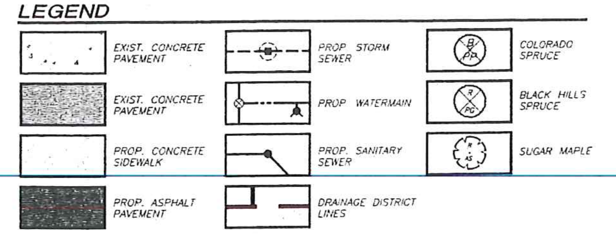
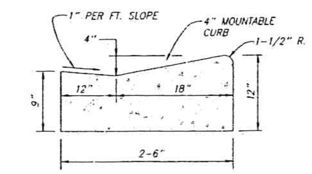
COVER SHEET

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

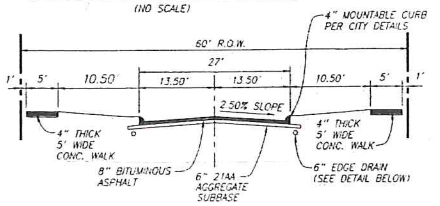
LEGEND





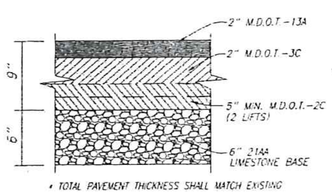
4" MOUNTABLE CONCRETE CURB DETAIL

(NO SCALE)



TYPICAL ROAD SECTION

(NO SCALE)

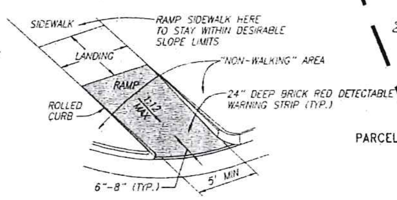


9" ASPHALT PAVEMENT DETAIL (4-LIFTS)

REFER TO CITY SPECS.

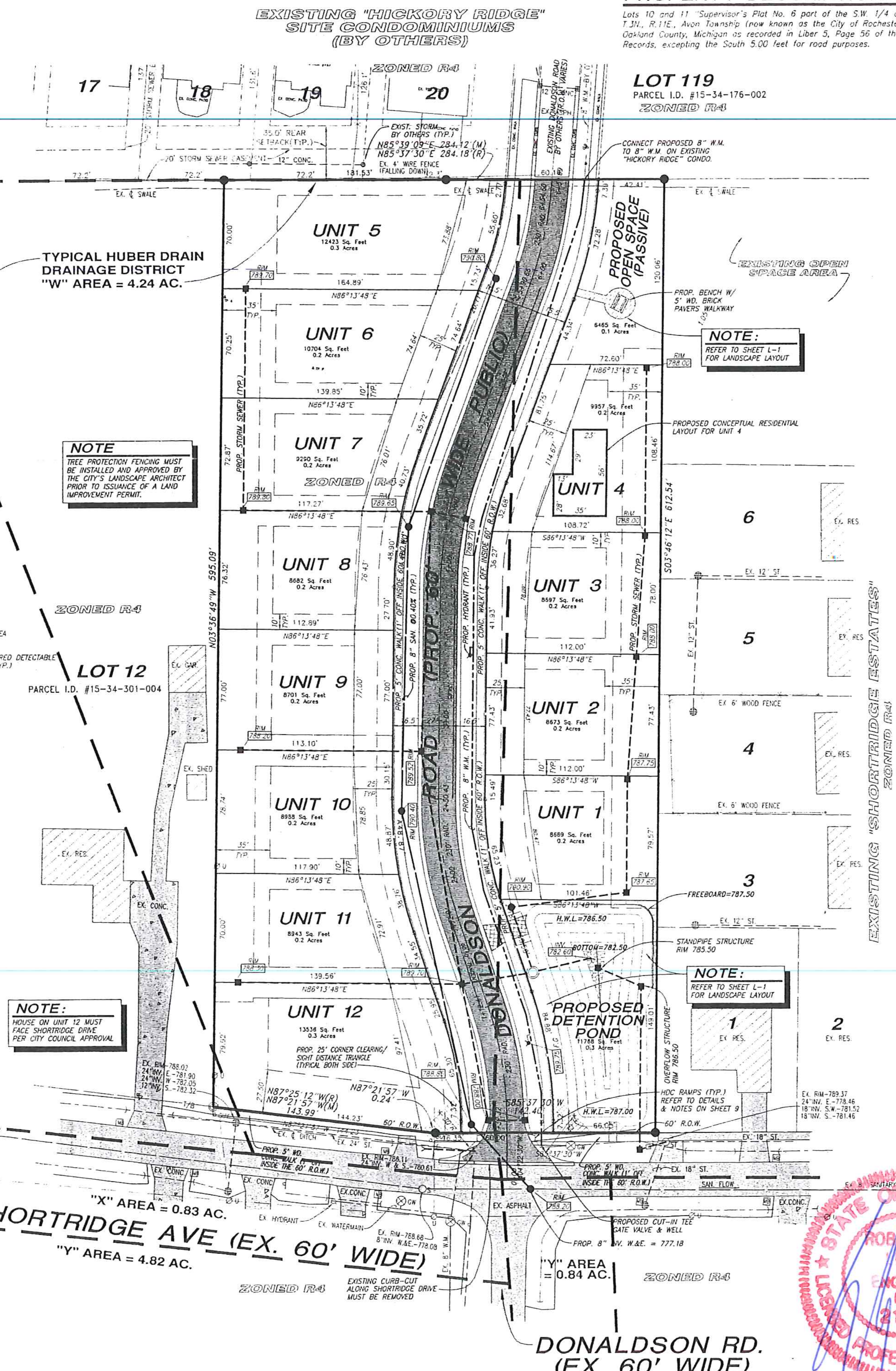
(NO SCALE)

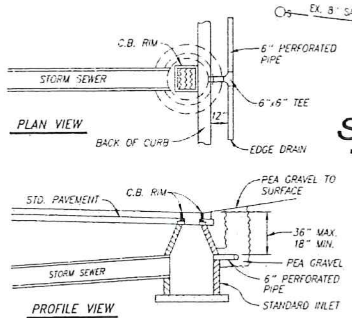
REFER TO DETAILS & NOTES ON SHEET 9 OF ENGINEERING PLANS FOR WALKSWAY W/HDC RAMPS



HANDICAP RAMP SIDEWALK DETAIL

REFER TO MDOT DETAIL R-28-I





EDGE DRAIN DETAIL

(NO SCALE)

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE) for the location of underground utilities

Contractor Note: The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

SANITARY SEWER CAPACITY DESIGN

INITIAL SERVICE AREA

1. POPULATION:
   EXISTING SITE = 2 REU

   2 REU x 3.5 PEOPLE/REU = 7 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100\ G.P.C.D.)(7\ PEOPLE)}{(60)(60)(24)(7.48)}$
   = 0.00108 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{0.007}}{4 + \sqrt{0.007}} = 4.428$

   PEAK FLOW=(0.00108)(4.428)=0.00478 C.F.S.

SANITARY SEWER CAPACITY DESIGN

ULTIMATE SERVICE AREA

1. POPULATION:
   PROPOSED CONDOMINIUM SITE = 12 DETACHED CONDO UNITS

   12 UNITS x 3.5 PEOPLE/REU = 42 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100\ G.P.C.D.)(42\ PEOPLE)}{(60)(60)(24)(7.48)}$
   = 0.00649 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{0.042}}{4 + \sqrt{0.042}} = 4.329$

   PEAK FLOW=(0.00649)(4.329)=0.0281 C.F.S.
4. CAPACITY OF AN 8" @ 0.40% = 0.75 CFS ∴ OK

SANITARY SERVICE AREA FOR 10" SEWER ON HAZELTON AT GRACE AVE. (PRIOR TO DEVELOPMENT)

1. 557 REU x 3.5 PEOPLE/REU = 1950 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100\ G.P.C.D.)(1950\ PEOPLE)}{(60)(60)(24)(7.48)}$
   = 0.3017 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{1.95}}{4 + \sqrt{1.95}} = 3.595$

   PEAK FLOW=(0.3017)(3.595)=1.0846 C.F.S.

SANITARY SERVICE AREA FOR 10" SEWER ON HAZELTON AT GRACE AVE. (AFTER DEVELOPMENT)

1. 567 REU x 3.5 PEOPLE/REU = 1985 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100\ G.P.C.D.)(1985\ PEOPLE)}{(60)(60)(24)(7.48)}$
   = 0.307 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{1.985}}{4 + \sqrt{1.985}} = 3.588$

   PEAK FLOW=(0.307)(3.588)=1.102 C.F.S.

PROPERTY DESCRIPTION

Lots 10 and 11 "Supervisor's Plat No. 6 part of the S.W. 1/4 of Section 34, T.3N., R.11E., Avon Township (now known as the City of Rochester Hills), Oakland County, Michigan as recorded in Liber 5, Page 56 of the Oakland Records, excepting the South 5.00 feet for road purposes.

NORTH

SCALE: 1"=40'

BENCHMARKS

1. RR SPIKE IN N. FACE UTILITY POLE BETWEEN HOUSE #586 & 605 SHORTRIDGE. ELEVATION = 773.31
2. PK IN N. FACE UTILITY POLE BETWEEN HOUSE #711 & 733 SHORTRIDGE. ELEVATION = 785.05

(OLD CITY DATUM)

SEDIMENTATION POND DESIGN CALCULATIONS

REQUIRED VOLUME CALCULATIONS:

RESIDENTIAL AREA = 3.98 Ac. @ C = 0.35

V(REQ) = (3.98)(4,320)(0.35) = 6,018 CU.FT.

REQUIRED AREA FOR SEDIMENTATION:

$A_m = (V_{required}) / h_w$

h_w = 2.50' DEEP

= (6,018)/ 2.5 = 2,407 SQ.FT.

ORIFICE REQUIRED:

$a = \frac{0.3988 \times A_m \times \sqrt{h_w}}{172,800}$

$a = \frac{0.3988 \times 2,407 \times \sqrt{2.50}}{172,800} = 0.00878$ SQ.FT.

AREA OF 1" HOLE = 0.00545 SQ.FT.
AREA OF HOLES = 4 • 0.00545 SQ.FT.
AREA OF HOLES = 0.0218 SQ.FT. > 0.00878 SQ.FT. ∴ OK

∴ USE 4 EACH 1" DIA. HOLES WITH A STANDPIPE RIM SET @ 785.50 AT THE DESIGN H.W.L. ELEV.

POND SIZING CALCULATION

(OAKLAND COUNTY DRAIN COMMISSION METHOD)

A) TRIBUTARY AREA: 3.98 ACRES AT PROPOSED C = 0.35

B) ALLOWABLE OUTFLOW = 0.2 CFS / ACRE = 0.796 CFS AT AGRICULTURAL RATE

C) 25 YEAR FREQUENCY STORM DETENTION REQUIRED

$Q_o = \frac{(Ac.)\cdot(0.20\ CFS/Ac.)}{(Ac.)x(PROPOSED\ "C")} = \frac{0.20}{0.35} = 0.57$

$T = \sqrt{\frac{8,062.5}{Q_o}} - 25 = 93.9$ MINUTES

$V_s = \frac{12,900T}{T + 25} - 40Q_oT$

= 10,187.6 − 2,140.9 = 8,046.7 CU. FT. / ACRE•IMPERVIOUS

$V_{REQUIRED} = (A) \times (V_s) \times (C_{PROPOSED})$
= (3.98 Ac.)•(8,046.7)•(0.35)
= 11,209.5 CU. FT.

VOLUME PROVIDED:

$V = \frac{1}{3}(A_T + A_B + \sqrt{A_T \times A_B}) \times (H) = 11,209.05$ C.F.

POND CONTOUR AREA	DEPTH	VOLUME
$A_{786.50}$ = 6,577.1 S.F.		
	h = 1.0'	V = 5,506.1 C.F.
$A_{785.50}$ = 4,500.5 S.F.		
	h = 1.0'	V = 3,561.2 C.F.
$A_{784.50}$ = 2,698.4 S.F.		
	h = 1.0'	V = 1,899.6 C.F.
$A_{783.50}$ = 1,199.5 S.F.		
	h = 1.0'	V = 647.1 C.F.
$A_{782.50}$ = 223.7 S.F.		
		V =11,613.4 C.F.

TOTAL VOLUME PROVIDED = 11,613.4 C.F. > 11,209.05 C.F. ∴ O.K.

FREEBOARD = 787.50
HIGH WATER LEVEL = 786.50
OVERFLOW: TO SHORTRIDGE DRIVE EXISTING DITCH
OUTLET: RESTRICTED TO SHORTRIDGE DRIVE DRAIN

ALLOWABLE OUTFLOW

TRIBUTARY ACREAGE: A = 3.98 acre
ALLOWABLE OUTFLOW = 0.20 cfs/acre:
Q_A = (0.20 cfs/acre) x (3.98 acre) = 0.796 cfs

OUTLET RESTRICTION SIZE

$Q_A = 0.62 \times a \times 2 \times g \times h = 0.796$ cfs

h = 786.50 − 782.50 = 4.00'

$a = \frac{0.796\ cfs}{0.62\sqrt{2 \times 32.2 \times 4.00}} = 0.0799$ s.f.

Dia. pipe = 0.3189 ft. = 3.83 in.

USE 4" P.V.C. SCHD. 40 AS MINIMUM DIAMETER PER ENGINEERING ORDINANCE

WEIR CALCULATION FOR EMERGENCY OVERFLOW SPILLWAY

WEIR EQUATION. $Q = 2/3 \times B \times \sqrt{2 \times G} \times H^{3/2}$

USING Q = 6.2 CFS & G = 32.2 FT/SEC^2

ASSUME WEIR WIDTH "B" = 5' & HEIGHT, "H" = 0.50'

$Q = 2/3 \times 5' \times \sqrt{2 \times 32.2} \times 0.50'^{3/2}$

= 9.5 CFS > 6.2 CFS ∴ O.K. (USE WIDTH=5' & HEIGHT=0.50')

LOCATION MAP

SCALE: 4" = 1 MILE

SITE CRITERIA

- PARCEL IDENTIFICATION #: (LOT 11) 15-34-301-005 and (LOT 12) 15-34-326-012
- EXISTING ZONING: R4
- ADJACENT ZONINGS: R4
- GROSS AREA OF SITE: 173,292.6 S.F. (3.98 AC.)
- NET AREA OF SITE: 173,292.6 S.F. (3.98 AC.)
- PROPOSED USE: SINGLE FAMILY SITE CONDOMINIUM w/ PUBLIC ROAD
- UNIT SUMMARY (UNIT AVERAGING 10% REDUCTION):
  - MINIMUM UNIT SIZE: 8,640 S.F.
  - DENSITY PERMITTED: 135,480 S.F./8,640 S.F. = 16 UNITS
  - DENSITY PROVIDED: 12 UNITS
  - MINIMUM UNIT FRONTAGE: 72' (MEASURED AT FRONT SETBACK LINE) (PER ZONING ORDINANCE)
  - MINIMUM UNIT CORNER FRONTAGE: 92' (MEASURED AT FRONT SETBACK LINE) (PER ZONING ORDINANCE)

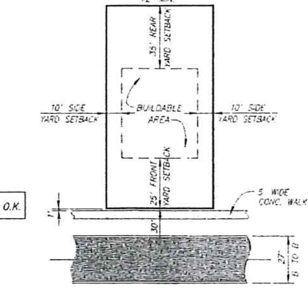
  BUILDING SETBACKS: FRONT = 25', REAR = 35', SIDE = 10

UNIT AVERAGING

UNIT	FRONTAGE	UNIT AREA (SQ. FT.)
1	80.47'	8,689
2	77.43'	8,673
3	78.09'	8,697
4	114.67'	9,957
5	73.88'	12,423
6	74.64'	10,704
7	76.01'	9,290
8	76.43'	8,682
9	77.00'	8,701
10	78.85'	8,988
11	72.91'	8,943
12	97.41'	13,536
TOTAL	977.79'	117,283
AVERAGE	= 81.48'	9,774

UTILITY SUMMARY

- WATER MAIN: MUNICIPAL
- SANITARY SEWER: MUNICIPAL
- STORM SEWER: ENCLOSED PIPE WITH OUTLET TO EXISTING DRAIN



TYPICAL SETBACKS

(NO SCALE)

NOTE MAX LOT COVERAGE SHALL BE 30% OF LOT AREA

NOTE MAX HOUSE HEIGHT SHALL BE 2.5 STORIES OR 30 FEET

NOTE THIS SCHEME AND LAYOUT WAS CHOSEN SO IT COULD ALIGN WITH DONALDSON TO THE NORTH & SOUTH.

NOTE ALL FUTURE DRIVEWAYS WILL BE ACCESSED VIA DONALDSON ROAD.

NOTE PRIOR TO THE ISSUANCE OF A LAND IMPROVEMENT PERMIT FUNDS WILL BE DEPOSITED WITH THE CITY TO PERMIT THE INSTALLATION OF ONE STREET PER UNIT.

NOTE NO STREET LIGHTING OR SIGN ARE PROPOSED FOR THIS SITE.

NOTE A POST CONSTRUCTION BMP WILL BE PROVIDED PRIOR TO THE INLET TO THE POND.

NOTE ALL UTILITIES AND GRADING SHOWN ARE FOR PLANNING PURPOSED ONLY. EXACT UTILITY LOCATIONS AND GRADING TO BE DETERMINED DURING ENGINEERING.

NOTE CONSTRUCTION SITE SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14

NOTE OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIAL. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. FIRE PREVENTION ORDINANCE CH. 58, SEC. 307.6.2 & 307.6.2.3

NOTE R401.3 DRAINAGE. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION SO AS TO NOT CREATE A HAZARD. LOTS SHALL BE GRADED SO AS TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE AWAY FROM FOUNDATION WALLS SHALL FALL A MINIMUM OF 6 INCHES (152 mm) WITHIN THE FIRST 10 FEET (3048 mm)

EXCEPTION: WHERE LOT LINES, WALLS, SLOPES OR OTHER PHYSICAL BARRIERS PROHIBIT 6 INCHES (152 mm) OF FALL WITHIN 10 FEET (3048 mm), DRAINS OR SWALES SHALL BE PROVIDED TO ENSURE DRAINAGE AWAY FROM THE STRUCTURE.

