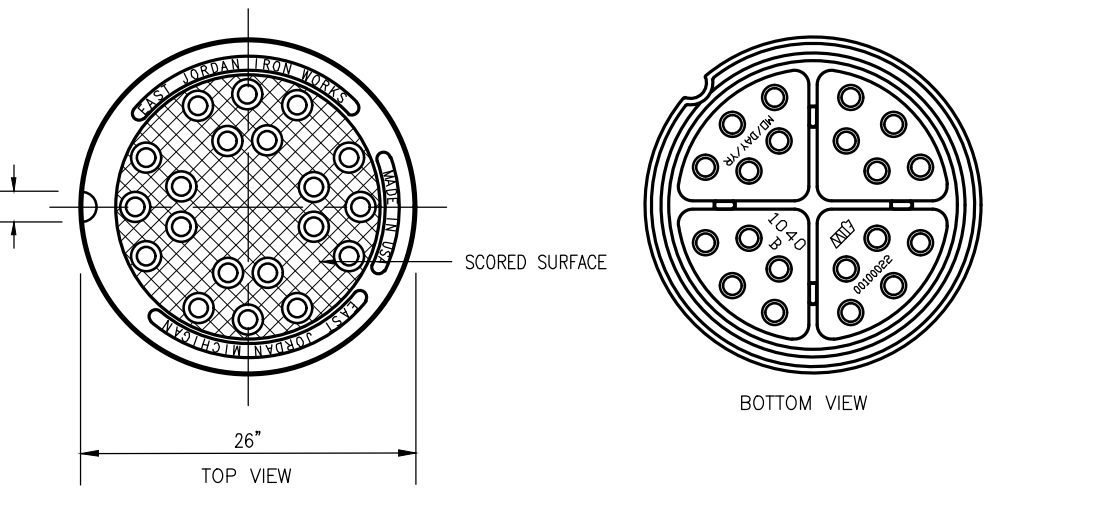
LOW HEAD MANHOLE AND CATCH BASIN DETAIL

OUTLET PIPE DIA.	M.H. I.D.	TOP SLAB 11"	M.H. BLOCK	TOP SLAB 11"
24" OR LESS	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\31E_WestlandCityWestland_Standard