LANDSCAPE NOTE

1. REFER TO LANDSCAPE PLAN PREPARED BY FPA DATED 7-17-15 FOR DETENTION POND AREA.
2. PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC ROAD. SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 5' FROM THE EDGE OF THE PUBLIC WALKWAY. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC WALKWAY. NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY STREET RIGHT-OF-WAY LINES AT A DISTANCE ALONG EACH LINE OF 25' FROM THEIR POINT OF INTERSECTION. NO TREES OR SHRUBS MAY BE PLANTED IN THE TRIANGULAR AREA FORMED AT THE INTERSECTION 10' OF ANY DRIVEWAY WITH A PUBLIC WALKWAY AT A DISTANCE ALONG EACH LINE OF 15' FROM THEIR POINT OF INTERSECTION. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT. SHADE TREES AND EVERGREEN TREES MUST BE AT LEAST 15' AWAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM OF 5' FROM AN UNDERGROUND UTILITY, UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE.
3. PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY DIVISION NEEDS TO INSPECT ALL TREES, EXISTING OR PLANTED, TO IDENTIFY ANY THAT POSE A HAZARD TO THE SAFE USE OF THE PUBLIC RIGHT-OF-WAY. FORESTRY MAY REQUIRE THE DEVELOPER TO REMOVE, AND POSSIBLE REPLACE, ANY SUCH TREES.

STATE OF MICHIGAN ROBERT W. LINDH ENGINEER No. 21871 LICENSED PROFESSIONAL ENGINEER

SHEET INDEX

SUPPLEMENTAL

CITY FILE NO. 05-011.2, SECTION 34
COVER SHEET 1 OF 9

PROPOSED "THE COMMONS SOUTH"

FOR: VAQAR SIDDIQUI
3530 FOREST HILL ROAD
BLOOMFIELD HILLS, MI 48302
313-399-3915

Job No. 140403	DATE	ADDITIONS AND/OR REVISIONS	BY:
Date 8-26-05	7-20-15	REVISED PER CITY REVIEW	JN
Scale 1"=40'	5-29-15	REVISED PER CITY REVIEW	KG
Drawn S.R.T./CY	4-7-15	REVISED PER CITY REVIEW 10/2014	KG
Check R.A.W.	2-27-15	REVISED PER WRC	KG
Sheet 1 OF 9			
Fld. Bk.			

URBAN LAND CONSULTANTS ©
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
8800 23 MILE ROAD SHELBY TWP., MI 48316-4516
PHONE 586 731-8030
FAX 586 731-2605

SOIL

11B CAPAC SANDY LOAM (0 TO 4% SLOPES)
0"-8" VERY DARK GRAYISH-BROWN SANDY LOAM, 8"-20" BROWN CLAY LOAM, 20"-32" GRAYISH-BROWN CLAY LOAM, 32"-60" PALE BROWN LOAM MODERATELY SLOW PERMEABILITY, SLOW RUNOFF

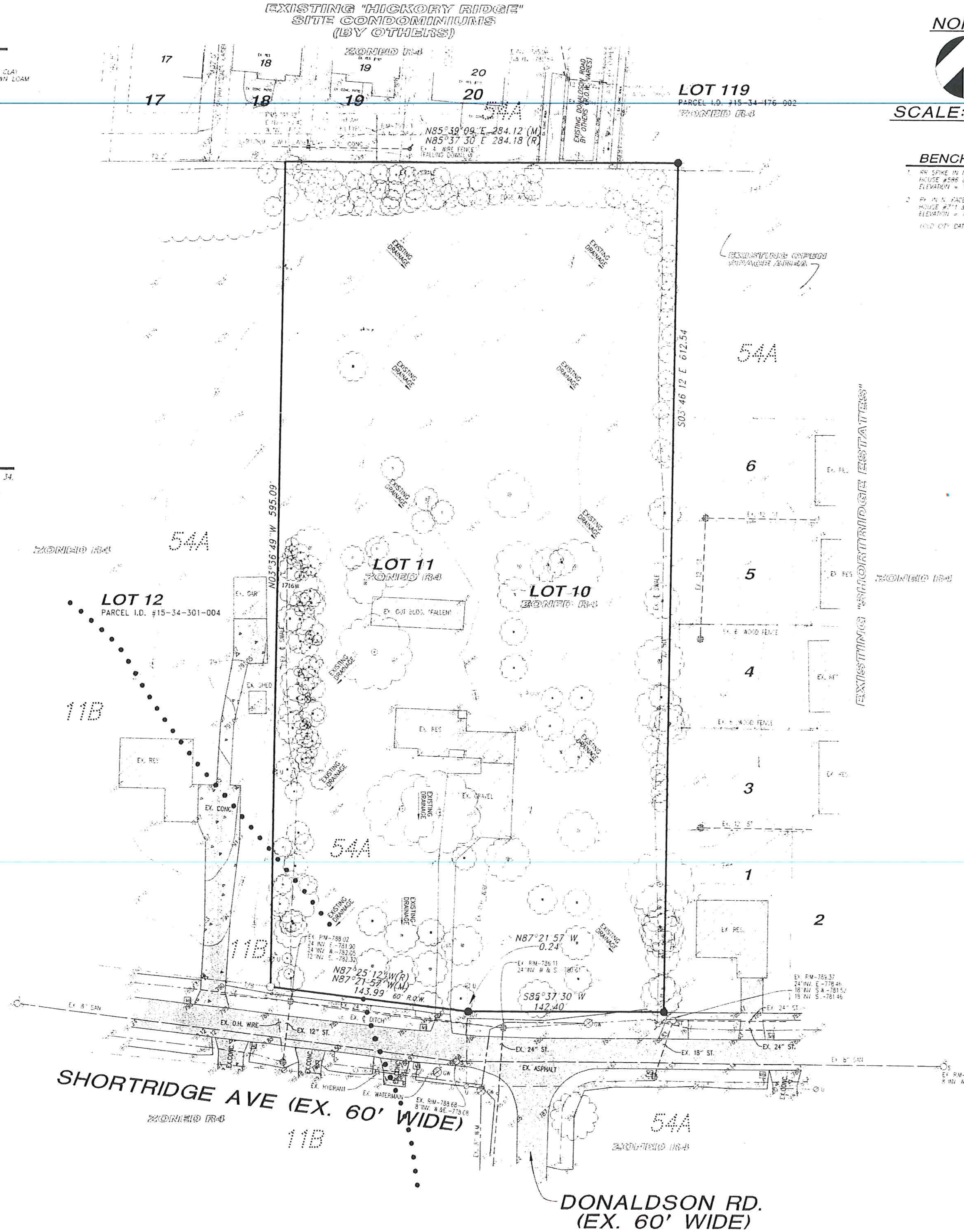
54A MATHERTON SANDY LOAM (0% TO 3% SLOPES)
0"-13" VERY DARK GRAYISH BROWN SANDY LOAM, LOAM
13"-34" GRAYISH BROWN MOTTLED, FRIABLE SANDY LOAM CLAY, GRAVELLY CLAY LOAM
34"-60" LIGHT BROWNISH GRAY GRAVELLY SAND
THE MATHERTON SOMEWHAT POORLY DRAINED, MODERATELY RAPID PERMEABILITY.

LEGEND

- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT
- EXISTING CONTOURS 1' INTERVAL
- EXISTING GRADE
- EXISTING TREE TO BE REMAIN

PROPERTY DESCRIPTION

Lots 10 and 11 "Supervisor's Plat No. 6 part of the S.W. 1/4 of Section 34, T.3N., R.11E., Avon Township (now known as the City of Rochester Hills), Oakland County, Michigan as recorded in Liber 5, Page 56 of the Oakland Records, excepting the South 5.00 feet for road purposes.



3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

Contractor Note
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NORTH

SCALE: 1"=40'

BENCHMARKS

1. RR SPIKE IN N. FACE UTILITY POLE BETWEEN HOUSE #586 & 605 SHORTRIDGE ELEVATION = 773.31
2. RR IN N. FACE UTILITY POLE BETWEEN HOUSE #711 & 733 SHORTRIDGE ELEVATION = 785.05

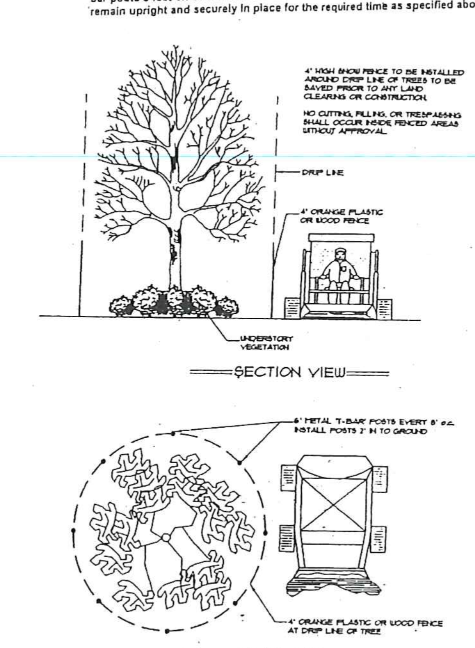
(OLD CITY DATUM)

LOCATION MAP

SCALE: 4" = 1 MILE

TREE PROTECTION NOTES

1. The tree protection fencing (TPF) shall be erected per the plans approved by the City of Rochester Hills Planning Department. The TPF must be in place and be inspected by the City of Rochester Hills' Landscape Architect prior to the start of any earthwork or construction operations. It is the developer's responsibility to contact the City Planning Department at 1-248-656-4660 to schedule a TPF inspection. The TPF shall remain in place throughout the entire construction process or until the City authorizes the removal or issues a final Certificate of Occupancy, whichever occurs first.
2. Upon completion of grading and the installation of the infrastructure a second inspection of the TPF and the trees designated for preservation is required by the City of Rochester Hills' Landscape Architect prior to the start of any additional construction. It is the developer's responsibility to contact the City Planning Department at 1-248-656-4660 to schedule this TPF inspection.
3. Upon completion of all construction and prior to the removal of the TPF the City of Rochester Hills' Landscape Architect must inspect all trees designated to be preserved. The landscape Performance Bond will not be released until this inspection is complete and all related issues are resolved. It is the developer's responsibility to contact the City Planning Department at 1-248-656-4660 to schedule this inspection.
4. A final inspection by the City of Rochester Hills' Landscape Architect is required at the end of the warranty and maintenance period. The landscape Maintenance Bond will not be released until this inspection is complete and all related issues are resolved. It is the developer's responsibility to contact the City Planning Department at 1-248-656-4660 to schedule this inspection.
5. The Tree Conservation Ordinance prohibits any construction or development activities within the drip line of and regulated trees not approved for removal, including but not limited to land clearing, grubbing, trenching, grading or filling, no person shall place any solvents, building material, construction equipment, soil deposits, or harmful materials within the drip line limit of trees designated for preservation.
6. Proposed grades are to match the existing elevations outside the limits of the TPF. No grading either cut or fill is permitted within the drip line of any tree designated for preservation.
7. During the construction process no person shall attach any device or wire/cable/cord/rope to an existing tree designated to be preserved.
8. All utility service requests must included notification to the installer that protected trees must be avoided. All trenching shall occur outside the TPF.
9. Swales shall be routed to avoid the area within the drip line of the any tree designated for preservation. Swales shall be constructed so as not to direct any additional flow into the drip line a tree designated for preservation.
10. If tree protection cannot be maintained for a tree throughout entire period required. The replacement of that tree will be required on and inch for inch basis prior to the issuance of the Certificate of Occupancy.
11. Regulated trees located off-site on adjacent properties that may be affected by construction operations must be protected as defined here in.
12. The TPF shall consist of 4 foot high orange snow fencing to be installed around the drip line of all tree designated to be saved. This fencing shall be supported by 6 foot metal T-bar posts 5 feet on center and driven a minimum of 24" into ground. The TPF fencing shall remain upright and securely in place for the required time as specified above.



TREE PROTECTION DETAIL
CITY OF ROCHESTER HILLS NOT TO SCALE

CITY FILE NO. 05-011.2, SECTION 34
BOUNDARY AND TOPOGRAPHIC SURVEY - SHEET 2 OF 9

BOUNDARY AND TOPOGRAHIC SURVEY

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

DATE	ADDITIONS AND/OR REVISIONS	BY:
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/2014	KG

140403 Job No.
Date 8-26-05
Scale 1"=40'
Drawn CY
Check R.A.W.
Sheet 2 OF 9
Fld. Bk.

PROPOSED
"THE COMMONS SOUTH"

FOR: VAQAR SIDDIQUI
3530 FOREST HILL ROAD
BLOOMFIELD HILLS, MI 48302
313-399-3915

URBAN LAND CONSULTANTS ©
PHONE 586 731-8030
FAX 586 731-2605
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
8800 23 MILE ROAD SHELBY TWP., MI 48316-4516

Tag #	New Tag #	COMMON NAME	SIZE DIA.	REMOVE ?	LOCATION
1255		Sugar Maple	6"		ON-SITE
1414		Bitter Nut Hickory	8"		ON-SITE
1416		Shag Bark Hickory	9"		ON-SITE
1417		Elm	14"		ON-SITE
1702		Elm	8"		ON-SITE
1703		Elm	5",5"		ON-SITE
1704		Elm	7"		ON-SITE
1705		Elm	8"	Bad Structure	ON-SITE
1706		Elm	7"	Bad Structure	ON-SITE
1707		Elm	6"	Bad Structure	ON-SITE
1708		Elm	10"		ON-SITE
1711		Red Maple	4",4",5",6",2"	Bad Structure	ON-SITE
1718		Cotton Wood	7",10"	Bad Structure	ON-SITE
1720		Aspen (Poplar)	7"	Bad Structure	ON-SITE
1721		Aspen (Poplar)	7"	Bad Structure	ON-SITE
1722		White Ash	6"	Bad Structure	ON-SITE
1724		Box Elder	8"		ON-SITE
1725		Box Elder	7"	Bad Structure	ON-SITE
1726		Box Elder	9"	Bad Structure	ON-SITE
1727		Box Elder	6"	Bad Structure	ON-SITE
1728		Box Elder	6"	Bad Structure	ON-SITE
1730		Box Elder	6"	Bad Structure	ON-SITE
1732		Elm	8"	Bad Structure	ON-SITE
1733		Hickory	7"		ON-SITE
1734		Hawthorne	7",6",7"		ON-SITE
1735		Elm	6"		ON-SITE
1736		Shag Bark Hickory	6"		ON-SITE
1737		Elm	8"		ON-SITE
1739		Bass Wood	6"	Bad Structure	ON-SITE
1740		Bass Wood	6",7"	Bad Structure	ON-SITE
1742		Bass Wood	9"	Bad Structure	ON-SITE
1744		Pig Nut Hickory	6"		ON-SITE
1746		Bass Wood	11"	Hollow	ON-SITE
1747		White Oak	7"	Bad Structure	ON-SITE
1749		Sugar Maple	6"		ON-SITE
1750		Hickory	9"		ON-SITE
1751		Red Maple	10",11",4",5",3"	Bad Structure	ON-SITE
1754		Apple	6"		ON-SITE
1755		Hawthorne	6",5",3",3",5"	Bad Structure	ON-SITE
3801		Cottonwood	15"		ON-SITE
3802		Ash	7"	Fell	ON-SITE
3803	1701	Elm	8"		ON-SITE
3804		Cottonwood	20"		ON-SITE
3805		Cottonwood		Dead	ON-SITE
3806		Cottonwood	20"		ON-SITE
3807		Cottonwood	15"		ON-SITE
3808		Cottonwood	24"		ON-SITE
3809		Red Maple	8"	Bad Structure	ON-SITE
3810		Green Ash	8"	Fell	ON-SITE
3811	1708	White Spruce	7"		ON-SITE
3812	1710	White Spruce	12"		ON-SITE
3813		White Spruce	6"		ON-SITE
3814		White Spruce	13"		ON-SITE
3815		White Spruce	5"		ON-SITE
3816		White Spruce	10"		ON-SITE
3817		White Spruce	7"		ON-SITE
3818		White Spruce	8"		ON-SITE
3819		White Spruce	6"	Dead	ON-SITE
3820		White Spruce	8"		ON-SITE
3821		White Spruce	6"		ON-SITE
3822		White Spruce	13"		ON-SITE
3823		White Spruce	6"		ON-SITE
3824		White Spruce	4"		ON-SITE
3825		White Spruce	5"		ON-SITE
3826		White Spruce	8"		ON-SITE
3827		White Spruce	10"		ON-SITE
3828		White Spruce	11"		ON-SITE
3829		White Spruce	5"	Dying	ON-SITE
3830		White Spruce	5"		ON-SITE
3831		White Spruce	7"		ON-SITE
3832		Norway Spruce	14"		ON-SITE
3833		White Spruce	4"		ON-SITE
3834		White Spruce	7"		ON-SITE
3835		White Spruce	10"		ON-SITE
3836		White Spruce	9"		ON-SITE
3837		White Spruce	14"		ON-SITE
3838		White Spruce	6"		ON-SITE
3839	1712	White Spruce	4"		ON-SITE
3840		White Spruce	11"		ON-SITE
3841	1713	White Spruce	11"		ON-SITE
3842		White Spruce	5"		ON-SITE
3843		White Spruce	8"		ON-SITE
3844		White Spruce	9"		ON-SITE
3845		White Spruce	7"		ON-SITE
3846		White Spruce	6"		ON-SITE
3847		White Spruce	8"		ON-SITE
3848		White Spruce	6"		ON-SITE
3849		White Spruce	12"		ON-SITE
3850		Red Pine	6"	Gone	ON-SITE
3851		White Spruce	15"		ON-SITE
3852		Red Pine	9"		ON-SITE
3853		White Spruce	8"		ON-SITE

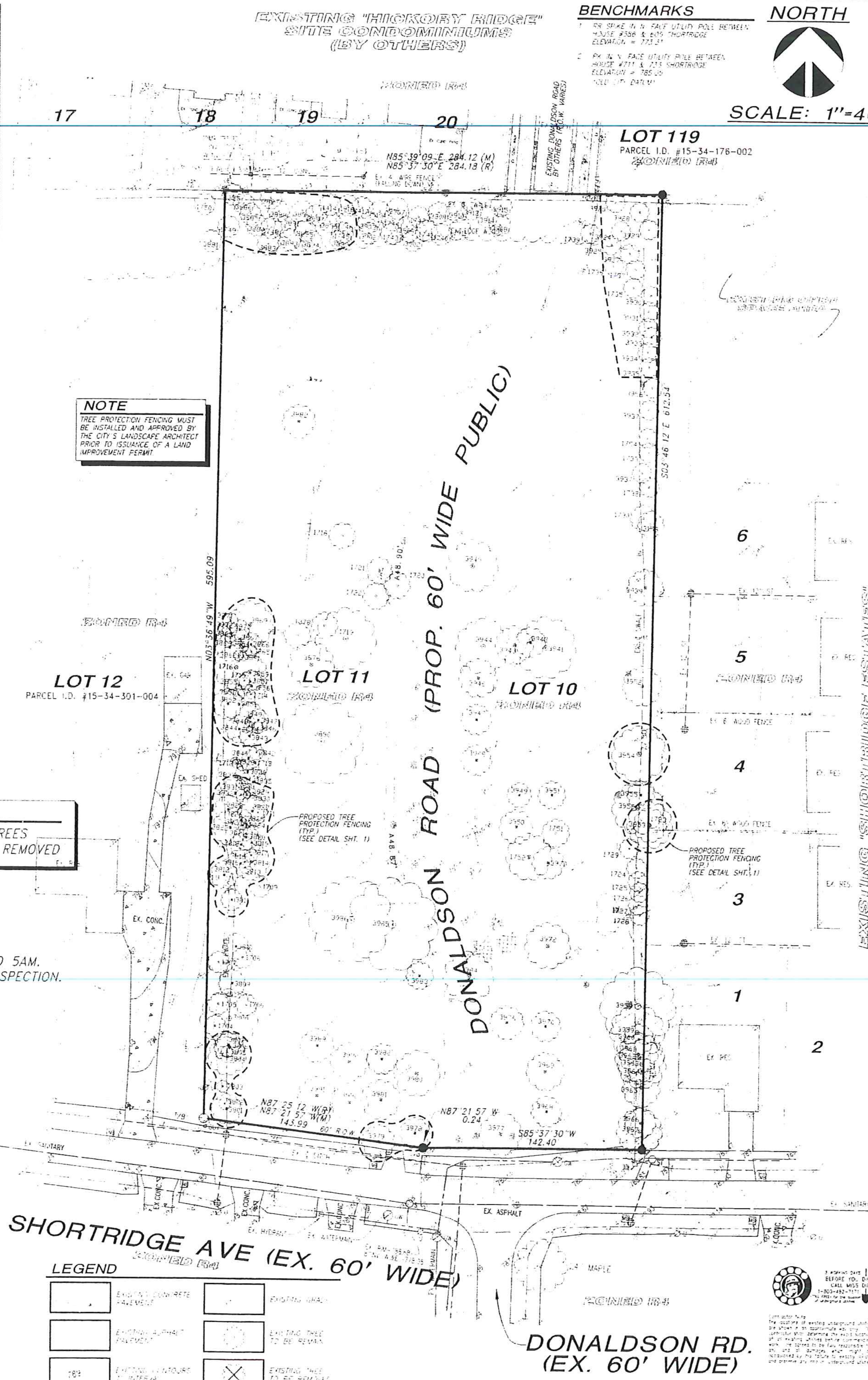
Tag #	New Tag #	COMMON NAME	SIZE DIA.	REMOVE ?	LOCATION
3854	1714	Norway Spruce	6"		ON-SITE
3855		White Spruce	5",7"		ON-SITE
3856		White Spruce	12"		ON-SITE
3857		White Spruce	9"		ON-SITE
3858	1715	White Spruce	6"		ON-SITE
3859		Norway Spruce	11"		ON-SITE
3860	1716	White Spruce	18"		ON-SITE
3861		White Spruce	7"		ON-SITE
3862		White Spruce	9"		ON-SITE
3863		Red Pine	12"		ON-SITE
3864		White Spruce	9"		ON-SITE
3865		White Spruce	7"	Bad Structure	ON-SITE
3866		White Spruce	6",3"	Bad Structure	ON-SITE
3867		White Spruce	12"		ON-SITE
3868		Red Pine	6"		ON-SITE
3869		Norway Spruce	14"		ON-SITE
3870		White Spruce	11"		ON-SITE
3871		Red Pine	8"		ON-SITE
3872		Red Pine	8"		ON-SITE
3873		Red Pine	5"		ON-SITE
3874		Cottonwood	6",7",7"	Gone	ON-SITE
3875		Cottonwood	6"	Gone	ON-SITE
3876		Cottonwood	12"	Gone	ON-SITE
3877		Cottonwood	35"		ON-SITE
3878		Cottonwood	36"		ON-SITE
3879	1719	Cottonwood	32"		ON-SITE
3880		Weeping Willow	61"	Advanced Decay/Storm Damage	ON-SITE
3881		Basswood	19"		ON-SITE
3882		Cottonwood	11",8"		ON-SITE
3883		Cottonwood	19"		ON-SITE
3884		Bitter Nut Hickory	8"		ON-SITE
3885		Red Oak	18"		ON-SITE
3886		Sugar Maple	7"		ON-SITE
3887		Sugar Maple	7"		ON-SITE
3888		Red Oak	20"		ON-SITE
3889	1748	Red Oak	12"		ON-SITE
3890		Bitter Nut Hickory	7"		ON-SITE
3891		Bitter Nut Hickory	6"		ON-SITE
3892		White Oak	7"	Gone	ON-SITE
3893		Basswood	7",10"	Bad Structure	ON-SITE
3894		Shag Bark Hickory	9"		ON-SITE
3895		Basswood	14"		ON-SITE
3896		Bitter Nut Hickory	12"		ON-SITE
3897		Bitter Nut Hickory	7"		ON-SITE
3898		Bitter Nut Hickory	6"		ON-SITE
3899		Elm	7"	Bad Structure	ON-SITE
3900	1743	Bitter Nut Hickory	12"		ON-SITE
3901		Shag Bark Hickory	12"		ON-SITE
3902		Shag Bark Hickory	13"		ON-SITE
3903		Sugar Maple	9"		ON-SITE
3904		Shag Bark Hickory	12"		ON-SITE
3905	1743	Sugar Maple	7"		ON-SITE
3906		Basswood	10"		ON-SITE
3907		Bitter Nut Hickory	7"		ON-SITE
3908	1747	Shag Bark Hickory	14"		ON-SITE
3909		Thorneapple	8",3",4"		ON-SITE
3910		Sugar Maple	14"		ON-SITE
3911		Elm	12"		ON-SITE
3912		Bitter Nut Hickory	8"		ON-SITE
3913		Thorneapple	8"		ON-SITE
3914		Basswood	7"		ON-SITE
3915		Basswood	11"	Bad Structure	ON-SITE
3916		White Ash	7"	Gone	ON-SITE
3917		Shag Bark Hickory	23"	Gone	ON-SITE
3918		Bitter Nut Hickory	10"		ON-SITE
3919		Basswood	11"		ON-SITE
3920		Basswood	8",5",5"	Bad Structure	ON-SITE
3921	1738	Shag Bark Hickory	12"		ON-SITE
3922		White Ash	6"	Dead	ON-SITE
3923		White Oak	42"	Gone	ON-SITE
3924		Basswood	23"		ON-SITE
3925		Shag Bark Hickory	8"		ON-SITE
3926		Green Ash	17"	Dead	ON-SITE
3927		Elm	8"		ON-SITE
3928		Bitter Nut Hickory	7"		ON-SITE
3929		Cotton Wood	28"		ON-SITE
3930		Basswood	8"	Bad Structure	ON-SITE
3931		Basswood	8"	Bad Structure	ON-SITE
3932		Basswood	10"	Bad Structure	ON-SITE
3933		Sugar Maple	8"	Dead	ON-SITE
3934		Thorn Apple	8",6"	Decay	ON-SITE
3935		Sugar Maple	28"	Dead	ON-SITE
3936		Basswood	31"	Decay	ON-SITE
3937		Cottonwood	27"	Advanced Decay	ON-SITE
3938		Elm	22"		ON-SITE
3939		Green Ash	9"	Dead	ON-SITE
3940		Elm	10"		ON-SITE
3941		Norway Spruce	20"		ON-SITE
3942		White Spruce	12"		ON-SITE
3943		White Spruce	12"		ON-SITE

Tag #	New Tag #	COMMON NAME	SIZE DIA.	REMOVE ?	LOCATION
3944		White Spruce	24"		ON-SITE
3945	1717	Black Willow	10",10",2",4",10'	Bad Structure	ON-SITE
3946		Pear	7",10",8"		ON-SITE
3947		Pear	8",9",10"	Gone	ON-SITE
3948		Pear	12",8"	Decay	ON-SITE
3949		Pear	9",4"		ON-SITE
3950		Pear	11"		ON-SITE
3951		Pear	8",8"	Decay	ON-SITE
3952		Green Ash	6",8"	Dead	ON-SITE
3953		Box Elder	7",10"	Decay	ON-SITE
3954	1729	Elm	24"	Bad Structure	ON-SITE
3955		Box Elder	9"	Bad Structure	ON-SITE
3956	1723	Elm	18"		ON-SITE
3957		Box Elder	10",10"		ON-SITE
3958		Cottonwood	29"	Gone	ON-SITE
3959		Elm	8",14",14"	Gone	ON-SITE
3960		Elm	10"	Gone	ON-SITE
3961		Elm	8"	Gone	ON-SITE
3962		Elm	14"	Gone	ON-SITE
3963		Elm	13"	Gone	ON-SITE
3964		Elm	7",8"	Gone	ON-SITE
3965		Box Elder	8",11"	Gone	ON-SITE
3966		Box Elder	10"	Gone	ON-SITE
3967		Box Elder	18"	Gone	ON-SITE
3968		Apple	8",10"	Gone	ON-SITE
3969		Apple	7",11"	Gone	ON-SITE
3970		Apple	10",11"	Decay	ON-SITE
3971		Apple	10"	Gone	ON-SITE
3972		Apple	10",16"		ON-SITE
3973		Pear	6",7"	Bad Structure	ON-SITE
3974	1752	Box Elder	7",7",8"		ON-SITE
3975		Apple	9"	Gone	ON-SITE
3976		Apple	6",6",10"		ON-SITE
3977	1753	Apple	8",14"		ON-SITE
3978		Apple	13"	Gone	ON-SITE
3979		Pear	5",6",8"		ON-SITE
3980		Apple	7",8",10",10",10'		ON-SITE
3981		Apple	5",7",7",8",8"	Fell	ON-SITE
3982		Apple	6",8",8"		ON-SITE
3983		Apple	8",9"		ON-SITE
3984		Apple	11",12"		ON-SITE
3985		Red Maple	38"		ON-SITE
3986		Red Maple	37"		ON-SITE
3987		Apple	7",7",8"	Gone	ON-SITE
3988		Apple	6",7",7",8"	Gone	ON-SITE
3989		Pear	6",8",9",5"		ON-SITE
3990		Apple	7",8",10"	Gone	ON-SITE
3991		Apple	7",7"	Decay	ON-SITE
3992		Apple	5",8",9"		ON-SITE

NOTE
THE TREE SURVEY WAS UPDATED BY OWEN TREE SERVICES

NOTE
ALL EXISTING ASH TREES ON SITE ARE TO BE REMOVED

- LANDSCAPE BOND TO BE DETERMINED
- ALL LANDSCAPE AREAS MUST BE IRRIGATED.
- IRRIGATION PLAN IS REQUIRED TO BE SUBMITTED.
- IRRIGATION SHOULD TAKE PLACE BETWEEN 12AM AND 5AM.
- PRIOR TO BOND RELEASE, ROCH. HILLS REQUIRES INSPECTION.



TREES SURVEY

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

SHEET 3 OF 9

DATE	ADDITIONS AND/OR REVISIONS	BY
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/2014	KG

Job No. 140403
Date 8-26-05
Scale 1"=40
Drawn CT
Check R.A.W.
Sheet 3 OF 9

PROPOSED "THE COMMONS SOUTH"

FOR: VAQAR SIDDIQUI
3530 FOREST HILL ROAD
BLOOMFIELD HILLS, MI 48302
313-399-3915

URBAN LAND CONSULTANTS
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
8800 23 MILE ROAD SHELBY TWP., MI 48316-4516
PHONE 586 731-8030
FAX 586 731-2605

WATER MAIN BASIS FOR DESIGN (INITIAL)

1. POPULATION:
   SITE = 2 RESIDENTIAL UNITS
   2 UNITS @ 1.0 REU/UNIT = 2 REU
   2 REU x $\frac{(3.0 \text{ PEOPLE})}{\text{REU}}$ = 6 PEOPLE
2. AVERAGE FLOW:
   Q = 6 people x 120 gpcd = 720 gpd
   $Q_A = \frac{720 \text{ gpd}}{(60)(60)(24)(7.48)} = 0.0011$ CFS
   $Q_A = \frac{720 \text{ gpd}}{1.0 \times 10^6} = 0.00072$ MGD
3. MAX FLOW:
   Q = 6 PEOPLE x 360 gpcd = 2,160 gpd
   $Q_{MAX} = \frac{2{,}160 \text{ gpd}}{(60)(60)(24)(7.48)} = 0.0033$ CFS
   $Q_{MAX} = \frac{2{,}160 \text{ gpd}}{1.0 \times 10^6} = 0.00216$ MGD

WATER MAIN BASIS FOR DESIGN (ULTIMATE)

1. POPULATION:
   SITE = 12 RESIDENTIAL UNITS
   12 UNITS @ 1.0 REU/UNIT = 12 REU
   12 REU x $\frac{(3.0 \text{ PEOPLE})}{\text{REU}}$ = 36 PEOPLE
2. AVERAGE FLOW:
   Q = 36 people x 120 gpcd = 4,320 gpd
   $Q_A = \frac{4{,}320 \text{ gpd}}{(60)(60)(24)(7.48)} = 0.00668$ CFS
   $Q_A = \frac{4{,}320 \text{ gpd}}{1.0 \times 10^6} = 0.00432$ MGD
3. MAX FLOW:
   Q = 36 PEOPLE x 360 gpcd = 12,960 gpd
   $Q_{MAX} = \frac{12{,}960 \text{ gpd}}{(60)(60)(24)(7.48)} = 0.020$ CFS
   $Q_{MAX} = \frac{12{,}960 \text{ gpd}}{1.0 \times 10^6} = 0.0129$ MGD

SANITARY SEWER CAPACITY DESIGN

INITIAL SERVICE AREA

1. POPULATION:
   EXISTING SITE = 2 REU
   2 REU x 3.5 PEOPLE/REU = 7 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100 \text{ G.P.C.D.})(7 \text{ PEOPLE})}{(60)(60)(24)(7.48)}$
   = 0.00108 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{0.007}}{4 + \sqrt{0.007}} = 4.428$
   PEAK FLOW=(0.00108)(4.428)=0.00478 C.F.S.

SANITARY SEWER CAPACITY DESIGN

ULTIMATE SERVICE AREA

1. POPULATION:
   PROPOSED CONDOMINIUM SITE = 12 DETACHED CONDO UNITS
   12 UNITS x 3.5 PEOPLE/REU = 42 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100 \text{ G.P.C.D.})(42 \text{ PEOPLE})}{(60)(60)(24)(7.48)}$
   = 0.00649 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{0.042}}{4 + \sqrt{0.042}} = 4.329$
   PEAK FLOW=(0.00649)(4.329)=0.0281 C.F.S.
4. CAPACITY OF AN 8" @ 0.40% = 0.75 CFS ∴ OK

SANITARY SERVICE AREA FOR 10" SEWER ON HAZELTON AT GRACE AVE. (PRIOR TO DEVELOPMENT)

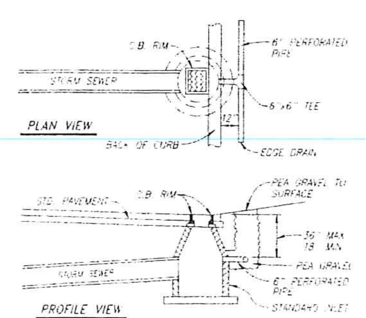
1. 557 REU x 3.5 PEOPLE/REU = 1950 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100 \text{ G.P.C.D.})(1950 \text{ PEOPLE})}{(60)(60)(24)(7.48)}$
   = 0.3017 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{1.95}}{4 + \sqrt{1.95}} = 3.595$
   PEAK FLOW=(0.3017)(3.595)=1.0846 C.F.S.

SANITARY SERVICE AREA FOR 10" SEWER ON HAZELTON AT GRACE AVE. (AFTER DEVELOPMENT)

1. 567 REU x 3.5 PEOPLE/REU = 1985 PEOPLE
2. AVERAGE FLOW:
   $Q_A = \frac{(100 \text{ G.P.C.D.})(1985 \text{ PEOPLE})}{(60)(60)(24)(7.48)}$
   = 0.307 CFS
3. PEAK FLOW:
   $P_F = \frac{18 + \sqrt{1.985}}{4 + \sqrt{1.985}} = 3.588$
   PEAK FLOW=(0.307)(3.588)=1.102 C.F.S.

COVERS FOR STORM SEWER M.H.s, C.B.s, and INLETS

1. MANHOLE FRAME AND COVER SHALL BE E.J.I.W. 1040, TYPE A COVER OR EQUIVALENT.
2. CATCH BASIN, INLET FRAME AND COVER SHALL BE AS FOLLOWS:
   A. E.J.I.W. 7045 OR EQUAL, FOR USE WITH CONCRETE CURB AND GUTTER, AND WITH CONCRETE PAVEMENT WITH INTEGRAL CURB.
   B. E.J.I.W. 7066 OR EQUAL, FOR USE WITH CONCRETE ROLL CURB AND GUTTER, AND WITH CONCRETE PAVEMENT WITH ROLL INTEGRAL CURB
   C. E.J.I.W. TYPE O BEEHIVE GRATE OR EQUAL, FOR USE ON OPEN DITCH STRUCTURES AND ON CATCH BASINS LOCATED ON SWALES IN EASEMENTS OUTSIDE THE PUBLIC STREET RIGHT-OF-WAY.