Details\2022\STDSTIM01_2022.dwg Jun 14, 2022 10:12am

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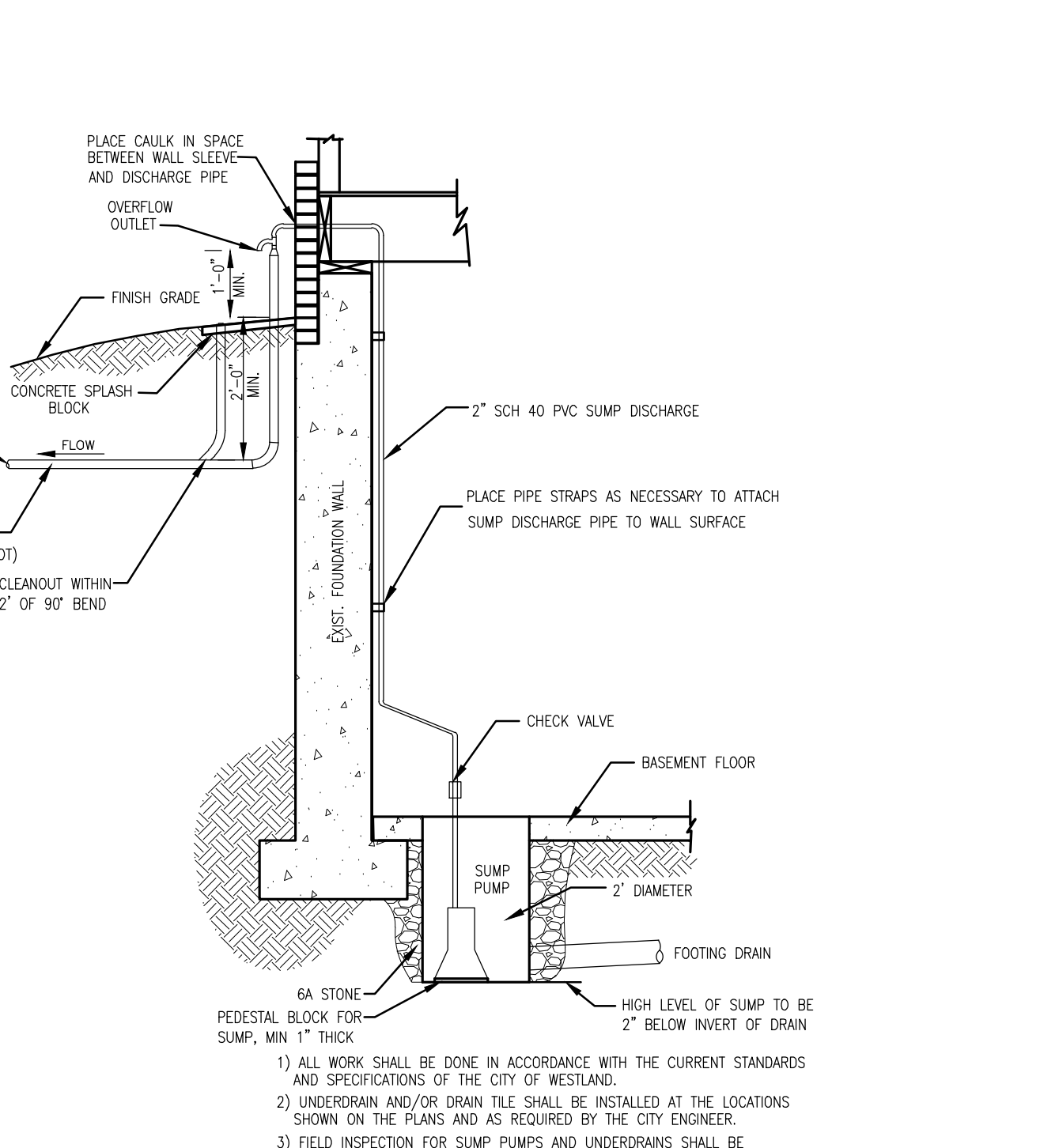
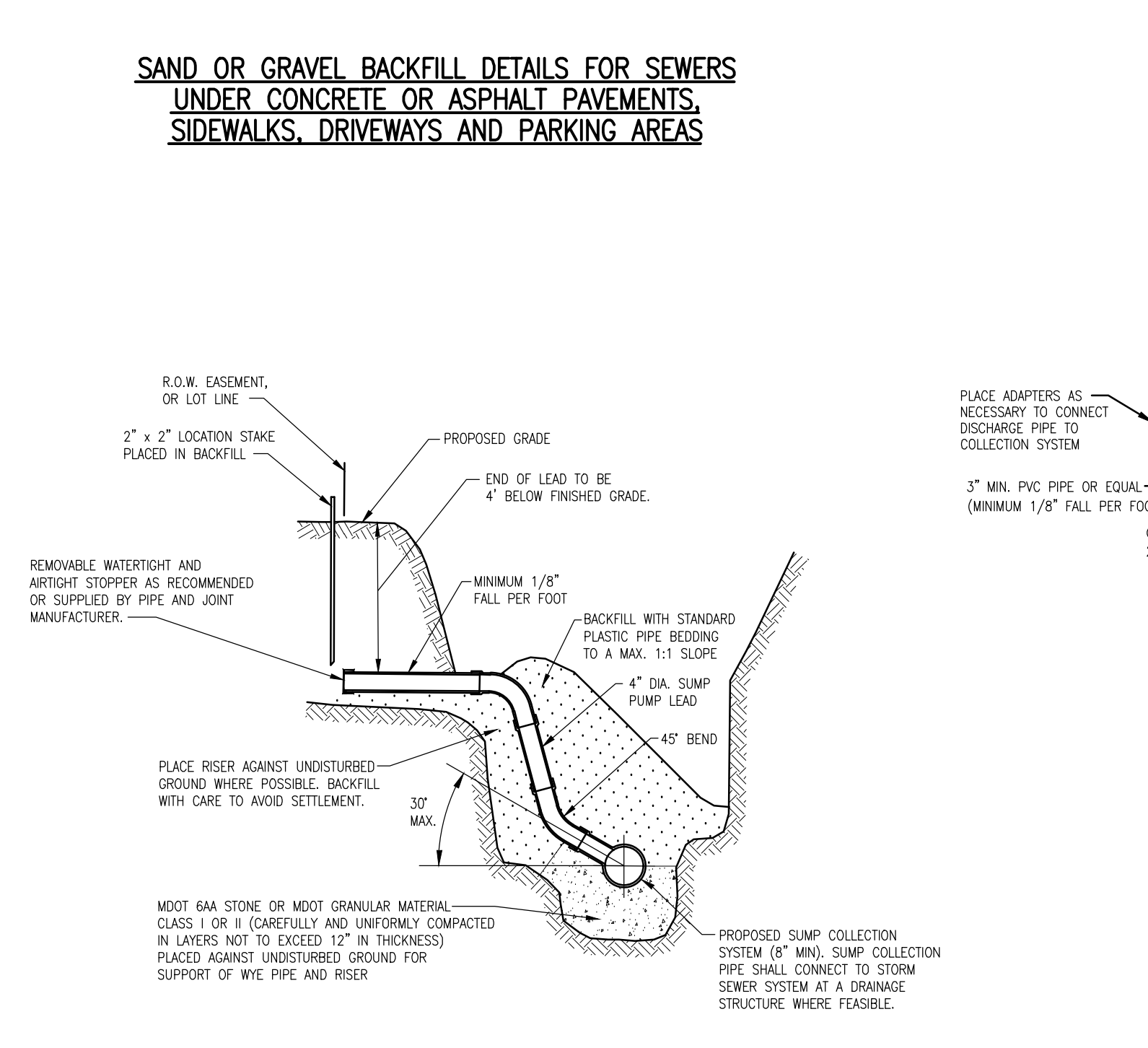
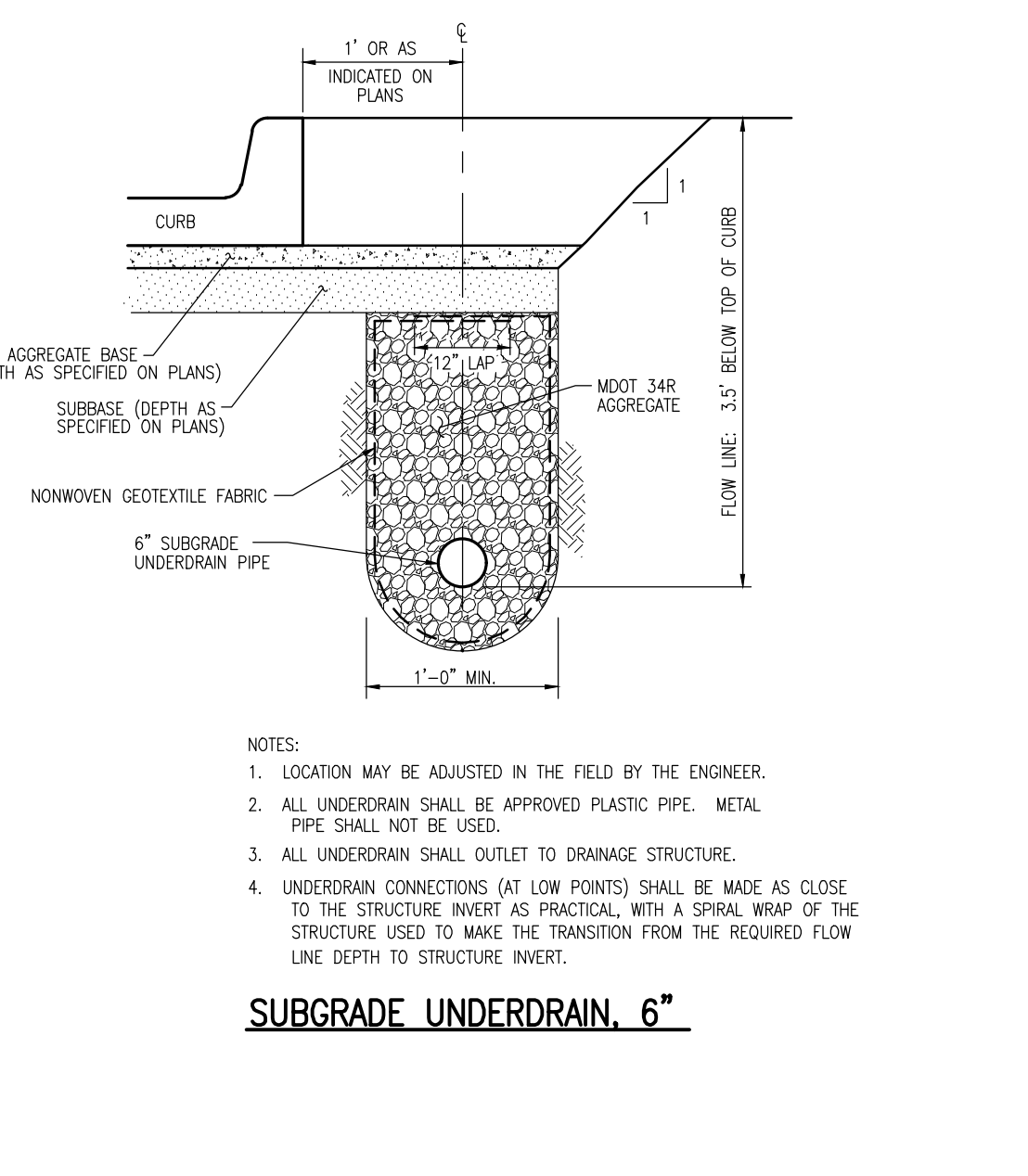