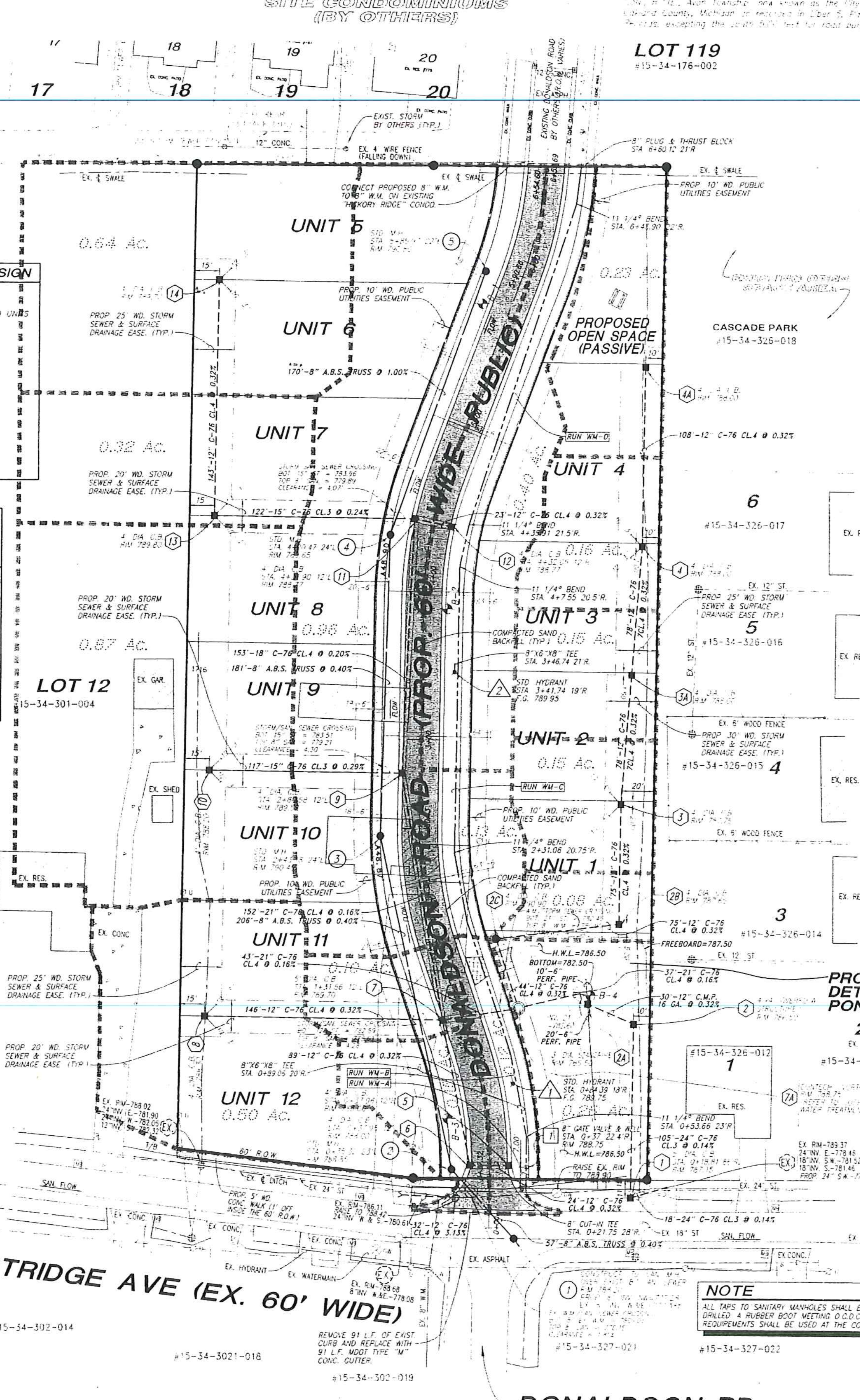


NOTE: ... DRAIN USED IN A PEA STONE TRENCH, A FILTER SOCK ON THE PIPE IS NOT REQUIRED

EDGE DRAIN DETAIL

(NO SCALE)

WATERMAIN RUN CHART			
8" D.I. CL.54 WATERMAIN			
RUN	FROM	TO	LENGTH
WM-A	8" CUT IN TEE AT SHORTRIDGE DR	PROP. GATE VALVE AND WELL	15 L.F.
WM-B	PROP. GATE VALVE AND WELL	TEE AT STA. 0+89.06	57 L.F.
WM-C	TEE AT STA. 0+89.06	TEE AT STA. 3+46.74	254 L.F.
WM-D	TEE AT STA. 3+46.74	PLUG & THRUST BLOCK AT STA. 6+60.12	314 L.F.
		TOTAL	640 L.F.

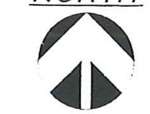


NOTE

ALL TAPS TO SANITARY MANHOLES SHALL BE CORE-DRILLED. A RUBBER BOOT MEETING O.C.D.C. REQUIREMENTS SHALL BE USED AT THE CONNECTION

PROPERTY DESCRIPTION

Lots 10 and 11, Supervisor's Plat No. 6, part of the S.W. 1/4 of Section 34, T.3N., R.11E., Avon Township, now known as the City of Rochester Hills, Oakland County, Michigan, as recorded in Liber 5, Page 56 of the Oakland Records, excepting the south 30 feet for road purposes.



SCALE: 1"=40'

BENCHMARKS

1. [illegible]
2. [illegible]

LOCATION MAP

(NO SCALE)

WATER MAIN NOTES

1. A GATE VALVE AND A FIRE HYDRANT SHALL BE ADDED TO THE DEAD END LINE OF THE WATER MAIN IF THE WATER DISTRIBUTION SYSTEM OF THE ADJACENT SITE IS NOT IN OPERATION AT THE TIME OF CONSTRUCTION.
2. ALL GATE VALVES SHALL BE RESILIENT WEDGE OR SEATED TYPE. GATE VALVES (E.J.I.W. OR U.S. PIPE), LEFT-HAND OPEN.
3. WATER MAINS SHALL BE CEMENT-LINED (DOUBLE THICKNESS), DUCTILE IRON PIPE CL. 54.
4. VERTICAL BENDS OF WATER MAIN SHALL NOT BE GREATER THAN 11-1/4 DEGREES.
5. RESULTS OF THE HYDROSTATIC TEST SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE SYSTEM.
6. INSTALL THRUST BLOCKS AT ALL BENDS, DEAD ENDS, TEES, REDUCERS, AND HYDRANT. RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS WITH THE APPROVAL OF CITY ENGINEER. THE NUMBER OF REQUIRED RESTRAINED JOINTS MUST BE DETERMINED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES AND RECOMMENDATIONS.

NOTE

SANITARY SEWERS SHALL BE A.B.S. TRUSS PIPE, ASTM 2680, WITH SOLVENT-WELDED JOINTS. SEWER LEADS SHALL BE SOLID WALL A.B.S., SDR 23.5

NOTE

COMPACTED SAND BACKFILL SHALL BE USED FOR ALL UNDERGROUND UTILITIES UNDER THE INFLUENCE OF PAVEMENT.

LEGEND

EXISTING CONCRETE PAVEMENT
EXISTING ASPHALT PAVEMENT
PROPOSED CONCRETE SIDEWALK
PROPOSED ASPHALT PAVEMENT
SOIL BORING LOCATION
PROPOSED STORM SEWER
PROPOSED WATERMAIN
PROPOSED SANITARY SEWER
DRAINAGE DISTRICT LIMITS

SOIL BORINGS LOG

B-1	B-2
[illegible]	[illegible]
Water Encountered = None	Water Encountered = None
B-3	**B-4**
[illegible]	[illegible]
Water Encountered = 216" at Completion = 228"	Water Encountered = 36" & 78" at Completion = 96

DETERMINING RUNOFF COEFFICIENT "C" FOR THE SITE

1. TOTAL AREA OF SITE = 3.98 ACRES = 173,292.6 S.F.
2. % PAVED (STREETS, ROADS, SIDEWALKS, DRIVEWAYS) — C=0.90
   ROADWAY PAVEMENT = 17,050 S.F.
   SIDEWALK = 17,050 S.F.
   ROADWAY AREA/UNIT = 850 S.F./UNIT = 10,200 S.F.
   TOTAL = 33,567 S.F.
   $\frac{33{,}567 \text{ S.F.}}{173{,}292.6 \text{ S.F.}} = 0.194 = 19.4\%$
   = 0.194 x 0.90 = 0.17
3. % BUILDING AREA (HOUSES, PATIOS, DECK, ETC.) — C=0.90
   12 x (40x40) = 19,200 S.F.
   $\frac{19{,}200 \text{ S.F.}}{173{,}292.6 \text{ S.F.}} = 0.111 = 11.1\%$
   = 0.111 x 0.90 = 0.10
4. % GREEN AREA (GRASS) — C=0.20
   100%-19.4%-11.1% = 69.5%
   0.695 x 0.20 = 0.14
   RUNOFF COEFFICIENT = 0.17 + 0.10 + 0.14 = 0.41
   ∴ C = 0.41

QUANTITIES

STORM SEWER

24" C-76 CL 3	123 L.F.
21" C-76 CL 4	232 L.F.
18" C-76 CL 4	153 L.F.
15" C-76 CL 4	239 L.F.
12" C-76 CL 4	749 L.F.
12" C.M.P. 16 GA	30 L.F.
12" P.V.C. SCH. 40 SUMP LEAD	120 L.F.
[illegible]	1 EA
5' DIA. STRUCTURES	2 EA
4' DIA. STRUCTURES	12 EA
[illegible]	1 EA
5' DIA. STANDPIPE	1 EA
[illegible] OVERFLOW STRUCTURE	1 EA
[illegible] END SECTION	1 EA
[illegible] END SECTION	2 EA
6" PERFORATED PIPE	1,293 L.F.

WATER MAIN

8" DUCTILE IRON, CL.54	640 L.F.
8" GATE VALVE & WELL	1 EA
STANDARD HYDRANT ASSEMBLY	1 EA

SANITARY SEWER

8" A.B.S. TRUSS	640 L.F.
6" A.B.S. SDR 23.5 LEAD	409 L.F.
4' DIA. ACCESS M.H.	5 EA

PAVING

8" ASPHALT PAVEMENT (DONALDSON ROAD)	14,150 S.F.
4" CONC. PAVEMENT (SIDEWALK)	1,822 L.F.
4" MOUNTABLE CONC. CURB	1,263 L.F.
M.D.O.T. TYPE "M" CONC. GUTTER	91 L.F.

SANITARY SEWER LEADS			
MIN. 6" INV. @ SETBACK LINE			
UNIT #	INV.	UNIT #	INV.
1	779.49	7	780.37
2	779.87	8	779.82
3	780.18	9	779.51
4	781.10	10	779.25
5	781.57	11	778.97
6	781.06	12	778.56

NOTE

A TAP PERMIT WILL BE REQUIRED FROM O.C.D.C. FOR PROPOSED CONNECTION TO THE CRAKE DRAIN.

LEGEND

SANITARY SEWER MANHOLE
STORM SEWER STRUCTURE
HYDRANT ASSEMBLY
TAPPING SLEEVE VALVE & WELL

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

WATER MAIN LISTING

640 L.F. 8" DUCTILE IRON CL. 54

SANITARY SEWER LISTING

614 L.F. 8" A.B.S. TRUSS

CITY FILE NO. 05-011.2, SECTION 34
OVERALL UTILITY PLAN - SHEET 4 OF 9

OVERALL UTILITY PLAN

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

DATE	ADDITIONS AND/OR REVISIONS	BY:
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/2014	KG
2-27-15	REVISED PER WRC	KG

140403 Job No.
Date 12-07-05
Scale 1"=40'
Drawn CY
Check R.A.W.
Sheet 4 OF 9
Fld. Bk.

PROPOSED "THE COMMONS SOUTH"

FOR: FRANK FLEURY
1171 HICKORY HILL
ROCHESTER HILLS, MI. 48309
(248) 650-3378

URBAN LAND CONSULTANTS ©
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
8800 23 MILE ROAD SHELBY TWP., MI 48316-4516
PHONE 586 731-8030
FAX 586 731-2605

LEGEND

	EXISTING CONCRETE PAVEMENT		LIMITS OF SOIL DISTRICT		PROPOSED SILT FENCE
	EXISTING ASPHALT PAVEMENT		EXISTING GRADE		EXISTING TREE TO BE REMOVED
	PROPOSED CONCRETE SIDEWALK	790.00	PROPOSED GRADE		OFF-SITE DRAINAGE AREA
	PROPOSED ASPHALT PAVEMENT		DRAINAGE FLOW		SOIL BORING LOCATION

SOIL

11B CAPAC SANDY LOAM (0 TO 4% SLOPES)
0"-8" VERY DARK GRAYISH-BROWN SANDY LOAM, 8"-20" BROWN CLAY LOAM, 20"-32" GRAYISH-BROWN CLAY LOAM, 32"-60" PALE BROWN LOAM. MODERATELY SLOW PERMEABILITY, SLOW RUNOFF

54A MATHERTON SANDY LOAM (0% TO 3% SLOPES)
0"-13" VERY DARK GRAYISH BROWN SANDY LOAM, LOAM
13"-34" GRAYISH BROWN MOTTLED, FRIABLE SANDY LOAM CLAY. GRAVELLY CLAY LOAM
34"-60" LIGHT BROWNISH GRAY GRAVELLY SAND
THE MATHERTON SOMEWHAT POORLY DRAINED, MODERATELY RAPID PERMEABILITY.

THE CONTRACTOR SHALL CONSTRUCT THIS PROJECT IN COMPLIANCE WITH PART 91 OF ACT NO. 451 OF 1994, OF THE MICHIGAN COMPLIED LAWS ENTITLED "SOIL EROSION AND SEDIMENTATION CONTROL"

SOIL EROSION AND SEDIMENTATION CONTROL

Total Area Disturbed: 3.98 AC.
Approximate Starting Date: September 2006
Approximate Completion Date: July 2007

1. The Owner must have a copy of the Soil Erosion Permit available at the site at all times. The daily inspection logs must also be available for review by any representative of the M.D.E.Q. or the Oakland County D.P.W.
2. All erosion and sediment control work shall conform to the standards and specifications of the Oakland County Department of Public Works Office.
3. Daily inspections are required by the Contractor to determine the effectiveness of the erosion control measures, and any necessary repairs shall be made immediately.
4. Any sedimentation from work on this site shall be contained on this site and not be allowed to collect off site or any other man made or natural water way.
5. All work methods shall be in a manner which minimizes dust and airborne sediment transport. It is the contractors responsibility to apply dust control measures as needed to prevent airborne sediment transport.
6. Temporary erosion and sediment control measures are to be placed prior to or as a first step in construction. Sediment control shall be:
   a. A silt fence installed around the perimeter of the proposed construction area with special attention paid to the lower areas where surface water might run off site.
   b. Filter fabric installed over all catch basin covers in paved areas at time of construction and maintained clean throughout the construction period. Silt fence installed around all rear yard/low point catch basins.
   c. Install a crushed concrete with geotextile filter fabric haul road to Shortridge Drive for site access.
   d. All mud/silt tracked onto existing county roads from the site due to construction shall be immediately removed by the contractor.
7. Permanent soil erosion control measures for all slopes, channels, ditches or any disturbed land area shall be completed within 5 calendar days after final grading has been completed. When it is not possible to permanently stabilize a disturbed area after an earth change has been completed or where significant earth change activity ceases, temporary soil erosion control measures shall be implemented immediately. All temporary soil erosion control measures will be implemented and established before a certificate of compliance is issued.

GENERAL NOTES

1. In case of a conflict between these written notes and the Township Detail sheets, the Township sheets shall take precedence.
2. Contractor shall call "Miss Dig" 72 hours prior to any excavation.
3. All work in existing road R.O.W. shall be done under permit of the Road Commission of Oakland County.
4. The contractor shall familiarize himself with the existing and new construction, and the site in general. The contractor shall be responsible for all damages he causes to either new or existing construction/structures and for any unauthorized disruption to the adjacent property owner's normal use of utilities, services and facilities.
5. The contractor shall field verify the sizes, locations, elevations and details of all existing construction and conditions that affect the work and shall inform the engineer of any discrepancies in dimensions, sizes, locations and conditions before proceeding with the work.
6. The contractor shall provide all shoring, bracing and all other means required to protect and maintain the safety, integrity and stability of all existing and new construction that may be affected by the work.
7. The contractor shall notify the adjacent property owners before disconnecting any utilities or services and he shall coordinate all his work in a manner that will cause minimum disruption of activities.
8. All existing pavements damaged during construction shall be removed and replaced to the same thickness and specifications.
9. All sodding and/or seeding and mulching shall adhere to the current standards and specifications of the Michigan Department of State Highways and the Road Commission of Oakland County.
10. All trenches under or within a one on one slope of 3' of a paved surface shall be backfilled with sand compacted to 95% density in 12" lifts. The cost of backfill is to be included in the unit price and bid for water main, sanitary sewer, or storm sewer, etc.
11. Fencing, guard posts, etc. damaged during all construction shall be replaced to match existing.

WORK SEQUENCE FOR EROSION CONTROL

1. Soil erosion control measures are to be kept in place and maintained throughout all phases of construction.
2. Install silt fence and haul road as per plans and Oakland County Drain Office.
3. Strip site and land balance.
4. Build detention basin and install silt fence around it. Silt fence will be removed once vegetation has been established.
5. Install all underground utilities complete and install catch basin filters on all storm sewer inlets. Immediately re-establish vegetation on all offsite disturbed areas.
6. Install curbing and asphalt roadway surfaces and repair/replace catch basin filters as needed. Immediately after road forms are pulled and curbing is backfilled seed and mulch, or sod the entire remaining road right-of-way.
7. Finish grade, redistribute topsoil and establish vegetation on all unpaved/unbuilt areas within 5 days of completion of paving.
8. Begin building construction.
9. Clean pavements and replace all temporary erosion control measures.
10. Remove all accumulated sediment from storm sewer.

SOIL EROSION MAINTENANCE

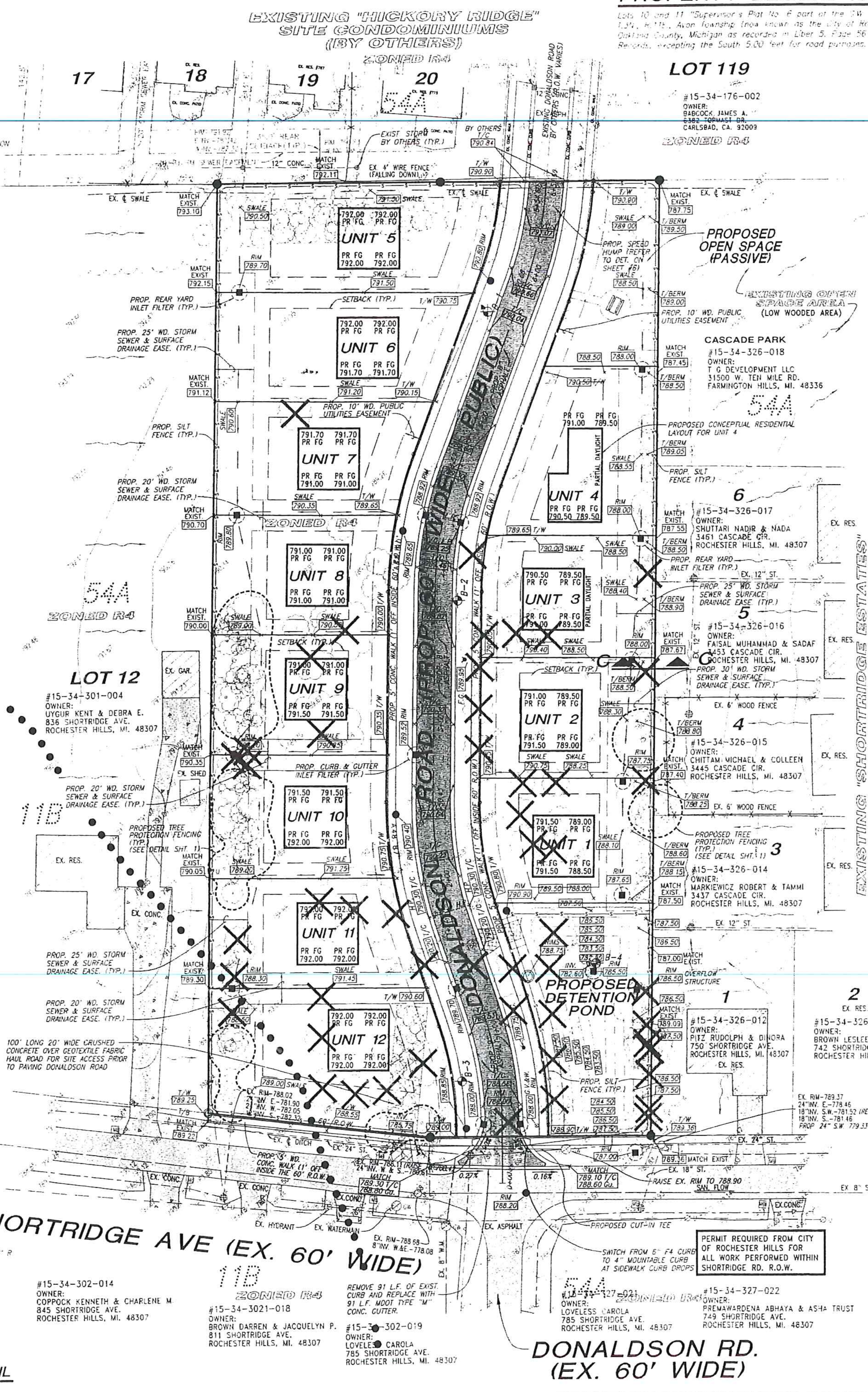
N.P.D.E.S. & Oakland County Permit compliance requires weekly inspections by a certified storm water management operator as well as periodic inspections within 24 hours of any rainfall. These inspections may result in recommendations for routine maintenance of the soil erosion control devices, as well as further maintenance as outlined below.