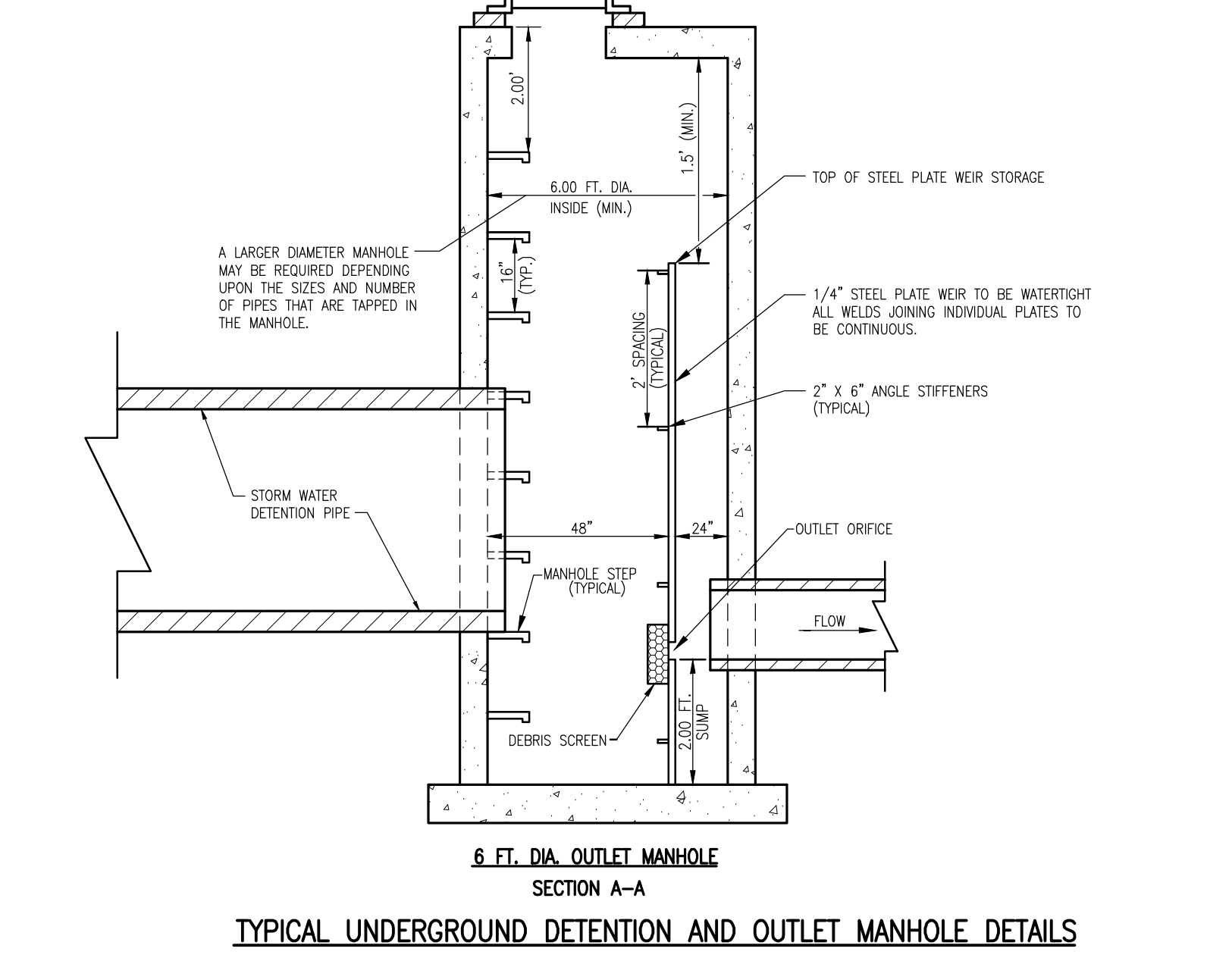
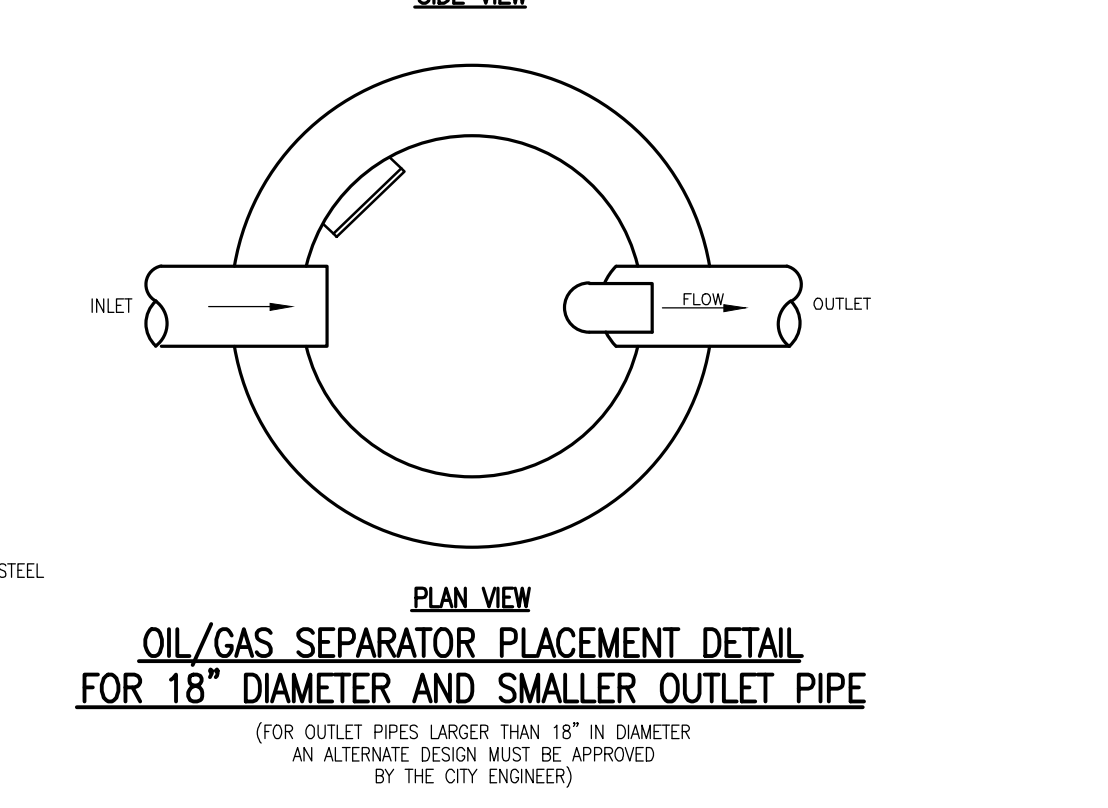
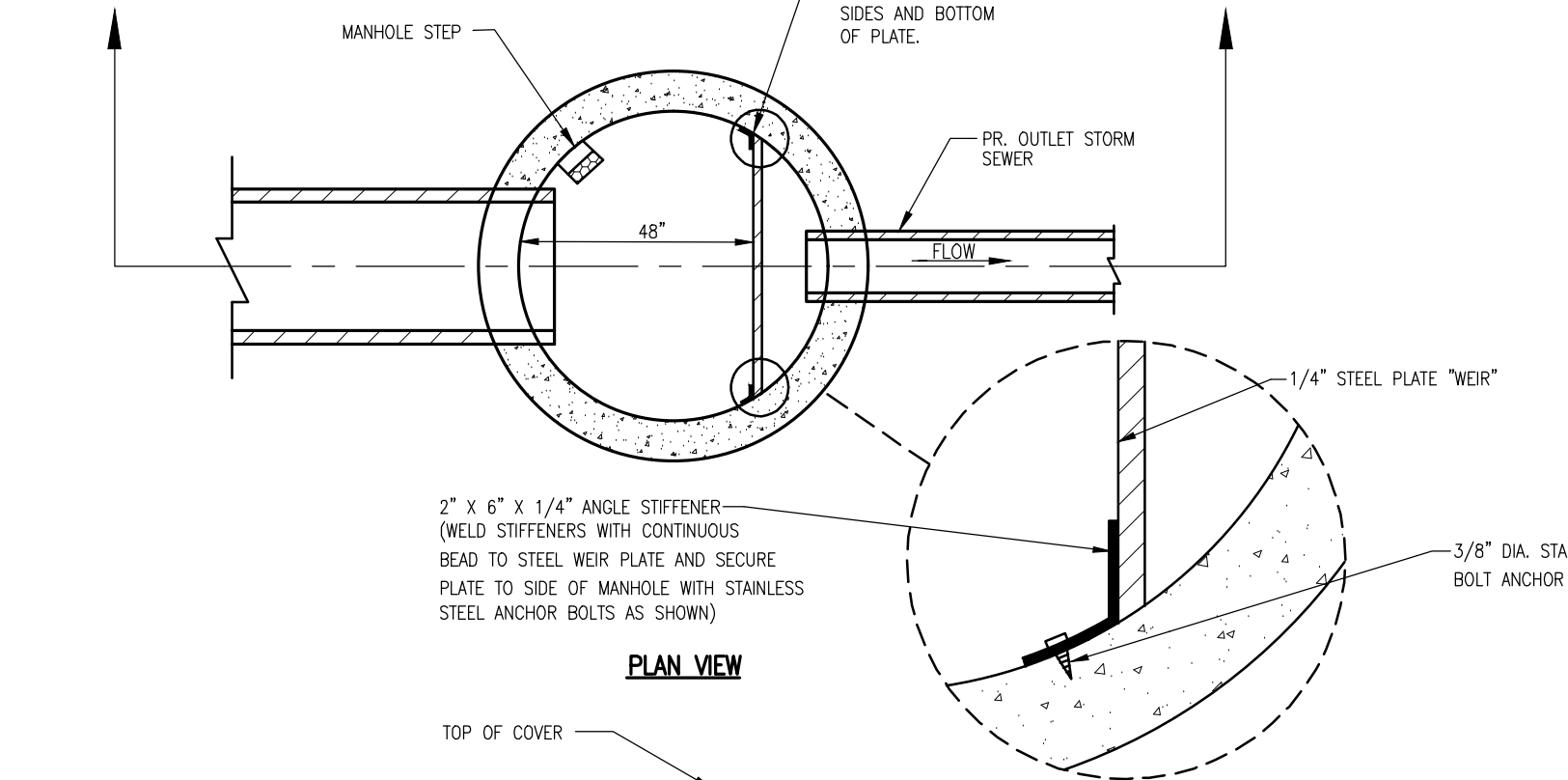
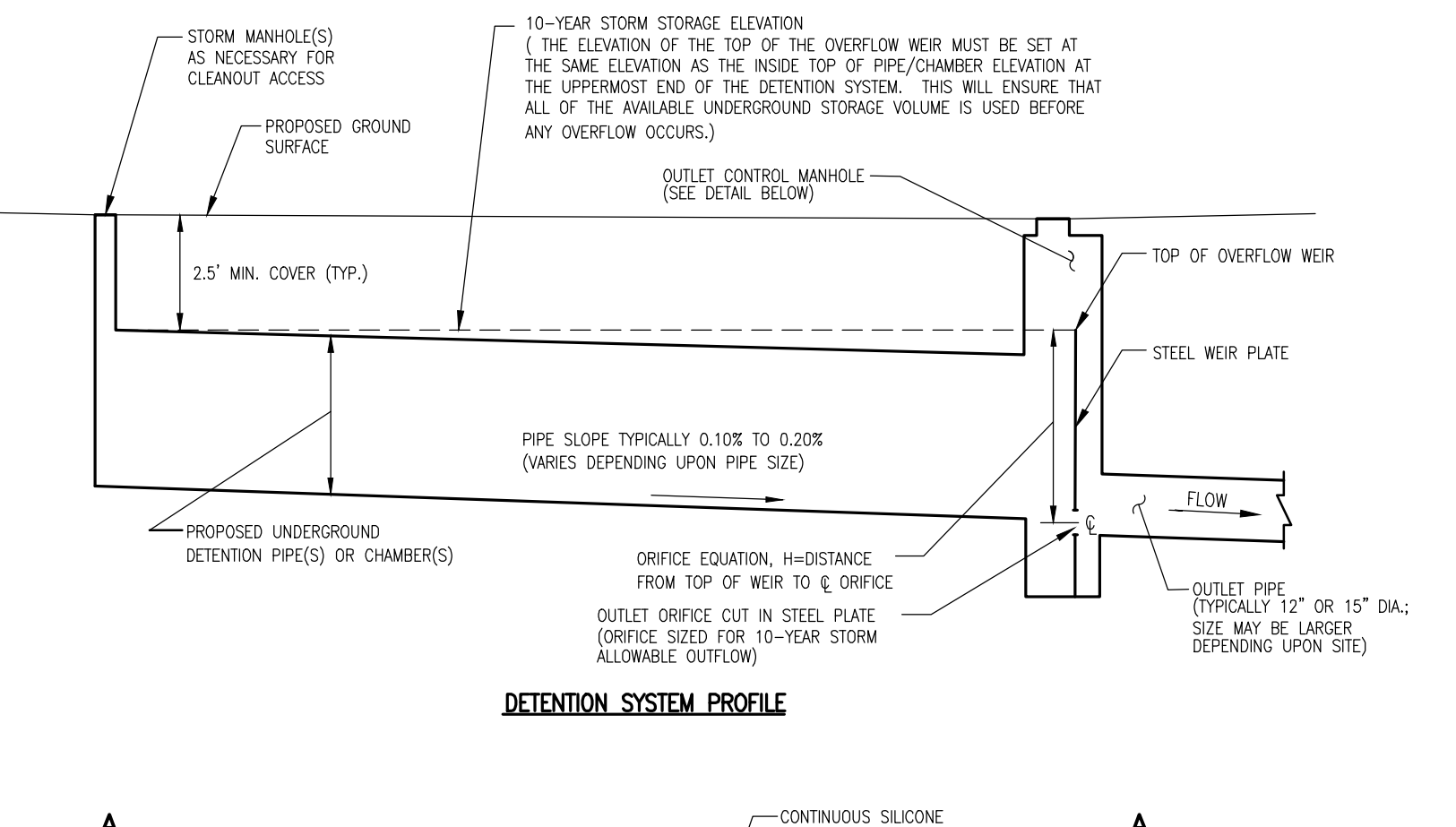
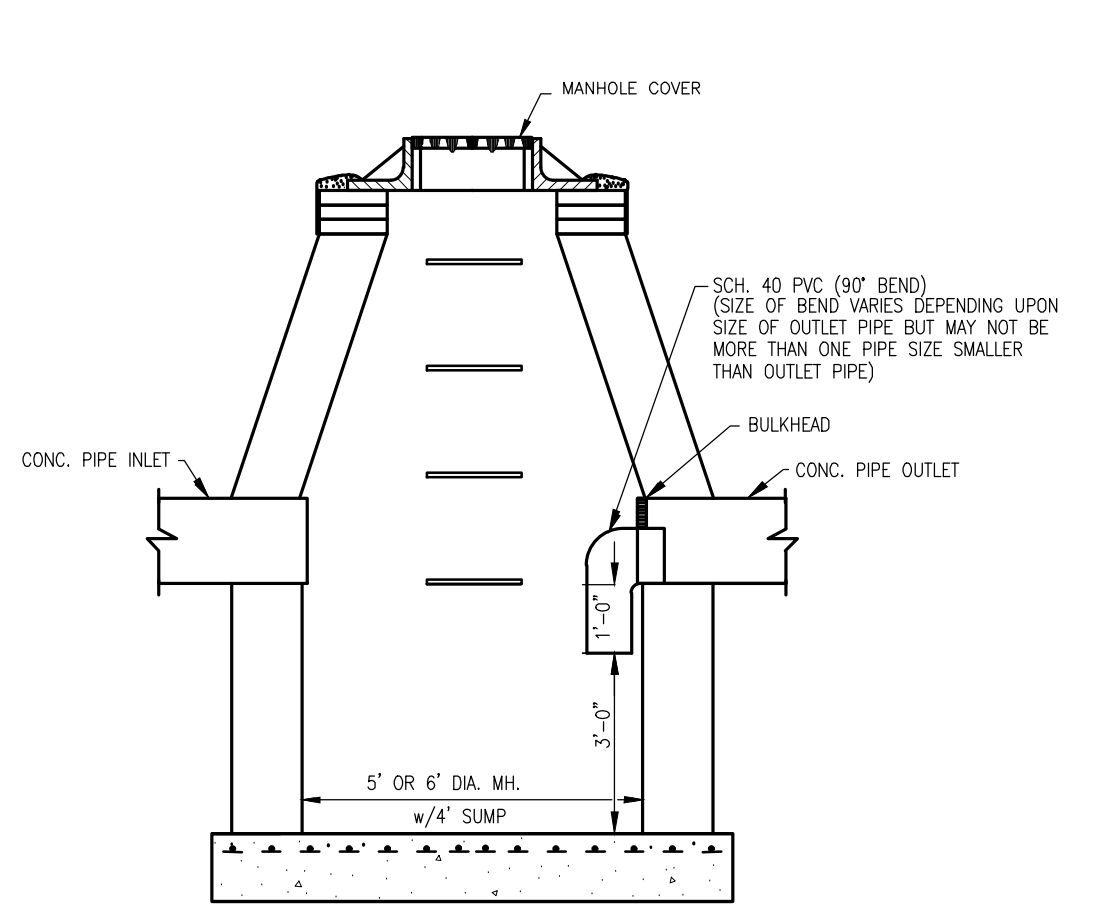
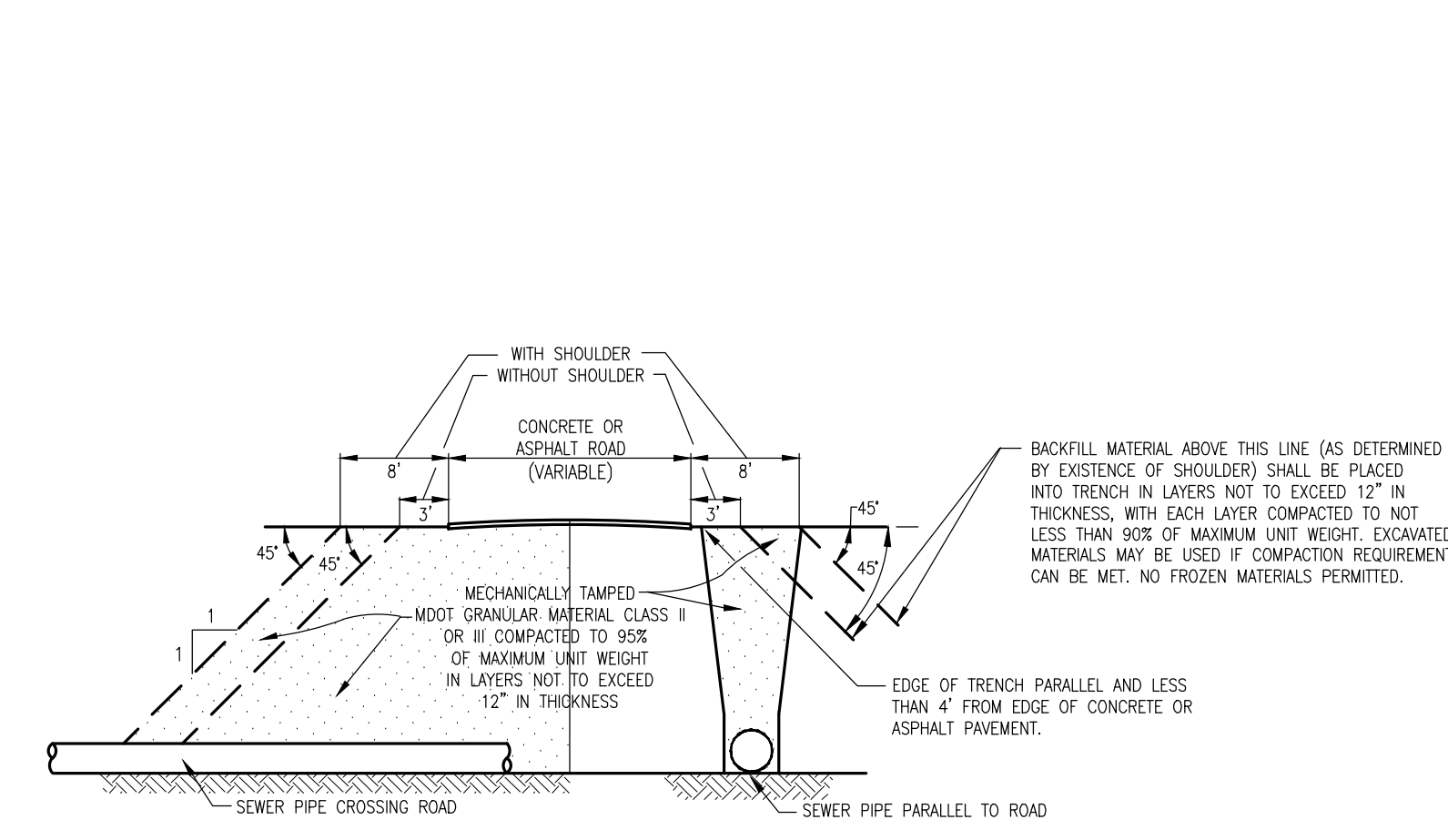