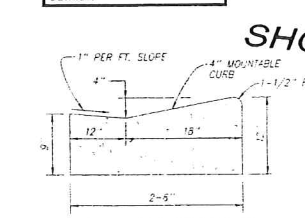
1. Throughout the constuction period, all mud/silt tracked onto existing county roads from the site due to construction shall be immediately removed by the contractor.
2. Catch basin inlet filters shall be maintained clean at all times throughout the construction period. Weekly inspections will be performed. If a filter has holes or is inudated with sediment, the filter will require replacement.
3. Construction access road must be maintained as necessary. Replenish crushed concrete if present layer is filled with sediment, pooling water or has has ruts. A new layer may be added if old layers become compacted.
4. Dust control measures shall be applied as needed, and as may be requested by the Oakland County Drain Office.
5. Silt fence is to be inspected daily by contractor and weekly by certified storm water man. operator. If repairs or replacement is necessary, it shall be performed immediately. The silt fence should be trenched in, back-filled, and stapled or staked according to the manufacturer's specifications. Maintenance includes the removing of built-up sediment when the sediment accumulates to 1/2 the height of the fence. Contractor may have to remove, replace, retrench, or re-backfill the fence if it fails. It would also be necessary to re-install if any portion of the fencing was damaged by construction machinery.
6. Seeding or reseeding may be required immediately to areas which have been damaged by runoff.

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE) for the location of underground utilities

Contractor Note
The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

REFER TO OAKLAND COUNTY SOIL EROSION DETAIL SHEET FOR ALL SOIL EROSION CONTROL DETAILS.

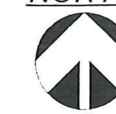




4" MOUNTABLE CONCRETE CURB DETAIL
(NO SCALE)

PROPERTY DESCRIPTION

Lots 10 and 11 "Supervisor's Plat No. 6 part of the S.W. 1/4 of Section 34, T.3N., R.11E., Avon Township (now known as the City of Rochester Hills), Oakland County, Michigan as recorded in Liber 5, Page 56 of the Oakland Records, excepting the South 5.00 feet for road purposes.

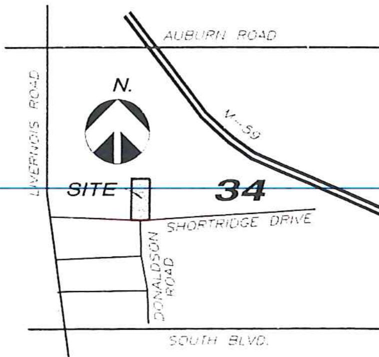


SCALE: 1"=40'

BENCHMARKS

1. RR SPIKE IN N. FACE UTILITY POLE BETWEEN HOUSE #586 & 605 SHORTRIDGE ELEVATION = 773.31 U.S.G.S.
2. PK IN N. FACE UTILITY POLE BETWEEN HOUSE #711 & 733 SHORTRIDGE ELEVATION = 785.05 U.S.G.S.

(OLD CITY DATUM)



LOCATION MAP
SCALE: 4" = 1 MILE

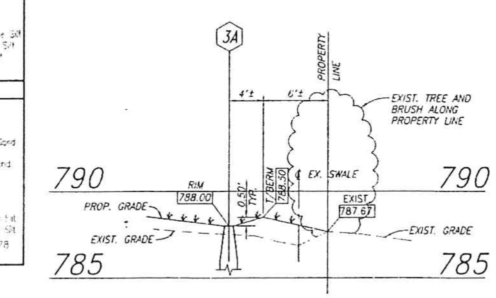
SOIL BORINGS LOG

B-1	B-2

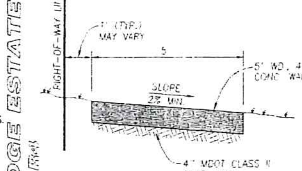
Soil Boring #B-1
Elevation=789.00
0"-10" Brown Clayey Topsoil
10"-36" Brown Oxidized Clay w/ some Fine Sand
36"-96" Brown Oxidized Clay w/ some Silt
96"-126" Brown Oxidized Clay w/ some Silt
126"-204" Gray Clay w/ some Silt
204"-240" Gray Clay w/ some Silt
Water Encountered = None
	Soil Boring #B-2
	Elevation=788.00
	0"-14.4" Brown Clayey Topsoil
	14.4"-36" Brown Oxidized Sand Clay w/ Trace of Silt
	36"-72" Brown Oxidized Clay w/ some Silt
	72"-96" Brown Oxidized Clay w/ some Silt
	96"-118.32" Brown Oxidized w/ some Silt
	118.32"-204" Gray Clay w/ some Silt
	204"-240" Gray Clay w/ some Silt
	Water Encountered = None

B-3	**B-4**

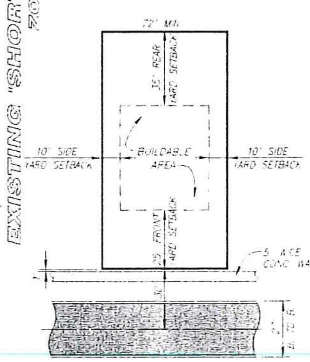
Soil Boring #B-3
Elevation=788.00
0"-24" Brown Clayey Topsoil
24"-72" Brown Oxidized Clay w/ Trace of Silt
72"-96" Brown Oxidized Clay w/ Trace of Silt
96"-144" Brown Oxidized Clay w/ some Silt
144"-216" Gray Clay w/ some Silt
216"-240" Gray Clay w/ some Silt
Water Encountered = 216"
at Completion = 228"
	Soil Boring #B-4
	Elevation=787.00
	0"-10" Clayey Topsoil
	10"-36" Clayey Brown Coarse to Fine Sand w/ Trace of Gravel
	36"-48" Brown Fine to Medium sand w/ Trace of Gravel
	48"-78" Brown Oxidized Clay w/ Trace of Silt
	78"-81" Wet Sand Seam
	81"-117" Brown Oxidized clay w/ some Silt
	117"-120" Gray Oxidized Clay w/ some Silt
	Water Encountered = 36" & 78"
	at Completion = 96"



SECTION C-C
SCALE: HORIZONTAL: 1" = 10'
VERTICAL: 1" = 5'



CONC. WALK DETAIL
(NO SCALE)



TYPICAL SETBACKS
(NO SCALE)

REFER TO DETAILS ON SHEET 9 FOR WALKSWAY W/HDC RAMPS

NOTE
ADD SILT FENCE AROUND DETENTION BASIN UNTIL VEGETATION IS ESTABLISHED IN SAID BASIN.

NOTE
SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 2.0%

PAVING NOTES

1. Contractor shall notify the Road Commission of Oakland County seventy two (72) hours in advance of construction.
2. Contractor shall post a Maintenance Bond with the R.C.O.C. in the amount of 10% of actual construction cost for a period of two(2) years prior to acceptance for maintenance by the Road Commission of Oakland County.
3. All materials and construction shall adhere to the current Michigan Department of State Highways Standards and Specifications.
4. All gravel shoulders and road ditches shall be per plan and stable prior to acceptance by the Road Commission of Oakland County.
5. All topsoil shall be removed from the road R.O.W. prior to cutting or filling.
6. Road ditches and drainage swales having grades of 1.50% or greater shall be sodded and pegged in place.
7. Additional sub-base and/or underdrains may be required if poor sub-soil or wet conditions are encountered during pavement construction.
8. Roadside area from the back of curb to R.O.W. line shall be fine graded and receive roadside seeding, fertilizer and mulch immediately after completion of road paving or gas or electrical underground, whichever is constructed last.

LANDSCAPE NOTE

1. PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC ROAD. SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 5' FROM THE EDGE OF THE PUBLIC WALKWAY. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC WALKWAY. NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY STREET RIGHT-OF-WAY LINES AT A DISTANCE ALONG EACH LINE OF 25' FROM THEIR POINT OF INTERSECTION. NO TREES OR SHRUBS MAY BE PLANTED IN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY DRIVEWAY WITH A PUBLIC WALKWAY AT A DISTANCE ALONG EACH LINE OF 15' FROM THEIR POINT OF INTERSECTION. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT. SHADE TREES AND EVERGREEN TREES MUST BE AT LEAST 15' AWAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM OF 5' FROM AN UNDERGROUND UTILITY, UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE.
2. PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY DIVISION NEEDS TO INSPECT ALL TREES, EXISTING OR PLANTED, TO IDENTIFY ANY THAT POSE A HAZARD TO THE SAFE USE OF THE PUBLIC RIGHT-OF-WAY. FORESTRY MAY REQUIRE THE DEVELOPER TO REMOVE, AND POSSIBLE REPLACE, ANY SUCH TREES.

NOTE
THIS SCHEME AND LAYOUT WAS CHOSEN SO IT COULD ALIGN WITH DONALDSON TO THE NORTH & SOUTH.

NOTE
CONSTRUCTION SITE SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14

NOTE
OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIAL. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. FIRE PREVENTION ORDINANCE CH. 58, SEC. 307.6.2 & 307.6.2.3

NOTE
ALL FUTURE DRIVEWAYS WILL BE ACCESSED VIA DONALDSON ROAD

NOTE
PRIOR TO THE ISSUANCE OF A LAND IMPROVEMENT PERMIT FUNDS WILL BE DEPOSITED WITH THE CITY TO PERMIT THE INSTALLATION OF ONE STREET PER UNIT.

NOTE
A POST CONSTRUCTION BMP WILL BE PROVIDED PRIOR TO THE INLET TO THE POND.

NOTE
NO STREET LIGHTING OR SIGN ARE PROPOSED FOR THIS SITE.

NOTE
NEW GRASS AREAS ARE REQUIRED IN PUBLIC R.O.W. PER CITY STANDARDS. ALL EXISTING GRASS AREAS THAT ARE DISTURBED BY CONSTRUCTION SHALL BE ESTABLISHED OR RESTORED PER CITY SPECIFICATIONS.

NOTE
A TAP PERMIT WILL BE REQUIRED FROM O.C.D.C. FOR PROPOSED CONNECTION TO THE CRAKE DRAIN.

CITY FILE NO. 05-011.2, SECTION 34
GRADING AND SOIL EROSION PLAN - SHEET 5 OF 9

GRADING AND SOIL EROSION PLAN

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

DATE	ADDITIONS AND/OR REVISIONS	BY
7-10-15	REVISED PER CITY REVIEW	KG
5-29-15	REVISED PER CITY REVIEW	KG
2-4-15	REVISED PER CITY REVIEW 10/2014	KG
2-27-15	REVISED PER RCOC	KG

140403
Job No.
Date 12-07-05
Scale 1"=40'
Drawn CY
Check R.A.W.
Sheet 5 OF 9
Fld. Bk.

PROPOSED "THE COMMONS SOUTH"
FOR: FRANK FLEURY
1171 HICKORY HILL
ROCHESTER HILLS, MI. 48309
(248) 650-3378

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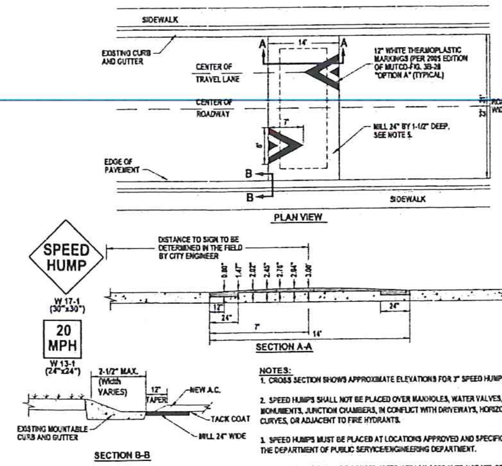


NOTES:

1. CROSS SECTION SHOWS APPROXIMATE ELEVATIONS FOR 3" SPEED HUMP.
2. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MONUMENTS, JUNCTION CHAMBERS, IN CONFLICT WITH DRIVEWAYS, HORIZONTAL CURVES, OR ADJACENT TO FIRE HYDRANTS.
3. SPEED HUMPS MUST BE PLACED AT LOCATIONS APPROVED AND SPECIFICED BY THE DEPARTMENT OF PUBLIC SERVICE/ENGINEERING DEPARTMENT.
4. SPEED HUMPS SHALL BE CONSTRUCTED WITH AN APPROVED HOT MIX, PER CITY OF ROCHESTER HILLS STANDARDS. A TACK COAT SHALL BE APPLIED PRIOR TO APPLICATION OF PAVEMENT. HOT MIX SHALL BE PLACED IN TWO (2) LIFT.
5. EXISTING ROADWAY SHALL BE MILLED A WIDTH OF 24" AND A MINIMUM DEPTH OF 1-1/2" AROUND THE PERIMETER OF THE SPEED HUMP.
6. CONTRACTOR MUST PROVIDE VERIFICATION OF CROSS-SECTION DIMENSIONS.
7. SIGNS AND MARKINGS TYPICAL FOR BOTH DIRECTIONS, INSTALLED BY CITY.

IMPORTANT:
TO GAIN MAXIMUM EFFECT, SPEED HUMPS MUST BE THE FULL 3". SPEED HUMPS SHALL BE 3" HIGH WITH AN ALLOWABLE MAXIMUM TOLERANCE OF ± 0.25". CONTRACTORS MUST NOT EXCEED THIS HEIGHTS BASED ON CONSIDERATION FOR EMERGENCY AND FIRE DEPARTMENT VEHICLE. BECAUSE OF THIS CONCERN, ANY SPEED HUMPS CONSTRUCTED OVER 3.25" MUST BE CORRECTED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL USE CITY TEMPLATE FOR SPEED HUMP CONSTRUCTION.

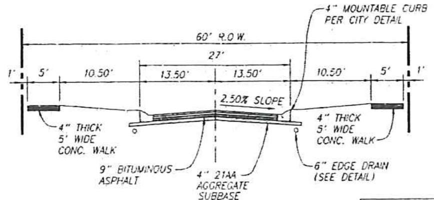
SOIL BORINGS LOG

B-1	B-2

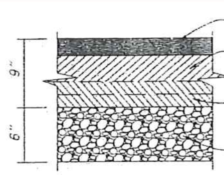
Soil Boring #B-1
Elevation=789.00
0"-10" Brown Clayey Topsoil
10"-36" Brown Oxidized Clay w/ some Fine Sand
36"-96" Brown Oxidzed Clay w/ some Silt
96"-126" Brown Oxidized Clay w/ some Silt
126"-204" Gray Clay w/ some Silt
204"-240" Gray Clay w/ some Silt
Water Encountered = None
	Soil Boring #B-2
	Elevation=788.00
	0"-14.4" Brown Clayey Topsoil
	114.4"-36" Brown Oxidized Sand Clay w/ Trace of Silt
	36"-72" Brown Oxidzed Clay w/ some Silt
	72"-96" Brown Oxidized Clay w/ some Silt
	96"-118.32" Brown Oxidized w/ some Silt
	118.32"-204" Gray Clay w/ some Silt
	204"-240" Gray Clay w/ some Silt
	Water Encountered = None

B-3	**B-4**

Soil Boring #B-3
Elevation=788.00
0"-24" Brown Clayey Topsoil
24"-72" Brown Oxidized Clay w/ Trace of Silt
72"-96" Brown Oxidzed Clay w/ Trace of Silt
96"-144" Brown Oxidized Clay w/ some Silt
144"-216" Gray Clay w/ some Silt
216"-240" Gray Clay w/ some Silt
Water Encountered = 216" at Completion = 228"
	Soil Boring #B-4
	Elevation=787.00
	0"-10" Clayey Topsoil
	10"-36" Clayey Brown Coarse to Fine Sand w/ Trace of Gravel
	36"-48" Brown Fine to Medium sand w/ Trace of Gravel
	48"-78" Brown Oxidized Clay w/ Trace of Silt
	78"-81" Wet Sand Seam
	81"-117" Brown Oxidized clay w/ some Silt
	117"-120" Gray Oxidized Clay w/ some Silt
	Water Encountered = 36" & 78" at Completion = 96"



TYPICAL ROAD SECTION
(NO SCALE)

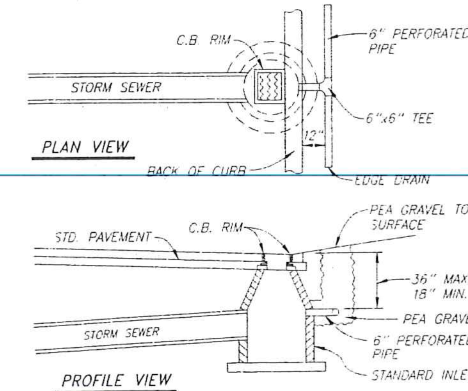


* TOTAL PAVEMENT THICKNESS SHALL MATCH EXISTING

9" ASPHALT PAVEMENT DETAIL (4-LIFTS)
REFER TO CITY SPECS.
(NO SCALE)

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE) for the location of underground utilities

Contractor Note:
The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.



NOTE: EDGE DRAIN WILL BE PLACED AT A ONE FOOT OFFSET FROM THE BACK OF CURB. THE PEA STONE BACKFILLED TRENCH WILL BE WRAPPED WITH GEOTEXTILE FABRIC. FOR EDGE DRAIN USED IN A PEA STONE TRENCH, A FILTER SOCK ON THE PIPE IS NOT REQUIRED.