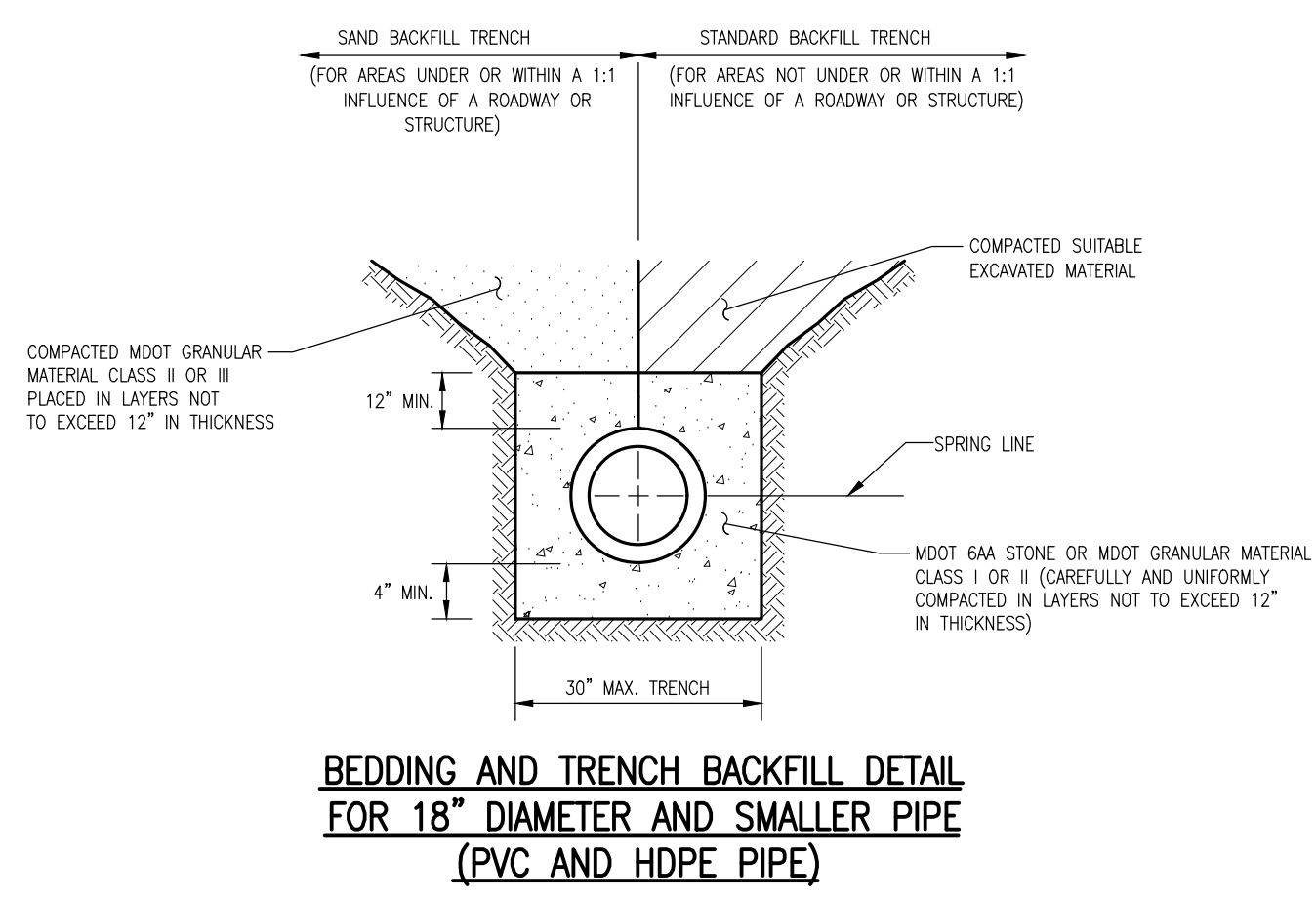
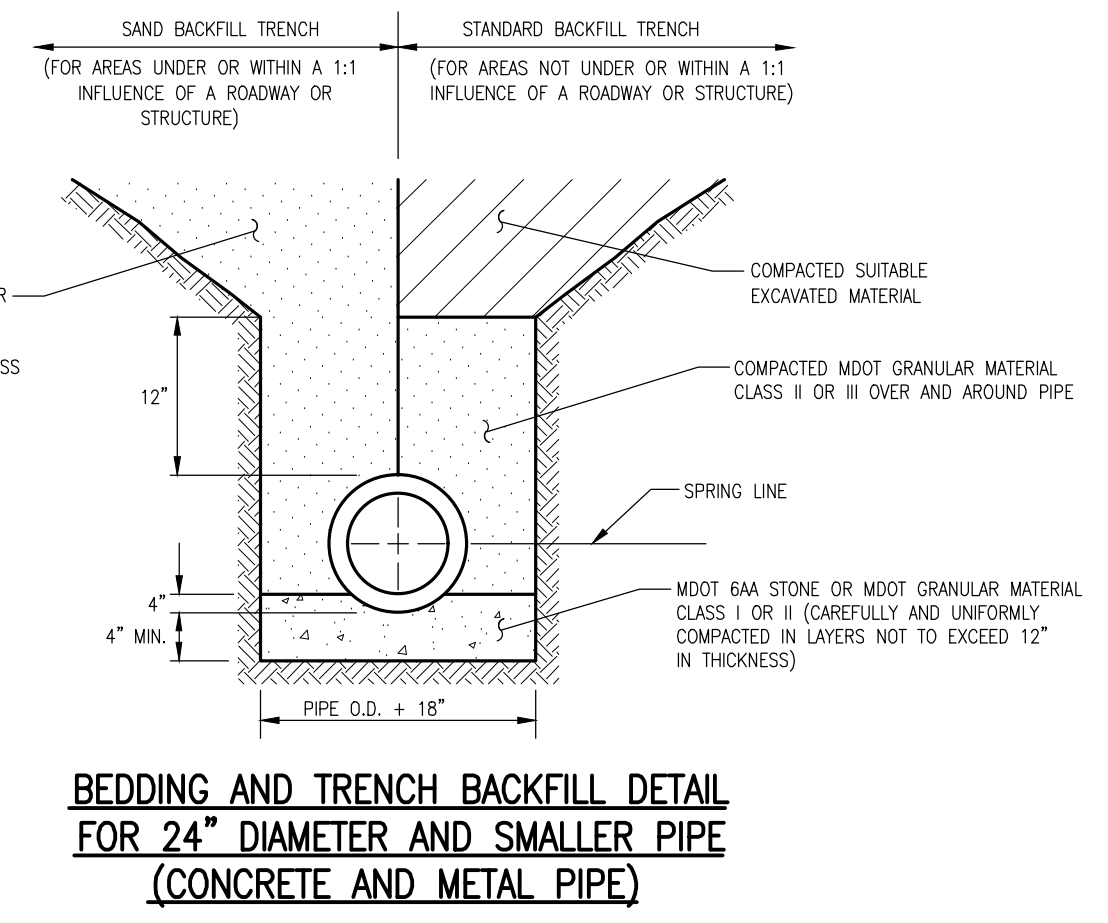
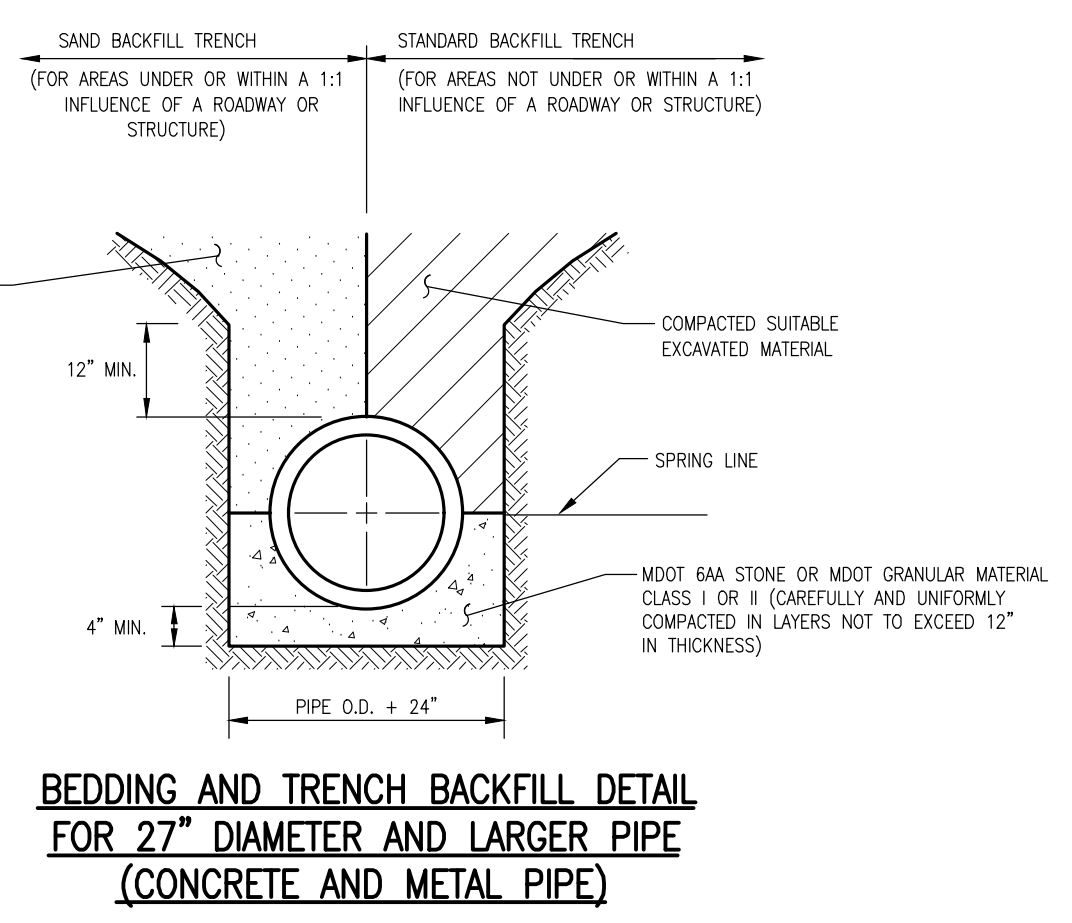
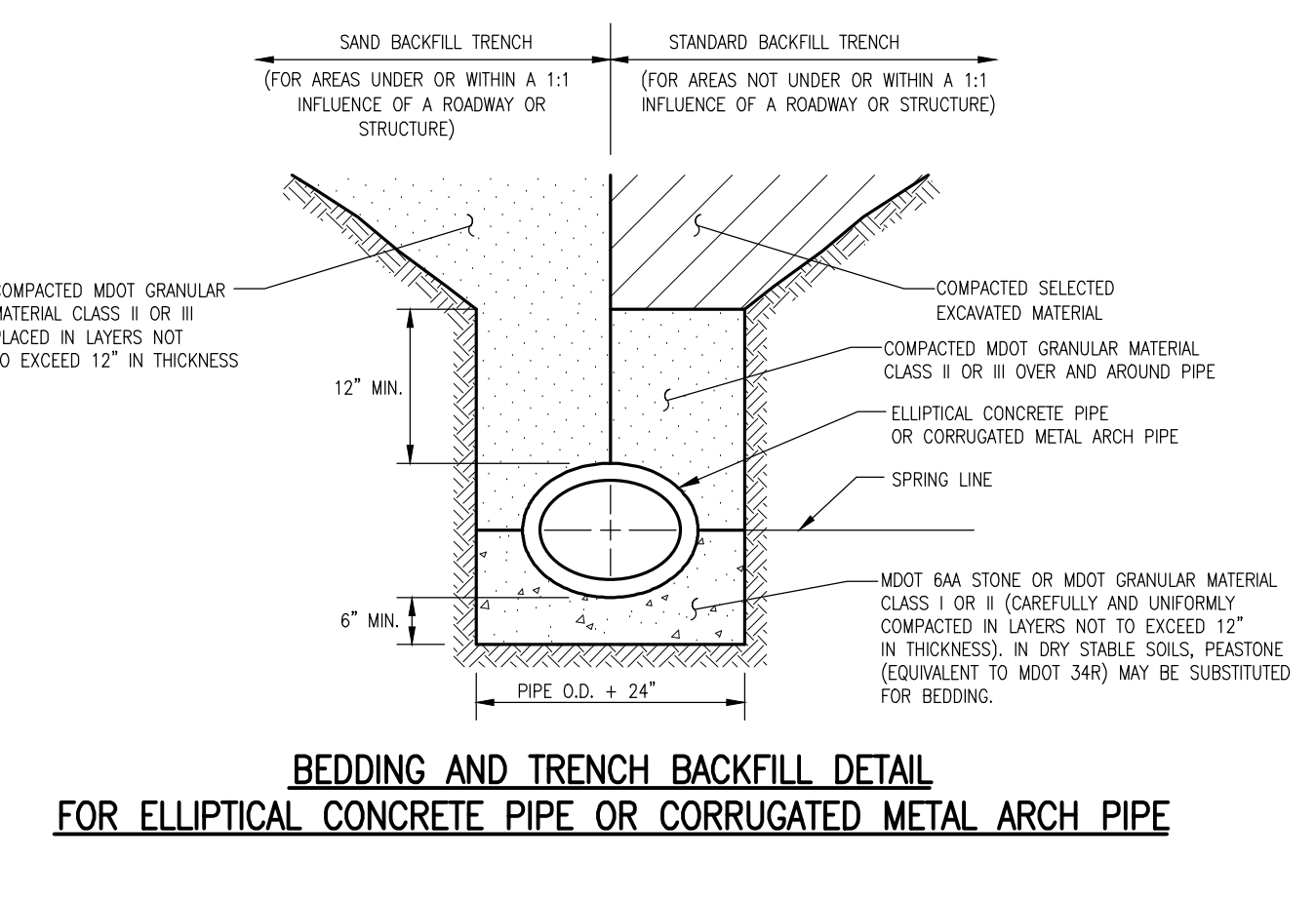


CITY OF WESTLAND
STANDARD STORM SEWER DETAILS