EDGE DRAIN DETAIL
(NO SCALE)

NOTE
PROVIDE 6" EDGE DRAIN. SHALL BE CONSTRUCTED IN THE BACK OF CURB LINE FOR THE FULL LENGTH OF CURB. BACKFILLED WITH PEA GRAVEL. REFER TO DETAIL, THIS SHEET.

LEGEND

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- SOIL BORING LOCATION

NORTH

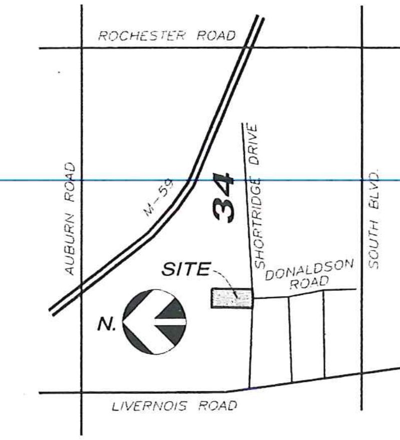
SCALE: 1"=30'

BENCHMARKS

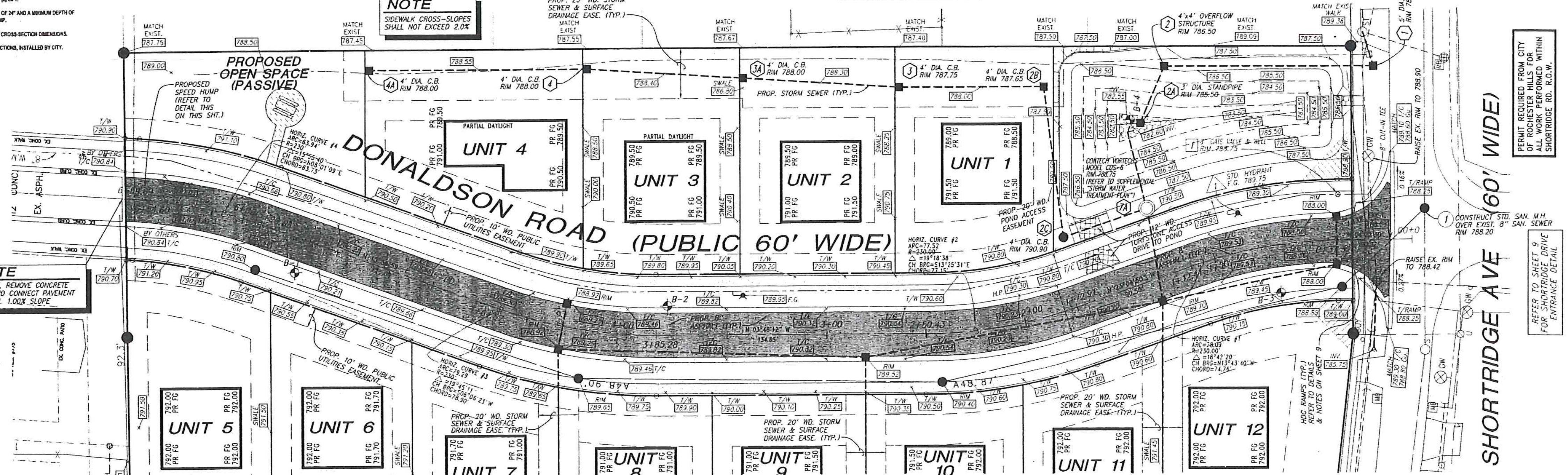
1. RR SPIKE IN N. FACE UTILITY POLE BETWEEN HOUSE #586 & 605 SHORTRIDGE. ELEVATION = 773.31 U.S.G.S.
2. PK IN N. FACE UTILITY POLE BETWEEN HOUSE #711 & 733 SHORTRIDGE. ELEVATION = 785.05 U.S.G.S.

(OLD CITY DATUM)

NOTE
TAP PERMIT WILL BE REQUIRED FROM O.C.D.C. FOR PROP. CONNECTION TO THE CRAKE DRAIN

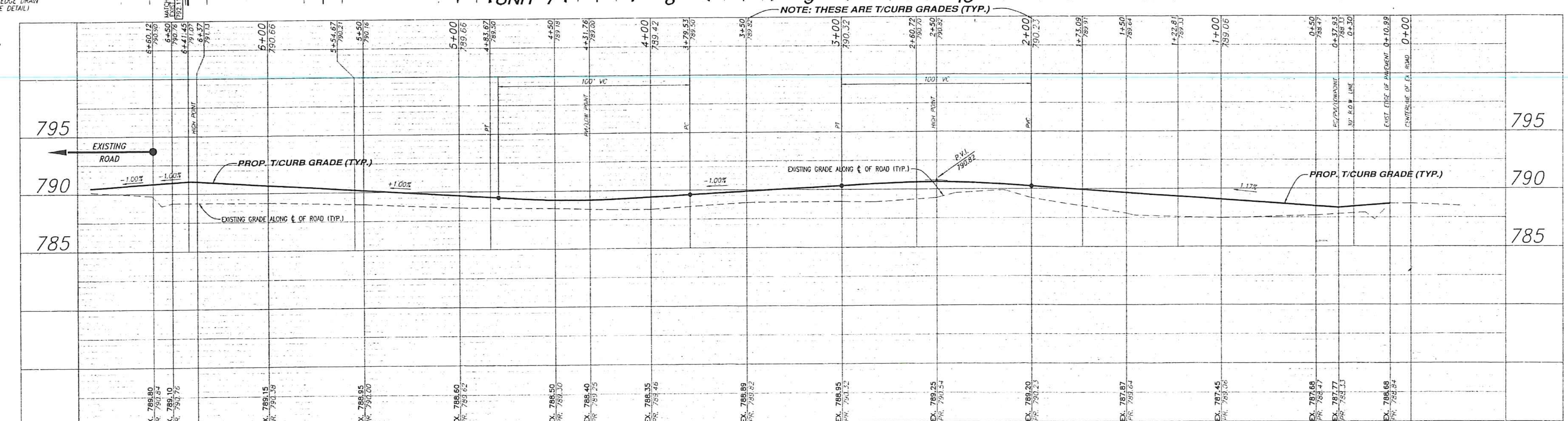


LOCATION MAP
SCALE: 4" = 1 MILE



NOTE
SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 2.0%

NOTE
SAW CUT, REMOVE CONCRETE CURB AND CONNECT PAVEMENT WITH MIN. 1.00% SLOPE



DONALDSON ROAD PROFILE
SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 5'

CITY FILE NO. 05-011.2, SECTION 34
PAVING PLAN - SHEET 6 OF 9

URBAN LAND CONSULTANTS ®
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
8800 23 MILE ROAD SHELBY TWP., MI 48316-4516
PHONE 586 731-8030
FAX 586 731-2605

PROPOSED
"THE COMMONS SOUTH"

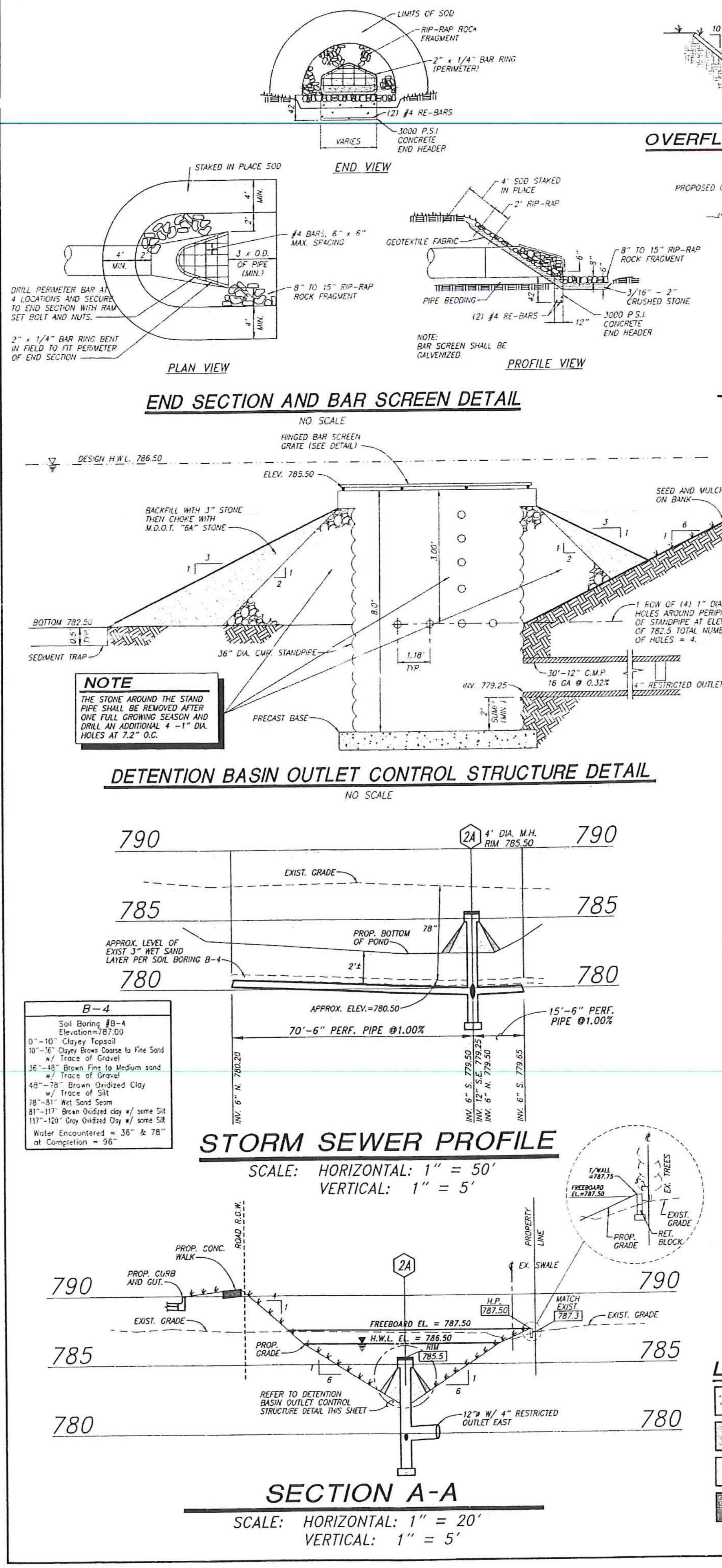
FOR: FRANK FLEURY
1171 HICKORY HILL
ROCHESTER HILLS, MI. 48309
(248) 650-3378

140403 Job No.
Date 12-07-05
Scale 1"=30'
Drawn C.Y.
Check R.A.W.
Sheet 6 OF 9
Fld. Bk.

DATE	ADDITIONS AND/OR REVISIONS	BY:
7-10-15	REVISED PER CITY REVIEW	KG
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/2014	KG
2-27-15	REVISED PER WRC	KG

PAVING PLAN

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.



END SECTION AND BAR SCREEN DETAIL

DETENTION BASIN OUTLET CONTROL STRUCTURE DETAIL

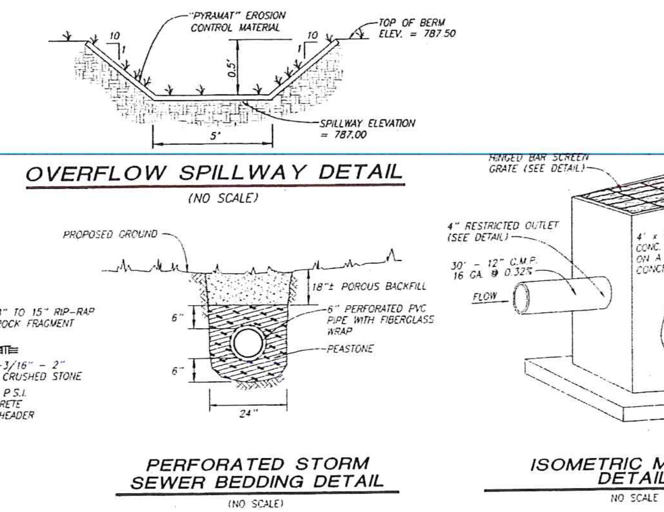
NO SCALE

STORM SEWER PROFILE

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

SECTION A-A

SCALE: HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'

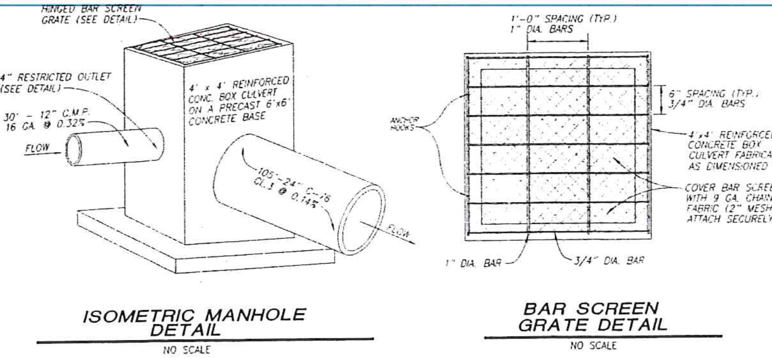


OVERFLOW SPILLWAY DETAIL

(NO SCALE)

PERFORATED STORM SEWER BEDDING DETAIL

(NO SCALE)

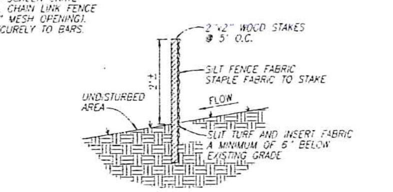


ISOMETRIC MANHOLE DETAIL

NO SCALE

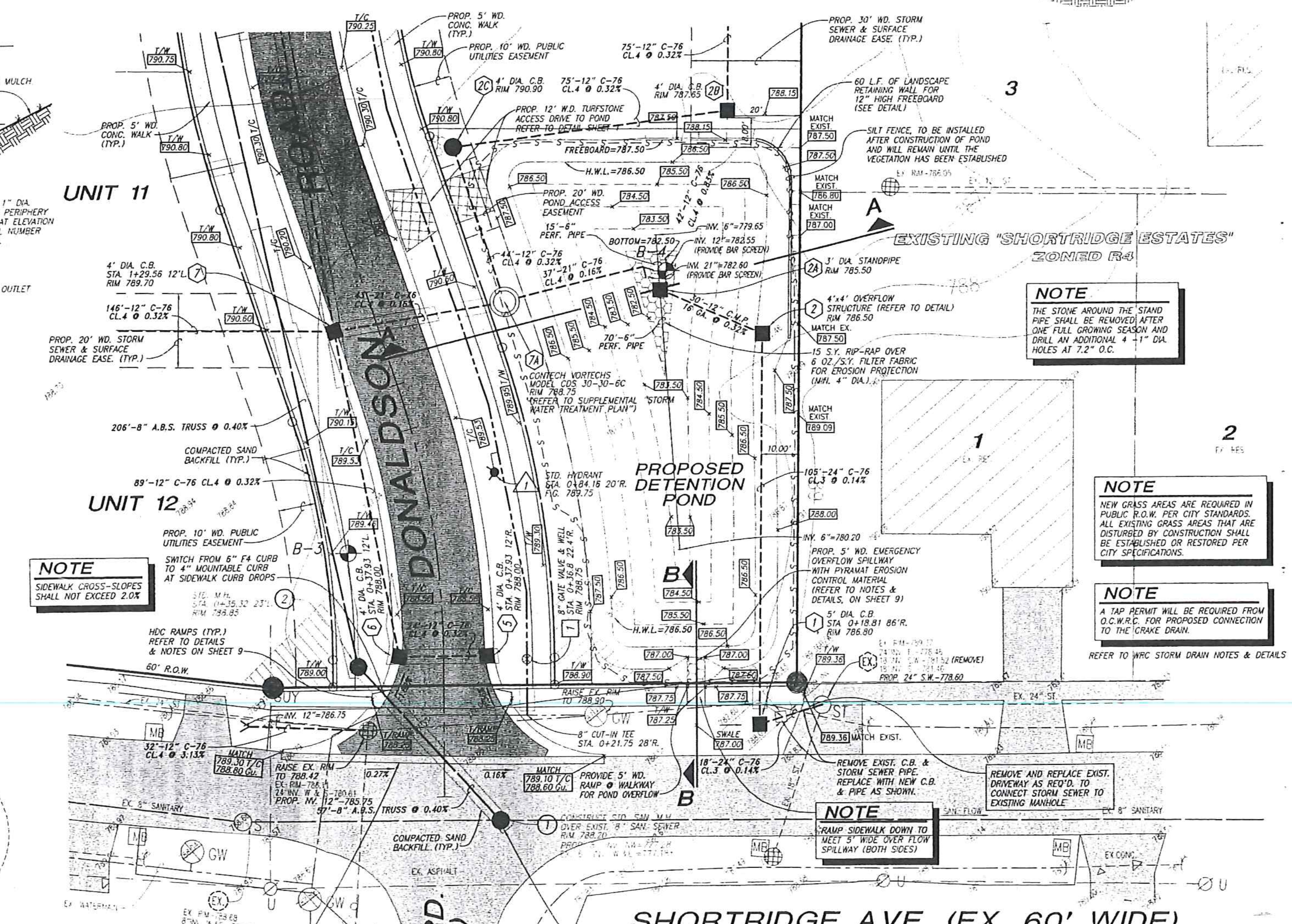
BAR SCREEN GRATE DETAIL

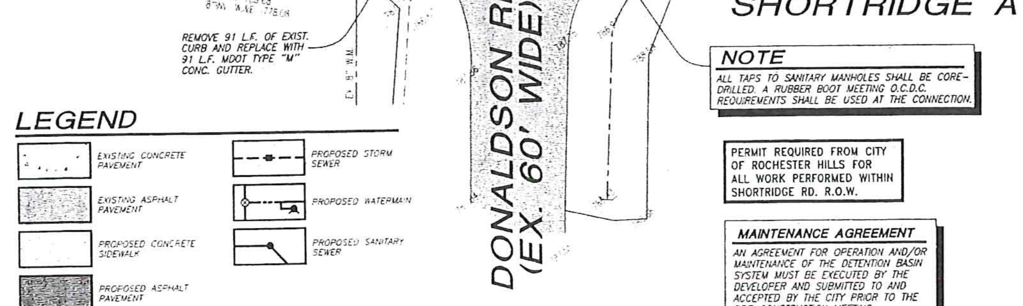
NO SCALE



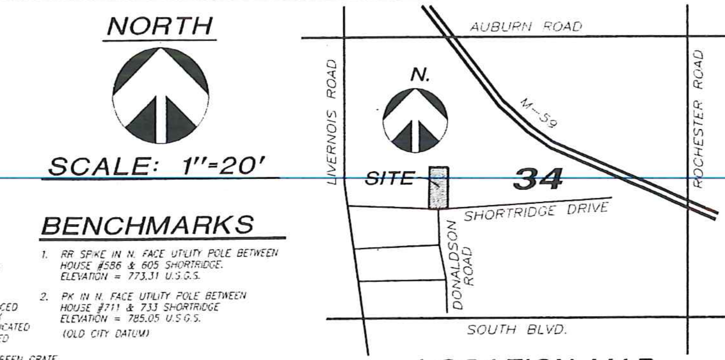
PROPERTY DESCRIPTION

Lots 10 and 11 "Supervisor's Plat No. 6 part of the S.W. 1/4 of Section 34, T.3N., R.11E., Avon Township (now known as the City of Rochester Hills), Oakland County, Michigan as recorded in Liber 5, Page 56 of the Oakland Records, excepting the South 5.00 feet for road purposes.





SHORTRIDGE AVE. (EX. 60' WIDE)



NORTH

SCALE: 1"=20'

LOCATION MAP

SCALE: 4" = 1 MILE

SEDIMENTATION POND DESIGN CALCULATIONS

REQUIRED VOLUME CALCULATIONS:

RESIDENTIAL AREA = 3.98 Ac. @ C = 0.35

V(REQ) = (3.98)(4,320)(0.35) = 6,018 CU.FT.

REQUIRED AREA FOR SEDIMENTATION:

$A_m = (V_{required}) / h_w$

h_w = 2.50' DEEP

= (6,018)/ 2.5 = 2,407 SQ.FT.

ORIFICE REQUIRED:

$$a = \frac{0.3988 \times A_m \times \sqrt{h_w}}{172,800}$$

$$a = \frac{0.3988 \times 2,407 \times \sqrt{2.50}}{172,800} = 0.00878 \text{ SQ.FT.}$$

AREA OF 1" HOLE = 0.00545 SQ.FT.
AREA OF HOLES = 4 • 0.00545 SQ.FT.
AREA OF HOLES = 0.0218 SQ.FT. > 0.00878 SQ.FT. ∴ OK

∴ USE 4 EACH 1" DIA. HOLES WITH A STANDPIPE RIM SET @ 785.50 AT THE DESIGN H.W.L. ELEV.

POND SIZING CALCULATION

(OAKLAND COUNTY DRAIN COMMISSION METHOD)

A) TRIBUTARY AREA: 3.98 ACRES AT PROPOSED C = 0.35

B) ALLOWABLE OUTFLOW = 0.2 CFS / ACRE = 0.796 CFS AT AGRICULTURAL RATE

C) 25 YEAR FREQUENCY STORM DETENTION REQUIRED

$$Q_o = \frac{(Ac.)\cdot(0.20\ CFS/Ac.)}{(Ac.)x(PROPOSED\ "C")} = \frac{0.20}{0.35} = 0.57$$

$$T = \sqrt{\frac{8,062.5}{Q_o}} - 25 = 93.9 \text{ MINUTES}$$

$$V_s = \frac{12,900T}{T + 25} - 40Q_oT$$

= 10,187.6 − 2,140.9 = 8,046.7 CU. FT. / ACRE•IMPERVIOUS

$V_{REQUIRED} = (A) \times (V_s) \times (C_{PROPOSED})$
= (3.98 Ac.)•(8,046.7)•(0.35)
= 11,209.5 CU. FT.

VOLUME PROVIDED:

$$V = \frac{1}{3}(A_T + A_B + \sqrt{A_T \times A_B}) \times (H) = 11,209.05 \text{ C.F.}$$

POND CONTOUR AREA	DEPTH	VOLUME
$A_{786.50}$ = 6,577.1 S.F.		
$A_{785.50}$ = 4,500.5 S.F.	h = 1.0'	V = 5,506.1 C.F.
$A_{784.50}$ = 2,698.4 S.F.	h = 1.0'	V = 3,561.2 C.F.
$A_{783.50}$ = 1,199.5 S.F.	h = 1.0'	V = 1,899.6 C.F.
$A_{782.50}$ = 223.7 S.F.	h = 1.0'	V = 647.1 C.F.
		V = 11,613.4 C.F.

TOTAL VOLUME PROVIDED = 11,613.4 C.F. > 11,209.05 C.F. ∴ O.K.

FREEBOARD = 787.50
HIGH WATER LEVEL = 786.50
OVERFLOW: TO SHORTRIDGE DRIVE EXISTING DITCH
OUTLET: RESTRICTED TO SHORTRIDGE DRIVE DRAIN

ALLOWABLE OUTFLOW

TRIBUTARY ACREAGE: A = 3.98 acre
ALLOWABLE OUTFLOW = 0.20 cfs/acre:
Q_A = (0.20 cfs/acre) x (3.98 acre) = 0.796 cfs

OUTLET RESTRICTION SIZE

Q_A = 0.62 x a x 2 x g x h = 0.796 cfs

h = 786.50 − 782.50 = 4.00'

$$a = \frac{0.796 \text{ cfs}}{0.62\sqrt{2 \times 32.2 \times 4.00}} = 0.0799 \text{ s.f.}$$

Dia. pipe = 0.3189 ft. = 3.83 in.

USE 4" P.V.C. SCHD. 40 AS MINIMUM DIAMETER PER ENGINEERING ORDINANCE

WEIR CALCULATION FOR EMERGENCY OVERFLOW SPILLWAY

WEIR EQUATION: $Q = 2/3 \times B \times \sqrt{2 \times G} \times H^{3/2}$

USING Q = 6.2 CFS & G = 32.2 FT/SEC^2

ASSUME WEIR WIDTH "B" = 5' & HEIGHT, "H" = 0.50'

$Q = 2/3 \times 5' \times \sqrt{2 \times 32.2} \times 0.50'^{3/2}$

= 9.5 CFS > 6.2 CFS ∴ O.K.
(USE WIDTH=5' & HEIGHT=0.50')

ITEM NO. 5.5 DETENTION POND

THE DEPTH OF THE PROPOSED DETENTION POND IS APPROXIMATELY 5 FEET BELOW EXISTING GROUND SURFACE. LOOSE CLAYEY SAND AND MEDIUM COMPACT SAND EXTENDING TO A DEPTH OF 4 FEET WERE ENCOUNTERED IN BORING NO. 4 LOCATED CLOSE TO THE CENTER OF THE NORTH HALF OF THE PROPOSED POND AND IT APPEARS THAT THE SAND DEPOSITS MAY COVER A RELATIVELY LARGE AREA. GROUND WATER WAS TRAPPED IN THE LOWER SAND LAYER OVERLYING FIRM CLAY WHERE THE PERMEABILITY IS RELATIVELY LOW.

THE UPPER LOOSE CLAYEY SAND LAYER, ABOUT 2 FEET THICK, IS NOT EXPECTED TO BE ABLE TO SUPPORT MAINTENANCE VEHICLES AND IT IS RECOMMENDED THAT THE CLAYEY SAND BE REMOVED AND PLACED BACK IN COMPACTED LIFTS IN THE PROCESS OF CONSTRUCTION OF THE POND. AS STATED ABOVE, THE CLAYEY SOIL BELOW THE GRANULAR DEPOSITS ARE NOT LIKELY TO PROVIDE GOOD DRAINAGE AND, FURTHERMORE, THE STATIC GROUND WATER TABLE MAY BE AT OR ABOVE THE BOTTOM OF THE POND.

THE SLOPES IN THE SAND AND CLAYEY SAND SHOULD NOT EXCEED 4H TO 1V TO REDUCE EROSION AND TO ALLOW FOR MAINTENANCE. SUITABLE VEGETATION SHOULD BE ESTABLISHED AS SOON AS POSSIBLE ON THE SIDE SLOPES OF THE POND. WE RECOMMEND A LAYER OF TOPSOIL BE PLACED OVER THE CLAYEY SAND SUBGRADE TO PROTECT THE SANDY SOILS FROM EROSION AND ALLOW FOR GROWTH OF VEGETATION. EROSION PROTECTION BLANKETS MAY ALSO BE USED TO PROVIDE TEMPORARY PROTECTION UNTIL THE VEGETATION BECOMES ESTABLISHED.

BY TESTING ENGINEERS AND CONSULTANTS, INC. DATED 5-15-06

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

CITY FILE NO. 05-011.2, SECTION 34
DETENTION POND DETAIL - SHEET 7 OF 9

DETENTION POND DETAIL

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

DATE	ADDITIONS AND/OR REVISIONS	BY:
7-10-15	REVISED PER CITY REVIEW	KG
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/2014	KG
2-27-15	REVISED PER WRC	KG

140403 Job No.
Date 12-07-05
Scale 1"=20'
Drawn CY
Check R.A.W.
Sheet 7 OF 9
Fld. Bk.

PROPOSED "THE COMMONS SOUTH"

FOR: FRANK FLEURY
1171 HICKORY HILL
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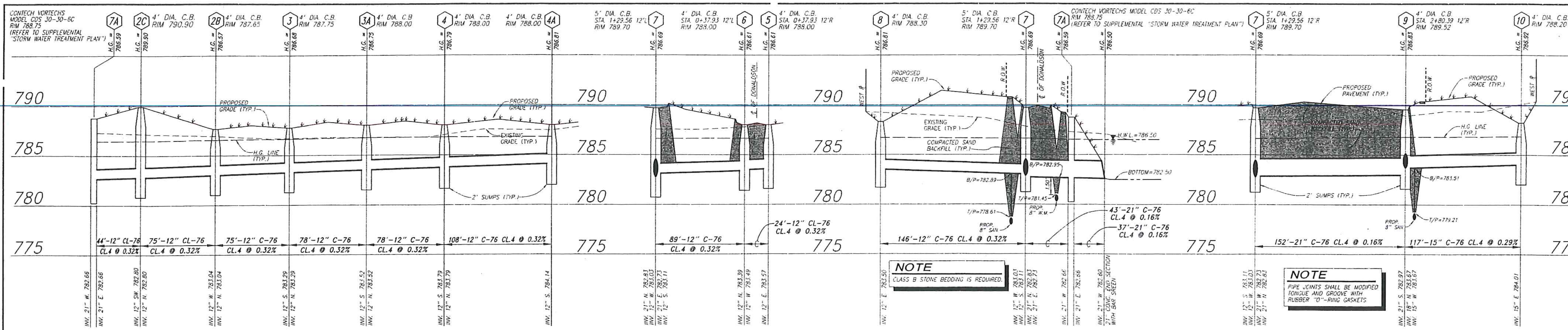


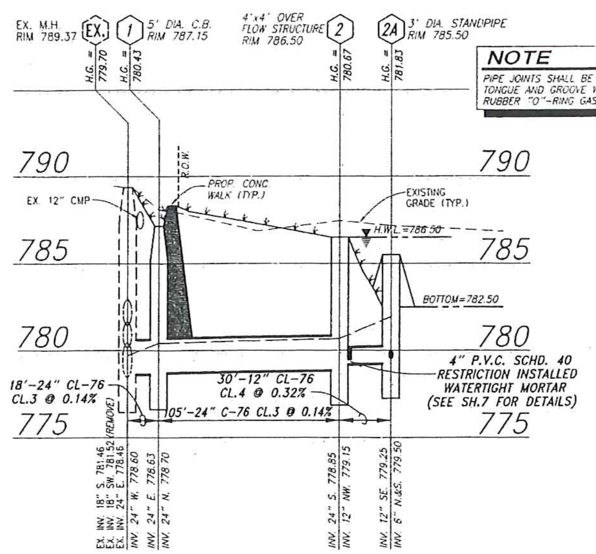
NOTE
CLASS B STONE BEDDING IS REQUIRED.

NOTE
PIPE JOINTS SHALL BE MODIFIED TONGUE AND GROOVE WITH RUBBER "O"-RING GASKETS

STORM SEWER PROFILE

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

NOTE
TAP PERMIT WILL BE REQUIRED FROM O.C.D.C. FOR PROP. CONNECTION TO THE CRAKE DRAIN.



NOTE
PIPE JOINTS SHALL BE MODIFIED TONGUE AND GROOVE WITH RUBBER "O"-RING GASKETS.

STORM SEWER PROFILE

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

DETERMINING RUNOFF COEFFICIENT "C" FOR THE SITE

1. TOTAL AREA OF SITE = 3.98 ACRES = 173,292.6 S.F.
2. % PAVED (STREETS, ROADS, SIDEWALKS, DRIVEWAYS) — C=0.90
   ROADWAY PAVEMENT = 17,050 S.F.
   SIDEWALK = 6,317 S.F.
   ROADWAY AREA/UNIT = 850 S.F./UNIT = 10,200 S.F.
   TOTAL = 33,567 S.F.

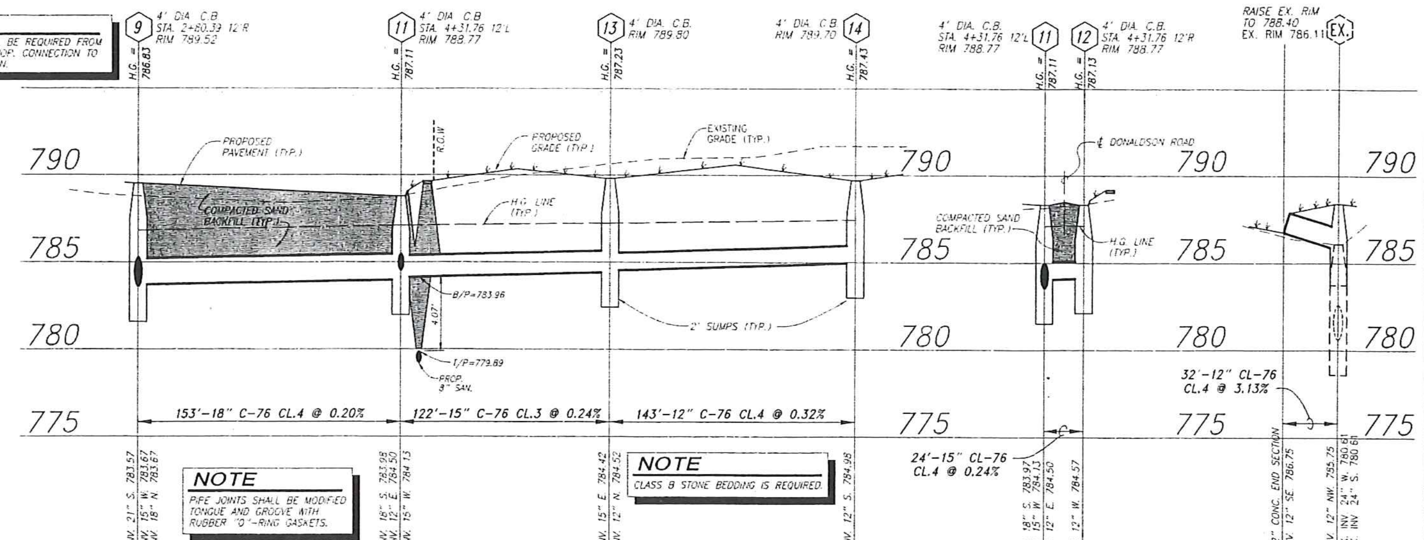
   $\frac{33,567\ S.F.}{173,292.6\ S.F.} = 0.194 = 19.4\%$

   $= 0.194 \times 0.90 = 0.17$
3. % BUILDING AREA (HOUSES, PATIOS, DECK, ETC.) — C=0.90
   $12 \times (40 \times 40) = 19,200$ S.F.

   $\frac{19,200\ S.F.}{173,292.6\ S.F.} = 0.111 = 11.1\%$

   $= 0.111 \times 0.90 = 0.10$
4. % GREEN AREA (GRASS) — C=0.20
   $100\% - 19.4\% - 11.1\% = 69.5\%$
   $0.695 \times 0.20 = 0.14$

RUNOFF COEFFICIENT = 0.17 + 0.10 + 0.14 = 0.41
$\therefore C = 0.41$



NOTE
PIPE JOINTS SHALL BE MODIFIED TONGUE AND GROOVE WITH RUBBER "O"-RING GASKETS.

NOTE
CLASS B STONE BEDDING IS REQUIRED.

NOTE:
CLASS 2 SAND BACKFILL COMPACTED TO AT LEAST 95% OF MAXIMUM UNIT WEIGHT IS REQUIRED BETWEEN UTILITIES.