CITY/TOWNSHIP: WESTLAND COUNTY: WAYNE PROJECT NO.: 2022-0126 DATE: JUN 2022

34000 Plymouth Road Livonia, MI 48150 | P (734) 522-6711 | F (734) 522-6427 WWW.OHM-ADVISORS.COM

SHEET 2 OF 2



- NOTES:
1. LOCATION MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
 2. ALL UNDERDRAIN SHALL BE APPROVED PLASTIC PIPE. METAL PIPE SHALL NOT BE USED.
 3. ALL UNDERDRAIN SHALL OUTLET TO DRAINAGE STRUCTURE.
 4. UNDERDRAIN CONNECTIONS (AT LOW POINTS) SHALL BE MADE AS CLOSE TO THE STRUCTURE INVERT AS PRACTICAL, WITH A SPIRAL WRAP OF THE STRUCTURE USED TO MAKE THE TRANSITION FROM THE REQUIRED FLOW LINE DEPTH TO STRUCTURE INVERT.

- 1) ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF WESTLAND.
- 2) UNDERDRAIN AND/OR DRAIN TILE SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE PLANS AND AS REQUIRED BY THE CITY ENGINEER.
- 3) FIELD INSPECTION FOR SUMP PUMPS AND UNDERDRAINS SHALL BE PERFORMED BY THE ENGINEERING DIVISION.

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