STORM SEWER PROFILE

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

THE COMMONS SOUTH
STORM SEWER CALCULATIONS

Location: City of Rochester Hills, Section 34
Date: 05/27/15
Job: 140403

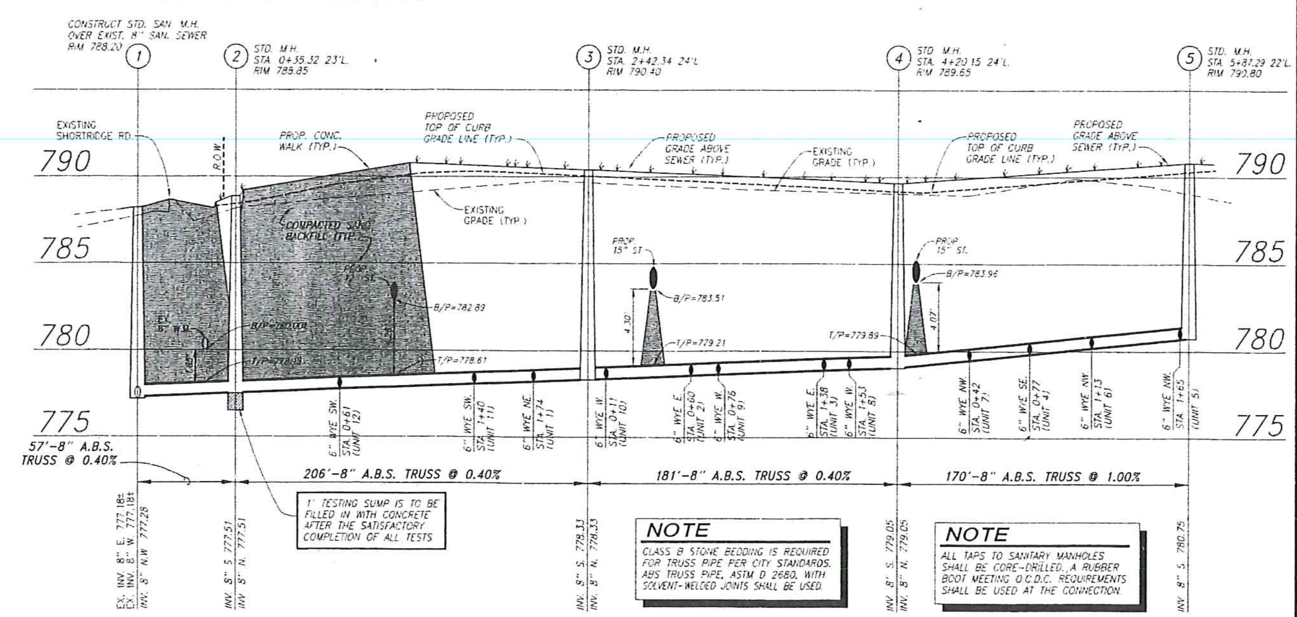
Type of Pipe = RCP
n= 0.013

Intensity = i = 175 / T + 15
t = 20 minutes minimum

C=0.41 PER CALCULATIONS FOR DETERMINING RUNOFF

Pipe From	Pipe To	Acres	C	C x A	Total C x A	Time(t) min.	i in./hr.	Q=CiA cfs	Pipe Dia(in)	Slope % Min. H.G.	Slope % Actual	Line Length(ft)	Velocity fps	Flow Time min.	Upper Rim	Upper H.G.	Lower Rim	Lower H.G.	Upper Invert	Lower Invert
14	13	0.64	0.41	0.26	0.26	20.00	5.00	1.31	12	0.14	0.32	143	2.57	0.93	789.70	787.43	789.80	787.23	784.98	784.52
13	11	0.32	0.41	0.13	0.39	20.93	4.87	1.92	15	0.09	0.24	122	2.58	0.79	789.80	787.23	788.77	787.13	784.42	784.13
						21.72														
12	11	0.40	0.41	0.16	0.16	20.00	5.00	0.82	12	0.05	0.24	23	2.22	0.17	788.77	787.13	788.77	787.11	784.57	784.50
11	9	0.96	0.41	0.39	0.95	21.72	4.77	4.53	18	0.19	0.20	153	2.66	0.96	788.77	787.11	789.52	786.83	783.97	783.67
						22.68														
10	9	0.87	0.41	0.36	0.36	20.00	5.00	1.78	15	0.08	0.29	117	2.83	0.69	788.20	786.92	789.52	786.83	784.01	783.67
9	7	0.13	0.41	0.05	1.36	22.68	4.64	6.32	21	0.16	0.16	152	2.63	0.96	789.52	786.83	789.70	786.59	782.97	782.83
						23.64														
5	6	0.15	0.41	0.06	0.06	20.00	5.00	0.31	12	0.01	0.32	24	2.57	0.16	788.00	786.61	788.00	786.61	783.57	783.49
6	7	0.12	0.41	0.05	0.11	20.16	4.98	0.55	12	0.02	0.32	89	2.57	0.58	788.00	786.61	789.70	786.59	783.39	783.11
						20.73														
8	7	0.50	0.41	0.21	0.21	20.00	5.00	1.03	12	0.08	0.32	146	2.57	0.95	788.30	786.81	789.70	786.69	783.50	783.03
7	7A	0.10	0.41	0.04	1.72	23.64	4.53	7.78	21	0.24	0.16	43	2.63	0.27	789.70	786.69	790.25	786.59	782.73	782.66
7A	POND	0.00	0.41	0.00	1.72	23.91	4.50	7.73	21	0.24	0.16	37	2.63	0.23	790.25	786.59	-	786.50	782.66	782.60
						24.14														
4A	4	0.23	0.41	0.09	0.09	20.00	5.00	0.47	12	0.02	0.32	108	2.57	0.70	788.00	786.81	788.00	786.79	784.00	783.65
4	3A	0.16	0.41	0.07	0.16	20.70	4.90	0.78	12	0.05	0.32	78	2.57	0.51	788.00	786.79	788.00	786.75	783.65	783.40
3A	3	0.15	0.41	0.06	0.22	21.21	4.83	1.07	12	0.09	0.32	78	2.57	0.51	788.00	786.75	787.75	786.68	783.40	783.15
3	2B	0.15	0.41	0.06	0.28	21.71	4.77	1.35	12	0.14	0.32	75	2.57	0.49	787.75	786.68	787.65	786.57	783.15	782.90
2B	POND	0.08	0.41	0.03	0.32	22.20	4.70	1.49	12	0.17	0.83	42	4.13	0.17	787.65	786.57	782.50	786.50	782.90	782.55
						22.37														
2A	2	0.26	0.41	0.11	2.14	24.14	4.47	9.57	12	7.21	0.32	30	2.57	0.19	782.50	782.63	786.50	780.47	779.25	779.15
2	1	0.00	0.41	0.00	2.42	24.34	4.45	10.78	24	0.23	0.14	105	2.69	0.65	786.50	780.47	787.15	780.23	778.85	778.70
1	EX. M.H.	0.00	0.41	0.00	2.42	24.99	4.38	10.60	24	0.22	0.14	18	2.69	0.11	787.15	780.23	789.37	779.70	778.63	778.60
						25.10														

K:\2014\04\140403\WP\CommonsSouth-newSTScalc



1' TESTING SUMP IS TO BE FILLED IN WITH CONCRETE AFTER THE SATISFACTORY COMPLETION OF ALL TESTS

NOTE
CLASS B STONE BEDDING IS REQUIRED FOR TRUSS PIPE PER CITY STANDARDS. ABS TRUSS PIPE, ASTM D 2680, WITH SOLVENT-WELDED JOINTS SHALL BE USED.

NOTE
ALL TAPS TO SANITARY MANHOLES SHALL BE CORE-DRILLED. A RUBBER BOOT MEETING O.C.D.C. REQUIREMENTS SHALL BE USED AT THE CONNECTION.

SANITARY SEWER PROFILE

SCALE: HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

CITY FILE NO. 05-011.2, SECTION 34
PROFILES, NOTES and DETAILS - SHEET 8 of 9

SHEET NO. 8 OF 9

PROFILES, NOTES and DETAILS

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

DATE	ADDITIONS AND/OR REVISIONS	BY
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/20143	KG
1-17-07	REVISED PER O.C.D.C.	KG
9-15-06	REVISED	APM
5-19-06	REVISED PER 1st. ENGINEERING REVIEW	CY
3-23-06	SUBMITTED FOR ENGINEERING REVIEW	CY

140403 Job No.
Date 12-07-05
Scale AS NOTED
Drawn C.Y.
Check R.A.W.
Sheet 8 OF 9
Fld. Bk.

PROPOSED
"THE COMMONS SOUTH"

FOR: FRANK FLEURY
1171 HICKORY HILL
ROCHESTER HILLS, MI. 48309
(248) 650-3378

PHONE 586 731-8030
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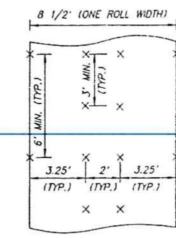


ANCHOR PATTERN GUIDE
(NO SCALE)

PROPERTY DESCRIPTION

Lots 10 and 11 "Supervisor's Plat No. 6 part of the S.W. 1/4 of Section 34, T.3N., R.11E., Avon Township (now known as the City of Rochester Hills), Oakland County, Michigan as recorded in Liber 5, Page 56 of the Oakland Records, excepting the South 5.00 feet for road purposes.

NORTH

SCALE: 1"=20'

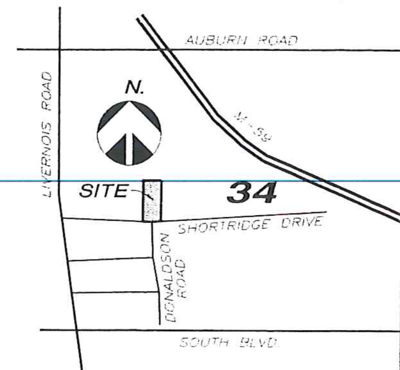
LEGEND

- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK
- PROPOSED ASPHALT PAVEMENT
- PROPOSED STORM SEWER
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER

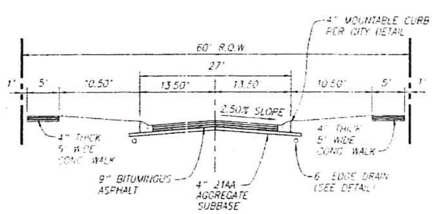
BENCHMARKS

1. RR SPIKE IN N. FACE UTILITY POLE BETWEEN HOUSE #586 & 605 SHORTRIDGE ELEVATION = 773.31 U.S.G.S
2. PK IN N. FACE UTILITY POLE BETWEEN HOUSE #711 & 733 SHORTRIDGE ELEVATION = 785.05 U.S.G.S

(OLD CITY DATUM)



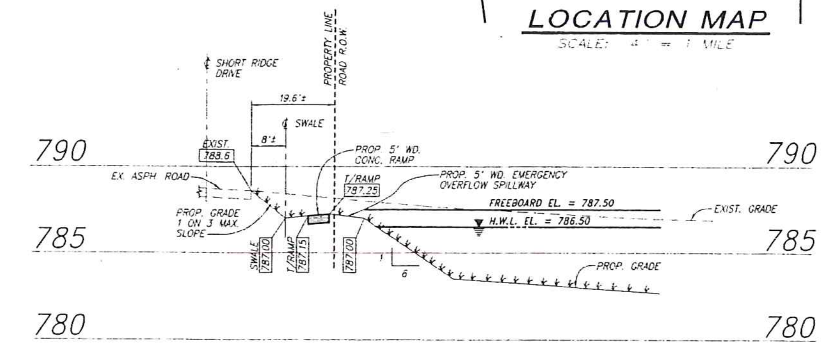
LOCATION MAP
SCALE: 4" = 1 MILE



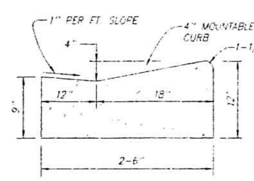
TYPICAL ROAD SECTION
(NO SCALE)

PYRAMAT INSTALLATION NOTES

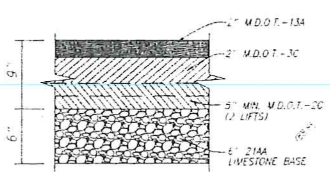
1. GRADE AND COMPACT AREA OF INSTALLATION.
2. INSTALL 2" MIN. TOPSOIL
3. REMOVE ANY ROCKS, CLODS, VEGETATION, OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED PYRAMAT WILL HAVE DIRECT CONTACT WITH THE SOIL SURFACE
4. UNROLL PYRAMAT DOWN SLOPE
5. LAY PYRAMAT LOOSE TO MAINTAIN DIRECT CONTACT WITH SOIL. (DO NOT PULL MAT TAUT, AS THIS MAY RESULT IN BRIDGING OF SOIL SURFACE.)
6. SECURE PYRAMAT TO GROUND SURFACE USING 6", 11 GAUGE U-SHAPED WIRE STAPLES. ANCHORS SHOULD BE DRIVEN FLUSH TO THE SOIL SURFACE. ANCHOR, COMPACT, AND BACKFILL UPSTREAM END OF MAT IN A 12" x 6" TRENCH. MAT SHALL BE ANCHORED ALONG BOTH SIDES OF SWALE BOTTOM EVERY 3' MIN. AND ALONG TOP OF SWALE BANKS EVERY 6' MIN. (SEE SECTION B-B AND ANCHOR PATTERN GUIDE, THIS SHEET)
7. SEED PYRAMAT AND ENTIRE DISTURBED AREA AFTER INSTALLATION, PRIOR TO FILLING MAT WITH ANY SOIL.
8. SPREAD AND LIGHTLY RAKE ±1/2" OF FINE TOPSOIL INTO THE PYRAMAT USING BACK OF RAKE OR OTHER FLAT TOOL TO ENSURE A SMOOTH, SOIL-FILLED SURFACE THAT JUST EXPOSES THE TOP OF THE MATRIX. DO NOT PLACE EXCESSIVE SOIL ABOVE THE MAT.
9. HYDROMULCH OR STRAW MULCH PROPERLY INSTALLED PYRAMAT TO PROVIDE TEMPORARY EROSION PROTECTION.
10. DO NOT RUN CONSTRUCTION EQUIPMENT OVER PYRAMAT.



SECTION B-B
SCALE: HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'



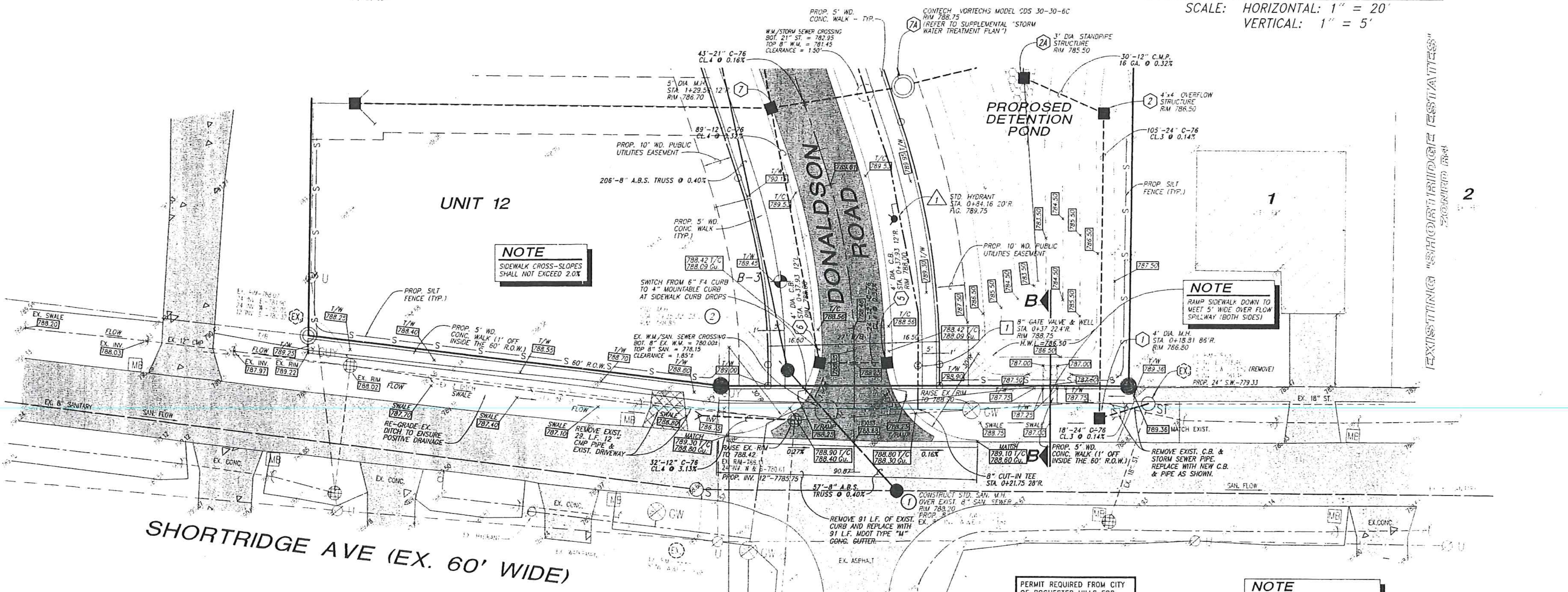
4" MOUNTABLE CONCRETE CURB DETAIL
(NO SCALE)



• TOTAL PAVEMENT THICKNESS SHALL MATCH EXISTING

9" ASPHALT PAVEMENT DETAIL (4-LIFTS)
REFER TO CITY SPECS.
(NO SCALE)

NOTE: ALTERNATE REVERSE GUTTER SECTION TO BE USED ONLY WHEN DRAINING AWAY FROM CURB. SEE GRADING PLAN



NOTE
SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 2.0%

NOTE
RAMP SIDEWALK DOWN TO MEET 5' WIDE OVER FLOW SPILLWAY (BOTH SIDES)

PERMIT REQUIRED FROM CITY OF ROCHESTER HILLS FOR ALL WORK PERFORMED WITHIN SHORTRIDGE RD. R.O.W.

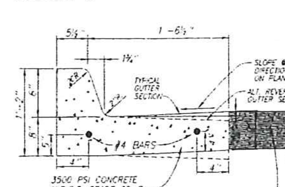
NOTE
ALL TAPS TO SANITARY MANHOLES SHALL BE CORE-DRILLED. A RUBBER BOOT MEETING O.C.D.C. REQUIREMENTS SHALL BE USED AT THE CONNECTION.

NOTE
A TAP PERMIT WILL BE REQUIRED FROM O.C.D.C. FOR PROPOSED CONNECTION TO THE CRAKE DRAIN.

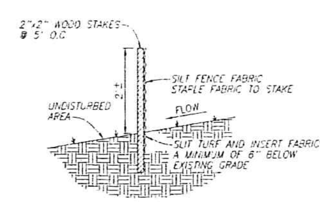
NOTE
NEW GRASS AREAS ARE REQUIRED IN PUBLIC R.O.W. PER CITY STANDARDS. ALL EXISTING GRASS AREAS THAT ARE DISTURBED BY CONSTRUCTION SHALL BE ESTABLISHED OR RESTORED PER CITY SPECIFICATIONS.

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE) for the location of underground utilities

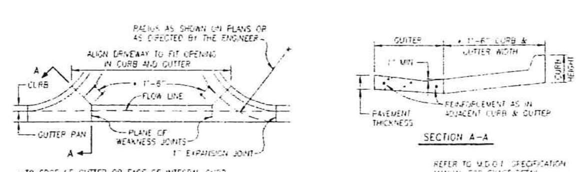
Contractor Note
The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities



M.D.O.T. R-30D, F4 CONCRETE CURB & GUTTER
(WITHIN SHORTRIDGE ROAD RIGHT-OF-WAY)
(NO SCALE)



SILT FENCE DETAIL
(NO SCALE)



CONCRETE DRIVEWAY OPENING - DETAIL "M"
(NO SCALE)

CITY FILE NO. 05-011.2, SECTION 34
SHORTRIDGE DRIVE ENTRANCE DETAIL - SHEET 9 OF 9

SHORTRIDGE DRIVE ENTRANCE DETAIL

PART OF THE S.W. 1/4 OF SECTION 34, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN.

SHEET NO 9 OF 9

DATE	ADDITIONS AND/OR REVISIONS	BY:
5-29-15	REVISED PER CITY REVIEW	KG
4-7-15	REVISED PER CITY REVIEW 10/2014	KG
4-11-08	REVISED PER CITY ENGINEER	DCK
1-17-07	REVISED PER O.C.D.C.	KG
10-20-06	REVISED PER CITY ENGINEER	MDA
9-15-06	REVISED	APM
5-19-06	REVISED PER 1st. ENGINEERING REVIEW	CY
3-23-06	SUBMITTED FOR ENGINEERING REVIEW	CY

140403 Job No.
Date 12-07-05
Scale 1"=20'
Drawn CY
Check R.A.W.
Sheet 9 OF 9
Fld. Bk.

PROPOSED
"THE COMMONS SOUTH"

FOR: FRANK FLEURY
1171 HICKORY HILL
ROCHESTER HILLS, MI. 48309
(248) 650-3378

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8800 23 MILE ROAD SHELBY TWP., MI 48316-4516